



## Department of Public Service

**Rory M. Christian**  
Chair and  
Chief Executive Officer

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March 22, 2024

Via E-mail and U.S. Mail

Honorable Tracey Edwards, Chairwoman  
Board of Trustees  
Long Island Power Authority  
333 Earle Ovington Blvd. Suite 403  
Uniondale, NY 11553  
[boardoftrustees@lipower.org](mailto:boardoftrustees@lipower.org)

Re: Matter 21-00618 - In the Matter of a Comprehensive and Regular  
Management and Operations Audit of Long Island Power Authority and  
PSEG Long Island LLC

Dear Chairwoman Edwards:

In accordance with Public Service Law (PSL) §3-b(3)(d) and Public Authority Law §1020-f(bb)(2), notice is hereby provided that the New York State Department of Public Service (the Department) has completed the Comprehensive and Regular Management and Operations Audit of Long Island Power Authority (LIPA or the Authority) and its Service Provider, PSEG Long Island LLC (PSEG LI).

PSL §3-b(3)(d) affords the Department the discretion to have the audit conducted by an independent contractor. After a competitive procurement process, the Department selected NorthStar Consulting Group, Inc., to perform the audit.

The Final Audit Report was provided to the Board of Trustees of the Authority upon its completion and is provided electronically for your convenience. It may be accessed via the Department's Document and Matter Management System (DMM)

under the Matter Number specified above. In addition, in accordance with PAL §1020-f(bb)(3), LIPA and PSEG LI are required to post the Final Audit Report on their websites.

Sincerely,

A handwritten signature in black ink, appearing to read "Rory Christian". The signature is fluid and cursive, with a prominent initial "R" and a long, sweeping underline.

Rory M. Christian  
Chief Executive Officer

CC: Thomas Falcone, LIPA Chief Executive Officer  
Bobbi O'Connor, LIPA General Counsel & Secretary to the Board of Trustees  
David C. Lyons, PSEG LI Interim President & Chief Operating Officer  
Andrea Elder-Howell, PSEG LI Vice President Legal Services  
Carrie Meek Gallagher, DPS LI Director  
Nicholas Forst, DPS LI Deputy Director  
Peter Hilerio, DPS LI Counsel

**COMPREHENSIVE MANAGEMENT AND  
OPERATIONS AUDIT OF LONG ISLAND  
POWER AUTHORITY AND PSEG LONG  
ISLAND, LLC**

**FINAL REPORT**

**MATTER NO. 21-00618**

Submitted to the:

New York Public Service Commission

Three Empire State Plaza  
Albany, NY 12223-1350

**MARCH 22, 2024**



**NORTHSTAR CONSULTING GROUP**

MANAGEMENT CONSULTANTS

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# I. EXECUTIVE SUMMARY

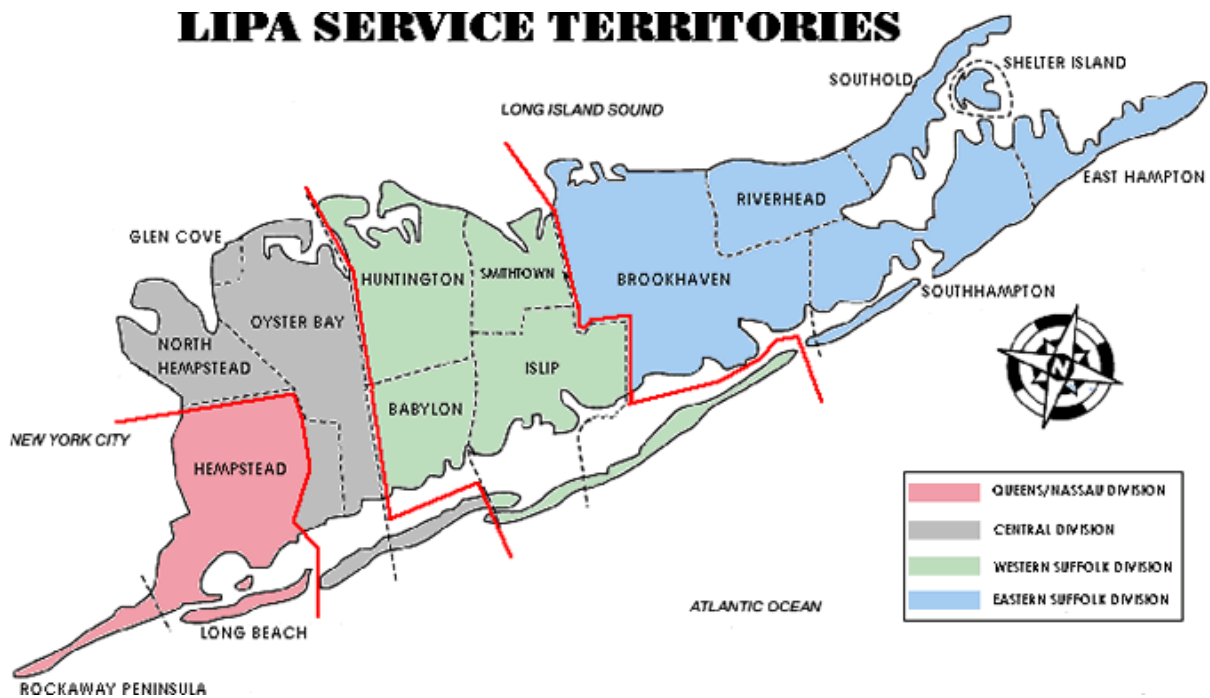
NorthStar Consulting Group, Inc. (NorthStar) was retained by the New York State (NYS) Department of Public Service (DPS or Department) to conduct a management and operations audit of the Long Island Power Authority (LIPA or Authority) and PSEG Long Island, LLC (PSEG LI).<sup>1</sup> This chapter of our report provides an executive summary of our findings and recommendations.

The scope of the audit and LIPA’s organization and operations make it especially challenging to adequately summarize the audit findings. Accordingly, this chapter focuses on a discussion of several broad findings that cross over many functional areas and are of critical importance for LIPA and its customers.

## A. BACKGROUND ON LIPA

LIPA provides electric delivery service to approximately 1.2 million customers in Nassau and Suffolk Counties (with certain limited exceptions) and a portion of Queens County known as the Rockaways (Service Area). The population of the Service Area is approximately 2.9 million. **Exhibit I-1** provides an overview of the service territory.

Exhibit I-1



<sup>1</sup> Matter 21-00618, In the Matter of a Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island LLC.

During 2022, approximately 53 percent of the Authority’s annual retail revenues were received from residential customers, 44 percent from commercial customers, and three percent from street lighting, public authorities, and other revenue sources. The largest customer, the Long Island Railroad (LIRR), accounted for less than two percent of total sales and less than two percent of revenues in the Service Area. In addition, the ten largest customers in the service area accounted for approximately seven percent of total sales and six percent of revenues. Electric revenue for 2022 totaled \$4.279 billion, an increase of \$348 million compared to 2021 due to higher power supply costs, as shown in **Exhibit I-2**.

**Exhibit I-2**  
**LIPA Annual Revenues**  
**(Millions)**

Revenues from Sales of Electricity	2022	2021	2020
Residential	\$2,284	\$2,154	\$2,108
Commercial	\$1,882	\$1,700	\$1,715
Street lighting, public authorities and other	\$114	\$77	\$77
<b>Total</b>	<b>\$4,279</b>	<b>\$3,931</b>	<b>\$3,901</b>

Source: <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

Operating expenses for 2022 totaled \$4.289 billion, an increase of \$300 million compared to 2021, primarily due to higher power supply costs of \$360 million. For the year ended December 31, 2022:

- Approximately 50 percent of the Authority’s expenses were associated with the cost to provide power supply, including: (i) commodity costs; (ii) purchased power costs, (iii) capacity costs, and (iv) other costs, including the Authority’s share of operating costs associated with the Nine Mile Point Unit 2 (NMP2) nuclear generating station.
- Operations and maintenance (O&M) expenses associated with the transmission & distribution (T&D) system accounted for 18 percent of the total expenses in 2022.
- Payments made in lieu of taxes (PILOTs), taxes paid pursuant to the contract on the A&R PSA generating units, and other taxes and assessments were 13 percent of expenses.
- Interest expenses were eight percent of expenses.
- Depreciation and amortization expenses were ten percent.<sup>2</sup>

<sup>2</sup> <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

## B. LIPA HISTORY

### The LIPA Act

The Authority is a corporate municipal instrumentality of the State of New York (State, NY or NYS). The Authority was established by Chapter 517 of the Laws of 1986 (the LIPA Act) to control electricity costs within the service territory of the Long Island Lighting Company (LILCO).<sup>3</sup> In 1989, LILCO entered into an agreement to sell the Shoreham Nuclear Power Plant to LIPA. As part of the agreement, Long Island ratepayers would bear the cost of Shoreham over time.

The LIPA Act requires that any bond resolution of the Authority contain a covenant that it will at all times maintain rates, fees, or charges sufficient to pay the costs of: operation and maintenance of facilities owned or operated by the Authority; PILOTS; renewals, replacements, and capital additions; and the principal of, and interest on, any obligations issued pursuant to such resolution as the same become due and payable. The LIPA Act is key to LIPA's tax-free status as a public authority while not triggering debt covenants. In addition, the Authority must establish or maintain reserves or other funds or accounts required or established by or pursuant to the terms of such resolution. The Authority's Board of Trustees (Board or BOT) is empowered under its enabling statute to set rates for electric service in the Service Area. However, the Authority and the Service Provider shall submit for review to the DPS any rate proposal that would increase the rates and charges and thus increase the aggregate revenues of the authority by more than two and one-half percent to be measured on an annual basis.<sup>4</sup>

On May 28, 1998, LIPA acquired LILCO's electric T&D system, as well as certain other assets and became the primary supplier of electricity on Long Island.<sup>5</sup> That same year, LILCO's remaining assets, including its electrical generating facilities, were merged with Brooklyn Union Gas, creating a new publicly-traded utility corporation called KeySpan Corporation (also known as KeySpan Energy or KeySpan). In October 2007, National Grid LLC (National Grid) purchased KeySpan and legally assumed responsibility for KeySpan's contracts with LIPA.<sup>6</sup>

In 2009, LIPA issued a Request for Information (RFI) to evaluate the market for a new service provider and issued a formal Request for Proposal (RFP) on June 3, 2010. On December 15, 2011, LIPA's BOT approved Public Service Enterprise Group, Incorporated (PSEG) and its subcontractor Lockheed Martin (LM) as LIPA's new service provider. The terms of the agreement were established in the Operations Services Agreement (OSA), signed December 28, 2011, for the operations and maintenance of LIPA's system effective January 1, 2014, for a period of ten years. PSEG Long Island LLC (PSEG LI), a wholly owned subsidiary

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<sup>3</sup> Office of the State Comptroller, "Public Authorities by the Numbers: Long Island Power Authority", October 2012 ([https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf))

<sup>4</sup> <https://legislation.nystate.gov/ppdf/bills/2013/S5844> PSL 3-b(3)(a)(iv) and PAL 1020-f(u)

<sup>5</sup> <https://www.lipower.org/about-us/> and [https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf)

<sup>6</sup> [https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf)

of Public Service Enterprise Group PSEG, is the Authority's service provider – fully dedicated to the Authority's Long Island operations.

As the result of the LIPA Reform Act in 2013, the terms of the existing OSA were modified. PSEG LI provided service under an Amended and Restated OSA (A&R OSA) for the operation, maintenance and related services of the T&D system.<sup>7</sup> PSEG LI was paid a management fee and earned incentives related to specified performance metrics. Essentially all costs of operating and maintaining LIPA's T&D system incurred by PSEG LI are passed through to, and paid for, by LIPA.

The PSEG LI management company consists of approximately 19 employees at the director level and higher. The PSEG LI service company consists of approximately 2,500 employees, which includes a substantial majority of incumbents from the National Grid workforce, as well as new hires at the manager level and lower.<sup>8</sup>

On August 4, 2020, Tropical Storm Isaias struck Long Island. PSEG LI's outage management system failed and nearly 400,000 customers were without electric service for a week. Roughly half of all LIPA customers were without power during the storm. LIPA filed a \$70 million dollar lawsuit against PSEG LI for poor restoration performance. On December 15, 2021, LIPA and PSEG LI settled with the execution of a new OSA – the Second Amended and Restated Operations Services Agreement (Second A&R OSA).<sup>9</sup>

LIPA also has a contract with PSEG Energy Resources and Trade LLC (PSEG ER&T) to provide services related to fuel and power supply management and certain commodity activities. Separately from its contract with PSEG ER&T, LIPA maintains power purchase agreements with third party power generators.

## C. OVERVIEW OF AUDIT FINDINGS AND CONCLUSIONS

The Long Island Power Authority Oversight And Accountability Act (the LIPA Act), signed into law on February 1, 2012, requires LIPA to undergo periodic audits of internal policies and procedures to improve transparency and efficiency of its management and operations. This management and operations audit is the third audit authorized by the Act. The audit's primary objective is to identify areas of strength and weakness and make recommendations for improvement.

Throughout this management and operations audit, several themes emerged from our analysis that span multiple functional areas and represent overarching issues that require considerable focused attention moving forward. It is also fair to say that these challenges have

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<sup>7</sup> Amended & Restated OSA 2013 dated December 31, 2013.

<sup>8</sup> DR 3 Attachment 2 and Fact Verification.

<sup>9</sup> SECOND AMENDED and RESTATED OPERATIONS SERVICES AGREEMENT between LONG ISLAND LIGHTING COMPANY d/b/a LIPA and PSEG LONG ISLAND LLC Dated as of December 15, 2021, <https://www.wshu.org/long-island-news/2021-11-10/after-isaias-failures-lipa-renews-a-contract-with-pseg-long-island>

been present for some time, as the result of the LIPA business model and operating a large public utility via a contracted service provider.

## **1. LIPA, operates without a traditional utility command and control structure.**

LIPA is unlike any typical utility. Presently, its unique organizational structure is a product of State Law, and it has had to operate its utility business, providing electric power to Long Island ratepayers, within the confines and constraints of its enabling statute. Core functions that are normally central to a utility, such as operations, maintenance, and construction work, are executed by PSEG LI under the Second A&R OSA and LIPA has minimal direct involvement in the day-to-day operating activities.

A traditional utility functions with an organizational hierarchy where decisions made at the top of the structure are communicated down the chain of command and implemented in a direct line. Communication and discussion occur across the organization and up and down the hierarchy continuously so that decisions based on analysis, current information, and experience are all focused on the mission and future of the enterprise. In contrast, LIPA exists as a nucleus, separated from the realities of daily operations, information, and experience by a commercial contract barrier. To be clear:

- LIPA operates as a function of the Act – as a contract administrator.
- PSEG LI operates as a function of its contract – the Second A&R OSA – until its termination date December 31, 2025. The implications of contract terms and conditions along with term limits cannot be overlooked, impacting the future of the workforce, training and advancement, and long-term commitment to improvements.

Fundamentally it is not possible to outsource leadership for an enterprise. For a utility operating within this business model, the need for strong management skills and a deep understanding of the nuances of utility operations is critical. LIPA must possess the management skills to identify trends in performance with limited information, must know what information to seek and then evaluate that information, and must be able to relay guidance and expectations across the contract barrier to affect change in the contractor’s employees. A fully-contracted utility must be expert in establishing and communicating expectations and effectively intervening when necessary, so expectations can become a reality.

- LIPA faces challenges in the areas of rates and customer service. When LIPA acquired LILCO’s electric distribution assets, the Authority also was given the responsibility for approximately \$6 billion in debt related to LILCO’s investments in electric generation, transmission and distribution assets, and the decommissioned and non-operable Shoreham nuclear plant. In the years since, LIPA has serviced the old debt and issued new debt associated with T&D investments and maintenance projects, and the procurement and contracting for new generating capacity to meet the needs of its customers throughout the service territory.
- Historically, LIPA suffers from poor customer satisfaction. Previously at the bottom of the annual JD Power survey, PSEG LI ranked in the fourth quartile in both residential and business customer satisfaction for 2022 as measured by the JD Power and



Associates Annual Electric Utility Customer Satisfaction Studies for the “East Region, Large Segment”.<sup>10</sup> “Customer Service is facing significant challenges, with only 36% of the quantitative metrics on target and many of the eight qualitative metrics struggling to deliver expected results.”<sup>11</sup> Poor customer perception is the result of many factors, forces and issues which have occurred over time, some arguably even pre-dating LIPA. The response of LIPA/PSEG LI to Tropical Storm Isaias along with many prior storms compounded prior issues and the public’s assessment of the Authority.

- LIPA is organized and operated from the BOT down largely as a contract administrator, without direct control over the safe, reliable, reasonably priced electric service to the residents of Long Island.
- LIPA and PSEG LI’s ERM teams use a bottom-up risk assessment process to identify and rank risks across all departments. While the process largely identifies and assesses risks that could affect the ability of LIPA and PSEG LI to achieve their mission, there are gaps as well as instances of overlapping risks, narrow or overly broad defined risks, and risks that do not rise to an enterprise level.
- LIPA and PSEG LI do not have separate planning processes and only one strategic plan is intended to address LIPA’s mission, vision, purpose, and the long-term goals of the State of New York. Since the prior management audit, LIPA relinquished the role of strategic planning by assigning the function to PSEG LI and then LIPA retained a consultant to develop the strategic plan. Not surprisingly, gaps remain in the strategic work product.
- Capital expenditures, operating and maintenance expenses are pass-through. LIPA’s and PSEG LI’s spending (both capital and O&M) do not receive sufficient consideration of value received for the investment. This manifests itself within LIPA in two ways: a focus on ensuring that budgeted capital dollars are spent and a bias against increasing costs over current budgeted levels.
  - LIPA and PSEG LI do not investigate project cost overruns to identify or correct problems that might arise on another project. Cost overruns are met by PSEG LI deferring another project.
  - There is limited interest in determining if a project cost estimate is reasonable or not. In fact, the LIPA BOT approves the total capital budget with minimal information on the projects included.
  - Control issues have been observed in many areas, reported for years by multiple entities, and noted in greater detail in report chapters.

**2. LIPA’s business model may change dramatically. Recently, the Legislative Commission of the Future of LIPA was established by the New York State Legislature in 2022. On November 21, 2023, a final report and proposed legislation was approved**

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<sup>10</sup> PSEG Long Island OSA Performance Metrics, December 2022 (provided by DPS LI).

<sup>11</sup> Briefing on Quarterly Report on PSEG Long Island 2023 Performance Metrics and Board Recommendations, June 28, 2023.



by the commission to make LIPA a fully public utility.<sup>12</sup> If accepted by the state Assembly, Senate and Governor, it would remove PSEG LI, and LIPA would operate Long Island’s electric grid.

**3. LIPA has made significant improvements related to financial reporting and O&M budgeting since the last management audit. However, LIPA’s financial presentations do not concisely reference the financial data points for stakeholders to recalculate the debt-to-asset ratio. Providing the information will allow stakeholders to evaluate if LIPA’s long-term affordability is consistent with LIPA’s Financial Policy objectives.**

- LIPA implemented Microsoft Dynamics as their accounting and financial reporting system. This is a significant improvement over the past system. The introduction of the Budget Briefing Books has provided more structure and accountability to the O&M budgeting process.
- The capital budgeting and project prioritization process has substantial variability and requires continued improvement. This is due to imprecise estimating, overhead assessments, and significant risk and contingency included in the budgeting process. Also, the budgeting process lacks the ability to demonstrate that overhead assessments are properly allocated based on valid cost causation principles. This impacts customer rates and debt balances.
- Some of the fundamental considerations to determine the future of LIPA will include the amount of debt as compared to assets, future capital needs, and an evaluation of overhead costs under different structures. For each of these areas there are potential obstacles for stakeholder consideration:
  - The debt-to-asset ratio currently excludes certain obligations from the debt balance of the equations, and includes certain grant funded assets in the numerator of the equation. Therefore, the actual equity available for potential changes in LIPA’s structure is different than currently reflected in the debt-to-asset ratio.
  - The capital budgeting process has large variances between budgets to actual. This may lead to a lack of clarity around future funding requirements when evaluating the future of LIPA.
  - The overhead process will likely change depending on different scenarios considered for the future of LIPA. The current overhead allocation process is complex and lacks oversight. Therefore, it will be difficult to compare how indirect costs may impact customer rates under different potential future LIPA structures.

**4. As the entity ultimately responsible for electric service on Long Island, LIPA has to keep its contractors accountable for results – all the time. The service provider contract must drive performance, allowing LIPA to exercise its responsibilities as system owner and intervene as necessary to improve performance.**

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<sup>12</sup> [State commission recommends LIPA becomes a fully public utility - Featured - The Island 360](#)

- LIPA and PSEG Long Island negotiated the performance metric package for 2022 as part of the reformed contract.<sup>13</sup> PSEG LI fully met 69 percent of the performance metrics last year. Ranked from highest to lowest, performance by business scope was Transmission and Distribution (85 percent), Business Services (71 percent), Power Supply & Clean Energy (67 percent), Customer Service (47 percent), and Information Technology (29 percent). These results point to areas in need of future focus.
- Current indications suggest that performance trends for 2023 are largely consistent with 2022.<sup>14</sup> There has been improvement in some areas, but deterioration in others. Project management continues to be a significant issue, especially in IT-related projects. Issues include weak planning and risk management, schedule overruns, and lack of alignment with objectives. PSEG LI needs much more sophisticated capital project management in all areas, better control and oversight of vendors, better cost management, and better quality control. Improving PSEG Long Island’s organizational project management capabilities will continue to be a focus for LIPA. Customer Service is struggling with performance this year, with only 36 percent of the quantitative metrics on target, and challenges with delivering the expected results for many of the eight qualitative metrics.
- For 2024, LIPA proposed 61 performance standards, which have been independently reviewed and recommended to the LIPA Board by DPS.<sup>15</sup> The metrics are distributed across all the management services provided to LIPA and its customers.<sup>16</sup> Metrics are designed to be achievable levels of performance that are objectively verifiable, with budgeted funds to achieve this performance. \$20 million (2022-inflation adjusted dollars) of Variable Compensation is at-risk based on these 2024 Performance Metrics.
- Clearly, a strong, well-considered contract is essential to maintaining contractor accountability. However, it is not possible to craft the perfect contract, the perfect incentive structure, or the perfect performance metric. When addressing a dynamic utility operation and one where significant improvement is needed, it is essential to ensure that the contract provides for flexibility in establishing areas for performance monitoring, identifying areas where improvement is needed and setting expectations for that improvement.
- The Second A&R OSA provides some of the necessary flexibility and at-risk PSEG LI fees compensation. However, contractor control and performance cannot be fully relegated to metrics, premiums, or penalties. It requires continuous guidance, diligent oversight, and meaningful intervention to ensure that things are done “right” and customer expectations are met.

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<sup>13</sup> Leading the Way – 2024 Proposed Budget, [2024-Budget-and-Metrics-combined.pdf \(lipower.org\)](#)

<sup>14</sup> Briefing on Quarterly Report on PSEG Long Island 2023 Performance Metrics and Board Recommendations, June 28, 2023.

<sup>15</sup> 2024 Proposed Budget, November 15, 2023. [1115-2024-Budget-Presentation-1.pdf \(lipower.org\)](#)

<sup>16</sup> In its December 13, 2023 Board meeting, the LIPA Board agenda included Consideration of Approval of LIPA’s 2024 Budget and Performance Metrics and Amendment to the 2023 Budget.

- LIPA has a poor track record of heavily relying on performance metrics to achieve enterprise goals and objectives with the Servco Provider – currently PSEG LI, and previously with National Grid. As LIPA stated, it’s the main tool that we have. Some of the challenges have been the result of the service agreements, which offer only limited contractual or financial leverage for LIPA to change performance. At-risk compensation is not significant enough to change behavior and there is no incentive to improve efficiencies beyond established targets particularly at the operational decision-making level.
- Reliance on adherence to Board policies, LIPA internal audits, PSEG LI internal audits and third-party contracted audits have shown limited results in the form of sustainable operational improvements. This audit report cites all too numerous examples.

**5. LIPA’s and PSEG LI’s poor planning and execution of IT programs such as System Separation, Enterprise Asset Management System (EAMS), Customer Information System (CIS) Modernization, and the Outage Management System (OMS), demonstrate critical risk areas and lack of management performance.**

- EAMS and CIS Modernization implementation programs are both delayed. EAMS is delayed until 2027, well beyond the Second A&R OSA termination on December 31, 2025.
- LIPA and PSEG LI cannot agree on the estimated cost of separating systems from PSEG NJ. Multiple delays have moved the system separation program schedule from an in-service date in 2024 to late 2025.
- Prior to completing the management audit, PSEG LI did not design OMS testing to simulate realistic emergency conditions, stress the OMS to understand its limitations, or evaluate the impact to upstream and downstream systems. The criteria set to “pass” was based on not observing issues.

**6. Functional areas where LIPA is performing well should be preserved and supported. For example, PSEG LI has consistently provided reliable electric service to Long Island during blue-sky and minor storm days for the past five years.**

With so much that must be improved, it is equally important to highlight and preserve the performance of functions that are performing well. LIPA’s system reliability is one of these areas:

- **Exhibit I-3** shows the five-year average of the NY investor-owned utilities for the three main indices, SAIFI, SAIDI, and CAIDI.
  - System Average Interruption Frequency Index (SAIFI) – measures the average number of interruptions per customer annually. The lower the ratio of interruptions to number of customers, the higher the reliability.
  - System Average Interruption Duration Index (SAIDI) –measures the average length of time from service interruption to service restoration per customer annually.

- Customer Average Interruption Duration Index (CAIDI) – measures the average length of time from service interruption to service restoration for a customer experiencing an outage. Lower CAIDI indicates fewer minutes/hours of interruption per customer.
- LIPA performed at the top or near the top on all three indices. **Exhibit I-4** shows 2022 performance relative to the other NY utilities.

**Exhibit I-3**  
**5-Year NY Electric System Average Reliability**

Utility	SAIFI (Interruptions/Year)	SAIDI (Minutes /Year)	CAIDI (Hours/Customer)
Consolidated Edison (Underground Network)	0.03	10	5.5
Consolidated Edison (Overhead Radial)	0.47	59	2.1
National Grid	1.04	125	2.0
New York State Electric and Gas	1.36	163	2.0
Rochester Gas and Electric	0.86	93	1.8
Central Hudson Gas and Electric	1.34	185	2.3
Orange and Rockland	1.05	107	1.7
Long Island Power Authority	0.74	58	1.3
<b>Statewide (w/o Consolidated Edison)</b>	<b>1.07</b>	<b>122</b>	<b>1.9</b>

Source: NY DPS 2022 Electric Reliability Performance Report

**Exhibit I-4**  
**2022 Electric System Reliability Performance**

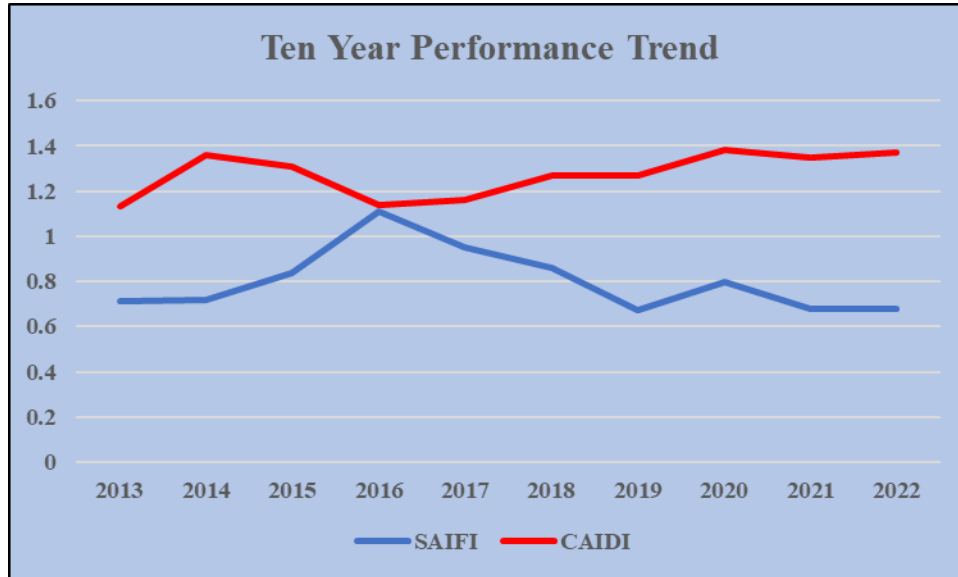
Utility	SAIFI (Interruptions/Year)		CAIDI (Hours/Customer)	
	Actual	DPS Target	Actual	DPS Target
Consolidated Edison (Underground Network)	0.0174	0.0176	6.2	6.89
Consolidated Edison (Overhead Radial)	0.47	0.4950	1.9	2.04
National Grid	1.06	1.08	2.0	2.10
New York State Electric and Gas	1.45	1.20	1.9	2.08
Rochester Gas and Electric	0.83	0.90	1.6	1.90
Central Hudson Gas and Electric	1.27	1.32	2.3	2.50
Orange and Rockland	0.93	1.20	1.8	1.85
Long Island Power Authority	0.68	0.76	1.4	None
<b>Statewide (w/o Consolidated Edison)</b>	<b>1.04</b>		<b>1.8</b>	

Source: NY DPS 2022 Electric Reliability Performance Report

- LIPA’s improved SAIFI performance trend continues in 2022 and CAIDI has remained consistent.<sup>17</sup> **Exhibit I-5** shows PSEG-LI’s reliability performance for the past ten years.

<sup>17</sup> NY DPS 2022 Electric Reliability Performance Report

**Exhibit I-5  
PSEG LI Reliability Trend**



Source: NY DPS Annual Reliability Reports 2017 and 2022

**D. SUMMARY OF RECOMMENDATIONS**

This report contains a total of 80 recommendations that are summarized in **Exhibit I-6** below. Detailed findings and conclusions supporting the recommendations are provided in each of the related chapters. The chapters also contain additional details regarding many of these recommendations and should be relied upon to develop implementation plans.

LIPA’s acceptance or rejection of NorthStar’s recommendations should be made on the basis of each recommendation’s merit for improving performance, overall cost of service and customer service. For those recommendations more directed from LIPA to the service provider, PSEG LI should consider these recommendations for improvement in the same light.

**Exhibit I-6  
Summary of Recommendations**

Rec #	RECOMMENDATIONS
<b>GOVERNANCE</b>	
<b>III-1</b>	The LIPA Board of Trustee’s should utilize independent, third-party resources to provide “on-call” utility strategy and operations advisory services in review of Board meeting information packets and in advance of Board meetings, when needed, as common among investor-owned utility Boards.
<b>III-2</b>	PSEG LI must provide LIPA with access to detailed ethics and compliance program information regarding concerns, investigations, findings, and resolutions/remediation actions taken.
<b>III-3</b>	PSEG LI must follow its own record management procedures as stated in Practice 105-1 and 105-1-2. Annual attestations from executive management of each PSEG LI business unit should be completed by the December due date and PSEG LI RMG should perform an evaluation of the program for PSEG LI management and the LIPA’s review.

Rec #	RECOMMENDATIONS
<b>III-4</b>	Conduct an audit of the PSEG LI and LIPA records management programs including Property Records, and the implementation of the ERDMS project. Once the audit is complete, work with the New York State Archive to develop a record inventory and record retention schedule.
<b>III-5</b>	Prioritize implementation of LIPA’s ERDMS so that PSEG LI can use the platform as anticipated in the Second A&R OSA.
<b>III-6</b>	Conduct a comprehensive organization structure analysis of LIPA as well as a skill and capabilities analysis conducted once clarity is given on the future of LIPA by the NY legislature, OSA contract is extended, or a new Service Provider is contracted. Recommendations from this study should be fully implemented in a timely fashion.
<b>III-7</b>	Review skill and capabilities gaps of employees at LIPA and PSEG LI and use results to develop meaningful training and development programs. Increase investment in training and development to at least 2018 levels.
<b>III-8</b>	Implement the LIPA DE&I program with program metrics to report progress to the Board.
<b>III-9</b>	Consistently track and report PSEG LI’s key performance indicators for Management Diversity (Women and PoC), Union Diversity, and commensurate with survey cadence, Employee Engagement to PSEG LI management and LIPA.
<b>III-10</b>	Conduct an audit of PSEG LI compliance with the OSA including, but not limited to Section 10.8.
<b>III-11</b>	Partner with New York State universities for IT and Cybersecurity programs and develop internships for these functional areas.
<b>III-12</b>	<p>Continue the development of LIPA and PSEG LI ERM Programs with the following considerations.</p> <ul style="list-style-type: none"> <li>• Formally charge “Organizational risk culture and risk awareness” as the responsibility of the LIPA and PSEG LI executive management and LIPA and PSEG LI ERM teams to manage, improve, and report to the LIPA Board. <ul style="list-style-type: none"> <li>- The LIPA and PSEG ERM teams must analyze “organizational risk culture and risk awareness” and the Board’s ERM policy, #1808, amended September 27, 2023, and recommend changes to the policy to promote management and employee accountability.</li> <li>- Develop a comprehensive program to improve “organizational risk culture and awareness” at LIPA and PSEG LI. The program must include metrics to baseline and report progress in risk culture.</li> <li>- “Organizational risk culture and awareness” must be evaluated during the 2024 risk assessment process for each LIPA and PSEG LI department.</li> <li>- LIPA/PSEG LI ERM teams must investigate incentives and accountability programs used by organizations outside the utility industry to improve risk culture and awareness.</li> </ul> </li> <li>• Require risk analysis such as a “bow-tie” analysis for each risk included in department risk profiles and update annually as necessary.</li> <li>• Investigate quantitative methods, such as the cost/benefit analysis, of risk mitigation strategies, to determine their effectiveness.</li> <li>• LIPA and PSEG LI ERM teams need to revise the current ERM Strategic Roadmap to include budget, work products to be delivered, named resources, and defined schedule with sequenced milestones within each year going forward. Report progress at quarterly ERM updates with the governance committees and the Board’s F&amp;A Committee. The ERM Program Roadmap should include capital project planning as a business process to integrate ERM (e.g., Project Scope documents and other inputs to the SOS platform, SOS scoring modules, and URB governance processes).</li> <li>• The LIPA ERM team must follow its own ERM procedure manual for emerging risks and emerging risk repository, KRIs, and the Risk Mitigation Dashboard.</li> <li>• Identify and use an alternative approach for the biennial maturity assessment of the LIPA/PSEG LI ERM Program.</li> <li>• Revise the risk escalation process to include notification of the LIPA Board of Trustees in the event of a risk event.</li> <li>• Track and report ERM training attendance as well as conduct post-training survey for continuous improvement to LIPA and PSEG LI executive management.</li> </ul>

Rec #	RECOMMENDATIONS
<b>BUDGET AND FINANCIAL REPORTING</b>	
<b>IV-1</b>	Implement standards and methods to reduce the large variances between budget and actuals for capital projects resulting from: imprecise estimating, overhead assessments without clear cost causation, and significant risk and contingency included in the budgeting process. Include the following enhancements to capital budgeting: <ul style="list-style-type: none"> <li>- Apply the same standards and methods (or comparable standards and methods) used in the budget briefing book process to capital budgeting.</li> <li>- Use the Hyperion structure and functionality to improve the capital budgeting process.</li> </ul>
<b>IV-2</b>	Implement processes to measure, analyze, and correct overhead assessments based on valid costs causation principles and clearly demonstrate LIPA/PSEG LI review of how costs were allocated appropriately, including: <ul style="list-style-type: none"> <li>- Request periodic or annual listing of work orders. Obtain and review costing sheets for a selection of those work orders and analyze whether the overhead assessments assigned to the work orders are appropriate.</li> <li>- Develop summary overhead reporting with underlying overhead charges and allocation rates.</li> <li>- Perform analytics to understand large fluctuations in assessment rates or amounts.</li> </ul>
<b>DEBT MANAGEMENT</b>	
<b>V-1</b>	Provide disclosures detailing the methodology of the debt-to-asset ratio. Describe obligations not included in debt and grant funded projects included in assets. Reconcile amounts to the financial statements so various stakeholders, beyond rating agencies, can perform a more informed evaluation of fiscal sustainability.
<b>LOAD FORECASTING</b>	
	None
<b>POWER SUPPLY</b>	
<b>VII-1</b>	Begin formal record retentions of Power Market Documents
<b>VII-2</b>	Calculate the Local Supply Charge for six consecutive months using two methodologies: <ul style="list-style-type: none"> <li>- The current methodology of subtracting Market Supply Costs from total PSC costs.</li> <li>- A separate methodology of calculating Local Supply Charge using the general ledger 69 accounts for Local Supply Charge.</li> </ul> Report findings to DPS.
<b>SYSTEM PLANNING, DSP DEVELOPMENT AND CLCPA</b>	
<b>VIII-1</b>	Review the CAC Scoping Plan and identify themes and strategies to align clean energy and EE programs. Identify Scoping Plan topic leads to consider new and innovative programs to further CLCPA goals.
<b>VIII-2</b>	Create and appropriately resource a group in Construction Services to focus on the scope, scale, and number of projects CLCPA construction programs.
<b>VIII-3</b>	Perform a review of historical EE goals and budgets to develop goals and “stretch” goals and adopt realistic budgets to meet goals and “stretch goals”.
<b>VIII-4</b>	Conduct a third-party operations audit of PSEG LI’s clean energy and energy efficiency programs in 2024.
<b>VIII-5</b>	Improve the visibility of Demand Response programs and their requirements and eligibility on the PSEG LI website. Provide a list of aggregators that would like to be included on the website.
<b>VIII-6</b>	Develop a DAC investment “tracker” to demonstrate compliance with CLCPA goals by Q2 2024.
<b>VIII-7</b>	Present CLCPA goals and progress to the Oversight and Clean Energy Committee bi-annually.
<b>VIII-8</b>	Develop a CLCPA goal and progress tracker to be posted on LIPA and PSEG LI websites to increase public awareness. This CLCPA goal and progress tracker should be refreshed bi-annually. If no progress is made on CLCPA goals for that period, the companies should inform the public why.
<b>VIII-9</b>	Formalize the Environmental Advisory Committee and provide resources adequate for its success. Create a formal committee charter, develop goals and objectives, track recommendations and deliverables, identify a Committee Secretary to organize meetings, record meeting minutes, and create meeting materials for distribution well in advance of meetings. Report Environmental Advisory Committee findings, recommendations, and actions to the Board’s Oversight and Clean Energy Committee bi-annually.



Rec #	RECOMMENDATIONS
<b>TRANSMISSION AND DISTRIBUTION OPERATIONS</b>	
<b>IX-1</b>	Make considerations for MAIFI performance in determining the worst performing circuits list.
<b>IX-2</b>	Determine the causes for poor SAIFI performance for the following circuits [listed in Chapter IX] that have been unable to be remedied over multiple years. Determine the causes that are within PSEG LI's control and those outside of PSEG LI's control and report findings to DPS.
<b>IX-3</b>	Document the successful implementation of each of the EAMS functional requirements by a utility using the EAMS software selected before proceeding with implementation.
<b>PROGRAM AND PROJECT MANAGEMENT</b>	
<b>X-1</b>	<p>Continue to develop and implement the SOS capital program optimization model.</p> <ul style="list-style-type: none"> <li>• Expand the SOS platform to include projects from other business units (e.g., IT and Customer Operations) and programs (e.g., Utility 2.0)</li> <li>• Implement improvements such as: <ul style="list-style-type: none"> <li>- Review the scoring criteria for each business area when setting up a new project in SOS.</li> <li>- Identify any biases toward certain types of projects.</li> <li>- Review the Strategic Objectives and the Success Criteria.</li> </ul> </li> <li>• Share SOS output results with LIPA and the Board of Trustees.</li> <li>• Collaborate with Enterprise Risk Management on risk scoring capital projects.</li> </ul>
<b>X-2</b>	Review and address inconsistencies as well as the lack of integration in project management procedures.
<b>X-3</b>	Revise current procedures related to quality assurance and quality controls for capital programs and projects requiring project managers to develop a comprehensive quality management plan for each capital project.
<b>X-4</b>	<p>Address the deficiencies in project estimating by making process improvements and adding controls.</p> <ul style="list-style-type: none"> <li>• Develop cost estimate reports for each stage of capital projects. Formally document project cost reviews at each level of estimate in detail and at various stages of project completion.</li> <li>• Integrate cost and schedule systems and ensure project master schedule is appropriately integrated with the approved project budget.</li> <li>• Continuously verify the accuracy of estimates versus the actual project cost and maintain a record of updates to the estimating database.</li> </ul>
<b>X-5</b>	<p>Utilize a WBS in the initial phases of the project justification and order of magnitude estimating, and continue their refinement as the project progresses.</p> <ul style="list-style-type: none"> <li>• Develop well-defined work packages that can be used to track and measure project performance based on earned value.</li> <li>• Plan work in logical work groupings or packages and subdivide into smaller work groupings. Ensure that activities required to perform the work in each group are identified, defined, and dependent relationships established.</li> <li>• Formalize the use of WBS elements by all project participants in their respective areas of responsibility and as an identification tool for project management performance measurement.</li> <li>• Use the WBS in procurement/contracting activities and specify the WBS in contractor Requests for Proposals.</li> <li>• Use the WBS for project costing and as a means to assess the impact of programmatic changes in funding levels on work content, schedules, and contractual support.</li> <li>• Integrate the WBS with PSEG LI's accounting systems, project cost management systems and schedule management systems.</li> <li>• Integrate master work plans and detailed contractor schedules / activities to the WBS to permit integration of schedule information and to facilitate review of status reports and change proposals.</li> <li>• Refine detailed project estimates initially prepared by WBS element and follow the manner in which the project work was planned, scheduled, estimated, funded and executed.</li> </ul>
<b>X-6</b>	Formalize and incorporate risk and contingency management in capital project cost estimating and cost management. Formally report the expenditure of risk funds and contingency funds separately from project estimates rather than inflate total project budget amounts. Risk funds should be assigned to specific project risks. Use of risk and contingency funds should be approved by the URB.



Rec #	RECOMMENDATIONS
X-7	<p>Define and report project management performance measures that focus on the effectiveness of cost estimation, earned value and schedule management. Project progress reports should contain all information which is pertinent for their target audience. Cost estimates and schedules developed for preliminary plans should be evaluated when a project is complete to determine where further enhancements to project estimating can be made.</p> <ul style="list-style-type: none"> <li>• Have project managers actively monitor overall project progress against the baseline schedule and review cost versus progress and budget.</li> <li>• Formalize project management performance reporting to LIPA and PSEG LI.</li> <li>• Integrate cost and schedule systems with the project master schedule and the approved project budget.</li> <li>• Develop a baseline schedule for every capital project showing the logical relationships, duration, and timing of the WBS elements for engineering and construction.</li> <li>• Establish processes for systematic schedule preparation, review and analysis.</li> <li>• Include critical path in project schedules.</li> <li>• Periodically, perform analyses of the initial establishment of operation/completion dates.</li> </ul>
X-8	<p>Review governance and processes for managing work directives to ensure information on change orders and costs are readily available.</p>
X-9	<p>Review the governance structure and processes for reviewing, screening, and approving capital projects. Develop formal charters for committees, clearly defined purpose, approval and oversight responsibilities, and deliverables. Integrate governance committees, responsibilities, capital project meeting documentation requirements, and stage-gate approvals with Project Management policies and procedures.</p>
X-10	<p>Develop meaningful oversight activities to determine the effectiveness of PSEG LI capital project planning and management and outcomes. This includes, but not limited to, an in-depth analysis of PSEG LI's scope development and management, risk analysis and management, cost and schedule management, project performance, and quality management practices.</p>
<b>WORK MANAGEMENT</b>	
XI-1	<p>Develop an integrated a work management system covering all PSEG LI operations, maintenance and construction resources that are based on engineered time standards and cover routine operations, repetitive maintenance activities, planned work, support requirements, and provide continuous feedback on workforce effectiveness. The system should be in an easy-to-use format expressed in man-hours, along with the combined employee and contractor capacity available to perform the work, supported by real time reporting of capacity utilization. The system should include:</p> <ul style="list-style-type: none"> <li>• Documentation of work level versus resource histogram development and work plan process.</li> <li>• Enhanced methods to calculate workforce capacity and utilization.</li> <li>• Expanded workforce coverage in reports.</li> <li>• Documentation of processes for establishing workforce levels.</li> <li>• Documentation of criteria for adding contractor capacity.</li> <li>• Establish real time variance reporting for O&amp;M and project costs.</li> <li>• Additional decision-making information to work plans.</li> </ul>
XI-2	<p>Continue to fill gaps in the current management information reporting and organizational reporting relationships to support an integrated work management system.</p> <ul style="list-style-type: none"> <li>• Develop formal reports on trends in work load levels, workforce productivity and utilization. The analysis of these trends identifies areas that are performing well, where improvements are needed, and is a foundation for the development of strategies to improve work force performance.</li> <li>• Establish formal processes to use work management data for annual resource planning as part of the annual business planning activities of PSEG LI operations and maintenance.</li> <li>• Refine formal work management practices for PSEG LI engineering and design functions. The work management systems should have appropriate system tools to support the various individual and distinct engineering functional processes. Elements that should be formalized include: <ul style="list-style-type: none"> <li>- Scheduling</li> </ul> </li> </ul>

Rec #	RECOMMENDATIONS
	<ul style="list-style-type: none"> <li>- Prioritization and planning</li> <li>- Resource allocation and leveling</li> <li>- Performance measurement</li> <li>- Budget planning and control</li> <li>- Vendor tracking</li> <li>- Document/drawing control</li> <li>- Records management</li> <li>- Procurement management</li> <li>- Time reporting.</li> </ul>
<b>XI-3</b>	Refine overtime targets and performance metrics for PSEG LI operations and maintenance organizations that are based on economic analyses and verified industry norms.
<b>XI-4</b>	Review the design of monitoring and controlling reports to improve their usefulness.
OUTSIDE SERVICES	
<b>XII-1</b>	<p>Improve LIPA and PSEG LI competitive procurement levels to significantly exceed previous levels of performance.</p> <ul style="list-style-type: none"> <li>• Edit and modify procurement policies and procedures to establish a stronger competitive bias.</li> <li>• Provide formal value analysis of all bid evaluations and selections to record competitive placement with an emphasis on materials and services cost.</li> <li>• Increase approval levels for any non-competitive transactions.</li> <li>• Competitively re-bid contracts or formally re-confirm competitive basis instead of providing funding extensions, renewals and selections among multiple existing contracted suppliers.</li> <li>• Perform a verifiable benchmarking study of large utility purchasing functions to establish best in class performance levels. Use this information to establish stretch targets for future competitive performance goals.</li> <li>• Adopt competitive procurement KPIs and OSA performance metrics.</li> <li>• Develop an improved competitive approach to contractors, their geographic coverage and staggered strategy for multi-year procurement contracts.</li> <li>• Remove end-users from participation in the selection of multiple service providers for similar services or provide specific guidelines to be followed and report these results to senior management.</li> <li>• Revise purchasing analytical processes to improve performance reporting clarity and consistency.</li> <li>• Reduce variations in terminology among LIPA and PSEG LI.</li> <li>• Provide greater management attention to competition.</li> <li>• Formally commit to a timetable for acquiring competitive procurement levels based on stretch targets and industry demonstrated performance levels.</li> <li>• Report improvement progress to the Board of Trustees and to DPS on a quarterly frequency until these levels are reached.</li> </ul>
<b>XII-2</b>	Conduct an independent audit of LIPA and PSEG LI supply chain functions directed by DPS to address each of the control deficiencies noted in this chapter to determine whether they have been addressed and effectively resolved.
<b>XII-3</b>	Demonstrate that all of the EAMS functional requirements pertaining to supply chain activities (including procurement, materials management and accounts payable) are presently used, operating as planned and effective at another utility using the software platform obtained by LIPA/PSEG LI before proceeding with the EAMS initiative.
CUSTOMER OPERATIONS AND COMMUNICATION	
<b>XIII-1</b>	<p>Improve oversight, controls, reporting, and tools for Shared Meter Investigations.</p> <ul style="list-style-type: none"> <li>• Require Special Investigations supervisors to approve all Shared Meter Reports prior to submittal to Customer Relations.</li> <li>• Require Customer Relations supervisor to approve all Shared Meter penalties and assessments prior to notification of landlords.</li> <li>• Develop in-field tools for investigators that are consistent across all employees and updated as necessary. Discontinue the use of private notes. Tools may include:</li> </ul>

Rec #	RECOMMENDATIONS
	<ul style="list-style-type: none"> <li>- Checklists</li> <li>- Forms to be completed</li> <li>- Photographs to be taken</li> <li>- New technology such as electronic notebooks etc.</li> <li>• Discontinue the practice of reviewing a week’s worth of investigations on Fridays and require daily reporting.</li> </ul>
<b>XIII-2</b>	For projects where PSEG LI relies heavily on external vendor expertise and support, LIPA should have closer involvement in contracting and project management oversight.
<b>XIII-3</b>	Determine the extent to which PSEG LI can offer customers bill credits for the purposes of achieving OSA metrics.
<b>XIII-4</b>	<p>Improve Call Center resource planning, budgeting, and training.</p> <ul style="list-style-type: none"> <li>• PSEG LI Call Center should have a documented plan and be appropriately prepared for an increase in customer call volume for the 2024 TOD implementation.</li> <li>• Refine Call Center forecasting model to day-of-week and include all resources (including supplemental department support). Call volume forecast should be “tunable” to calculate needs based on variable inputs (e.g., TOD rollout).</li> <li>• The Call Center forecasting model output should be used to inform the call center budget.</li> <li>• Call Center agents should have training on EE programs and information sheets they can send or email customers</li> <li>• Retain records of training material, along with dates of training, and individuals who participated in the training session.</li> </ul>
<b>XIII-5</b>	PSEG LI required Call Center performance metrics should be consistent with Case 15-M-0566 reporting requirements in alignment with other New York utilities. Refer to the four metrics discussed within the Chapter.
<b>XIII-6</b>	<p>Implement process improvement initiatives for the Household Assistance Program. Scope should include at a minimum:</p> <ul style="list-style-type: none"> <li>• Update Household Assistance Program processing procedure per report findings.</li> <li>• Create a comprehensive Program Manual for the Household Assistance Program to include end-to-end program management. Include the following: <ul style="list-style-type: none"> <li>- Stakeholders</li> <li>- Applicable Tariffs</li> <li>- Eligibility</li> <li>- Program goals and KPI’s</li> <li>- Program budget by admin, marketing/outreach and implementation.</li> <li>- File matching cadence</li> <li>- Tier discounts – maintenance of Tier discounts</li> <li>- HAR form – English and other languages</li> <li>- HAR letters – English and other languages</li> <li>- Marketing and Outreach collateral – English and other languages</li> <li>- Marketing and Outreach Strategy</li> <li>- Community Based Organization partners</li> <li>- List of reports with samples.</li> <li>- Training material locations</li> <li>- Audit report locations</li> <li>- Etc.</li> </ul> </li> <li>• Establish cadence for receipt of OTDA file and track file match rates. Encourage customers (and change website verbiage) that have received HEAP or Emergency HEAP to apply directly to the utility until a higher rate of customer matching is achieved.</li> <li>• Determine reasons for HAR high rate of denials for manually processed applications. Review verbiage on denial letters to ensure customer friendly tone and communicates how they can remedy their application.</li> <li>• Review and clarify Tariff intention Tier 2 and Tier 3 discounts for non-heat customers. PSEG LI should reflect Tier discounts in accordance with LIPA tariff (provide internal operational guidance as notes in procedure).</li> </ul>

Rec #	RECOMMENDATIONS
	<ul style="list-style-type: none"> <li>Update HAR application form to include discount tiers and instructions for completing application form.</li> <li>Utilize a sample calculator to determine appropriate sample size for monthly enrollment audits. Audit should also encompass denied applications.</li> </ul>
<b>XIII-7</b>	Update Internal Financial Assistance Program Guide to include HAR.
<b>XIII-8</b>	Track and coordinate internal referrals to maximize low-income program participation such as between the Household Assistance Program and REAP. Review REAP program eligibility rules and determine if they can be adjusted to align with the Household Assistance Program so participation in one program will qualify for the other.
<b>XIII-9</b>	Revisit and clarify the net income requirements for \$10 Agreement eligibility for payment agreements.
<b>XIII-10</b>	Evolve marketing and outreach strategies to focus on methods that increase customer participation in the Household Assistance Program and EE programs.
<b>XIII-11</b>	<p>Implement capital project outreach recommendations from prior NorthStar audit.</p> <ul style="list-style-type: none"> <li>Update the External Affairs Handbook to reflect recent lessons learned, the findings in NorthStar's report.</li> <li>Implement formal capital outreach training as recommended in the prior NorthStar audit, document attendees, and conduct post-training surveys for continuous improvement.</li> <li>Develop Tier 3 Capital Project Outreach Plans in accordance with the prior NorthStar audit.</li> </ul>
<b>XIII-12</b>	<p>Improve transparency and controls over EE programs. At a minimum:</p> <ul style="list-style-type: none"> <li>Implement approval process for LIPA to approve fund-shifting between EE programs.</li> <li>Implement processes to increase transparency of EE program funds. Suggest budgeting and tracking at a program level by admin, marketing/outreach, implementation, and rebates/incentives costs.</li> </ul>
ADVANCED METERING INFRASTRUCTURE (AMI)	
<b>XIV-1</b>	Ensure risks associated with system integration projects (Sonic ESB to MuleSoft) overlapping with the system separation program are captured within the appropriate mitigation plan to support the continuation of system separation.
<b>XIV-2</b>	Create a centralized library to document Data Lake / Tableau reports specifications and business uses.
<b>XIV-3</b>	Determine if any distribution automation, power quality monitoring, streetlighting controls, pre-pay and collaboration opportunities can be considered in the roadmap.
<b>XIV-4</b>	Evaluate functionality of the L+G HES Command Center to determine if it is being utilized to its fullest extent.
<b>XIV-5</b>	Create a mechanism to gather information to determine what factors contributed to program engagement as customers enroll in demand response and energy efficiency programs.
<b>XIV-6</b>	Determine if reduced truck rolls associated with mapping corrections (eliminating a field visit) can be tracked and included as a future AMI savings category.
<b>XIV-7</b>	Include documentation of actual meter reader attrition and meter services vehicles for annual O&M Savings support.
<b>XIV-8</b>	Simplify the AMI benefits reporting workbooks for calculating realized savings.
<b>XIV-9</b>	Expand AMI benefit workbooks to include AMI benefit tracking for other anticipated AMI benefits such as customer bills savings through TOU rates, revenue protection from theft/tamper, revenue protection from move-in/move-out, and reduced bad debt and write-offs.
INFORMATION TECHNOLOGY AND CYBER SECURITY	
<b>XV-1</b>	Implement the fourteen (14) recommendations as included in the LIPA's June 2023 IV&V Final Report.
<b>XV-2</b>	Continue the development of the PSEG LI cyber security program. Implement a cyber security framework for AMI data.
<b>XV-3</b>	Engage a third-party to perform comprehensive vulnerability assessments and penetration tests of the PSEG LI environment on a frequent and consistent basis that is contracted and overseen by LIPA.
<b>XV-4</b>	Develop a comprehensive plan and implement each recommendation from the NERC Best Practices Review.

Rec #	RECOMMENDATIONS
<b>XV-5</b>	Perform independent audits of the following areas: <ul style="list-style-type: none"> <li>• The IT System Separation Program</li> <li>• OMS data quality.</li> <li>• PSEG LI’s NERC CIP program (after implementation of each recommendation from the NERC Best Practices Review).</li> <li>• PSEG LI’s AMAG access control system project.</li> <li>• LIPA’s cyber security incident response plan and practices.</li> </ul>
<b>XV-6</b>	Implement each requirement noted in the PSC Order in Case 13-M-0178.
<b>XV-7</b>	Identify and hire a Chief Privacy Officer (CPO) and develop a comprehensive privacy program. <ul style="list-style-type: none"> <li>• If PSEG LI’s service provider contract is extended with LIPA, identify and hire CPO reporting to the PSEG LI President. Provide the CPO the authority and resources to develop a privacy program.</li> <li>• If the PSEG LI service provider contract is not extended, the successful service provider should be contractually required to have a CPO reporting to the President/CEO of the service provider. Provide the CPO the authority and resources to develop a privacy program.</li> <li>• If New York legislation concerning the Future of LIPA authorizes a municipal model, identify and hire a CPO reporting to the President/CEO. Provide the CPO the authority and resource to develop a privacy program.</li> </ul>
<b>XV-8</b>	Identify a deadline and expedite development LIPA and PSEG LI internal network monitoring policies and procedures. Assign a LIPA team to provide effective oversight of PSEG LI’s development of their internal network policies and procedures.
PERFORMANCE MANAGEMENT	
<b>XVI-1</b>	Identify data sources, methodology for developing summary data, organizational roles and responsibilities, and identify all exclusion/exceptions for the 2024 performance metric “handbook”.
<b>XVI-2</b>	Track cost savings and productivity gains from capital and O&M programs and projects.
<b>XVI-3</b>	Identify key operational performance metrics based on strategic goals and objectives and cascade down through the organization and in the OSA. Eliminate metrics that do not actively support these goals and objectives for contract year 2025.
<b>XVI-4</b>	Align a majority of PSEG LI executive management (Grades LX and 31-33) incentive compensation with achievement of OSA metrics.
PREVIOUS AUDIT RECOMMENDATIONS AND IMPLEMENTATION	
<b>XVII-1</b>	Record and status accepted management audit recommendations in their original text without revisions, reclassification into other management topic areas or combination with other recommendations that diffuse their intent and timetable for implementation.

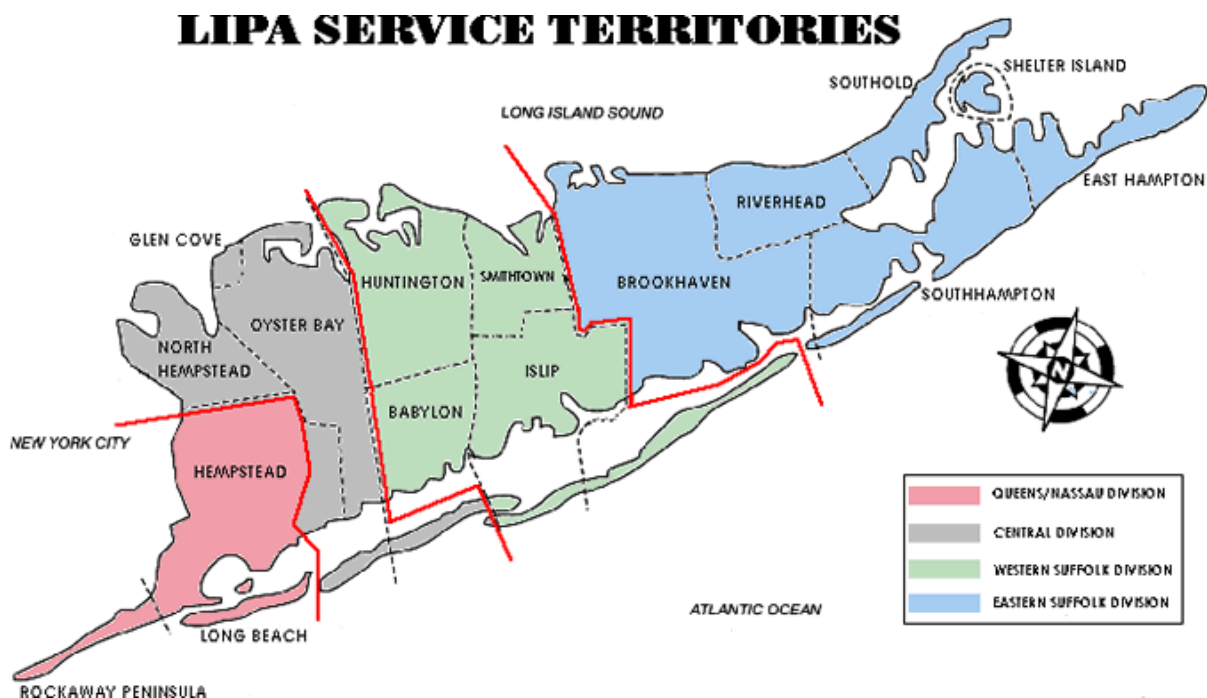
## II. BACKGROUND

This chapter provides background information on the Long Island Power Authority (LIPA or the Authority) and the status of the implementation of recommendations resulting from the prior management audit as the recommendations pertain to LIPA and its primary outside service provider – PSEG Long Island, LLC (PSEG LI or the Service Provider).<sup>1</sup>

### A. OVERVIEW

LIPA provides electric delivery service to approximately 1.2 million customers in Nassau and Suffolk Counties and a portion of Queens County known as the Rockaways (Service Area). The population of the Service Area is approximately 2.9 million. **Exhibit II-1** provides an overview of the service territory.

Exhibit II-1



During 2022, approximately 53 percent of the Authority’s annual retail revenues were received from residential customers, 44 percent from commercial customers, and three percent from street lighting, public authorities, and other revenue sources. The largest customer, the Long Island Railroad (LIRR), accounted for less than two percent of total sales and less than two percent of revenues in the Service Area. In addition, the ten largest customers in the

<sup>1</sup> PSEG LI is a subsidiary of the utility holding company in New Jersey – Public Service Energy Group (PSEG)

service area accounted for approximately seven percent of total sales and six percent of revenues. Electric revenue for 2022 totaled \$4.279 billion, an increase of \$348 million compared to 2021 due to higher power supply costs, as shown in **Exhibit II-2**.

**Exhibit II-2**  
**LIPA Annual Revenues**  
**(Millions)**

Revenues from Sales of Electricity	2022	2021	2020
Residential	\$2,284	\$2,154	\$2,108
Commercial	\$1,882	\$1,700	\$1,715
Street lighting, public authorities and other	\$114	\$77	\$77
<b>Total</b>	<b>\$4,279</b>	<b>\$3,931</b>	<b>\$3,901</b>

Source: <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

Operating expenses for 2022 totaled \$4.289 billion, an increase of \$300 million compared to 2021, primarily due to higher power supply costs of \$360 million. For the year ended December 31, 2022:

- Approximately 50 percent of the Authority’s expenses were associated with the cost to provide power supply, including: (i) commodity costs; (ii) purchased power costs, (iii) capacity costs, and (iv) other costs, including the Authority’s share of operating costs associated with the Nine Mile Point Unit 2 (NMP2) nuclear generating station.
- Operations and maintenance (O&M) expenses associated with the transmission & distribution (T&D) system accounted for 18 percent of the total expenses in 2022.
- Payments made in lieu of taxes (PILOTs), taxes paid pursuant to the contract on the A&R PSA generating units, and other taxes and assessments were 13 percent of expenses.
- Interest expenses were eight percent of expenses.
- Depreciation and amortization expenses were ten percent.<sup>2</sup>

## LIPA History

### The LIPA Act

The Authority is a corporate municipal instrumentality of the State of New York (State, NY or NYS). The Authority was established by Chapter 517 of the Laws of 1986 (the LIPA Act) to control electricity costs within the service territory of the Long Island Lighting Company (LILCO).<sup>3</sup> In 1989, LILCO entered into an agreement to sell the Shoreham Nuclear Power Plant to LIPA. As part of the agreement, Long Island ratepayers would bear the cost of Shoreham over time.

The LIPA Act requires that any bond resolution of the Authority contain a covenant that it will at all times maintain rates, fees, or charges sufficient to pay the costs of: operation and

<sup>2</sup> <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>3</sup> Office of the State Comptroller, “Public Authorities by the Numbers: Long Island Power Authority”, October 2012 ([https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf))



maintenance of facilities owned or operated by the Authority; PILOTS; renewals, replacements, and capital additions; and the principal of, and interest on, any obligations issued pursuant to such resolution as the same become due and payable. The LIPA Act is key to LIPA's tax-free status as a public authority while not triggering debt covenants. In addition, the Authority must establish or maintain reserves or other funds or accounts required or established by or pursuant to the terms of such resolution. The Authority's Board of Trustees (Board or BOT) is empowered under its enabling statute to set rates for electric service in the Service Area. However, the Authority and the Service Provider shall submit for review to the DPS any rate proposal that would increase the rates and charges and thus increase the aggregate revenues of the authority by more than two and one-half percent to be measured on an annual basis.<sup>4</sup>

On May 28, 1998, LIPA acquired LILCO's electric T&D system, as well as certain other assets and became the primary supplier of electricity on Long Island.<sup>5</sup> That same year, LILCO's remaining assets, including its electrical generating facilities, were merged with Brooklyn Union Gas, creating a new publicly-traded utility corporation called KeySpan Corporation (also known as KeySpan Energy or KeySpan). As part of the acquisition, LIPA also acquired an undivided 18 percent interest in the NMP2 generating facility, located in upstate New York. In October 2007, National Grid LLC (National Grid) purchased KeySpan and legally assumed responsibility for KeySpan's contracts with LIPA.<sup>6</sup>

In 2009, LIPA issued a Request for Information (RFI) to evaluate the market for a new service provider and issued a formal Request for Proposal (RFP) on June 3, 2010. On December 15, 2011, LIPA's BOT approved Public Service Enterprise Group, Incorporated (PSEG) and its subcontractor Lockheed Martin (LM) as LIPA's new service provider. The terms of the agreement were established in the Operations Services Agreement (OSA), signed December 28, 2011, for the operations and maintenance of LIPA's system effective January 1, 2014 for a period of ten years.

PSEG Long Island LLC (PSEG LI), a wholly owned subsidiary of Public Service Enterprise Group PSEG, is the Authority's service provider – fully dedicated to the Authority's Long Island operations.

As the result of the LIPA Reform Act in 2013, the terms of the existing OSA were modified. PSEG LI provided service under an Amended and Restated OSA (A&R OSA) for the operation, maintenance and related services of the T&D system.<sup>7</sup> PSEG LI was paid a management fee and earned incentives related to specified performance metrics. Essentially all costs of operating and maintaining LIPA's T&D system incurred by PSEG LI are passed through to, and paid for, by LIPA.

The PSEG LI management company consists of approximately 19 employees at the director level and higher.<sup>8</sup> The PSEG LI service company consists of approximately 2,500

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<sup>4</sup> <https://legislation.nystate.gov/ppdf/bills/2013/S5844> PSL 3-b(3)(a)(iv) and PAL 1020-f(u)

<sup>5</sup> [https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf)

<sup>6</sup> [https://osc.state.ny.us/reports/pubauth/lipa\\_by\\_the\\_numbers\\_10\\_2012.pdf](https://osc.state.ny.us/reports/pubauth/lipa_by_the_numbers_10_2012.pdf)

<sup>7</sup> Amended & Restated OSA 2013 dated December 31, 2013.

<sup>8</sup> OSA Appendix 4.2(D)(1)



employees, which includes a substantial majority of incumbents from the National Grid workforce, as well as new hires at the manager level and lower.<sup>9</sup>

LIPA also has a contract with PSEG Energy Resources and Trade LLC (PSEG ER&T) to provide services related to fuel and power supply management and certain commodity activities. Separately from its contract with PSEG ER&T, LIPA maintains power purchase agreements with third party power generators.

On August 4, 2020, Tropical Storm Isaias struck Long Island. PSEG LI's outage management system failed and nearly 400,000 customers were without electric service for a week. LIPA filed a \$70 million dollar lawsuit against PSEG LI for poor restoration performance. On December 15, 2021, LIPA and PSEG LI settled with the execution of a new OSA.<sup>10</sup>

### **Major Operating Agreements**

- Under the Second Amended and Restated Operations Services Agreement (Second A&R OSA): effective April 1, 2022, PSEG LI provides operations, maintenance, and related services for the T&D system. The Second A&R OSA supersedes the prior A&R OSA (from January 1, 2014) and expires December 31, 2025. Changes include:
  - Increases the amount of PSEG LI's annual compensation at risk from \$10 million to \$40 million.
  - Subjects PSEG LI to up to 110 detailed Performance Metrics set annually by the Board with a recommendation by the DPS to ensure PSEG LI meets the Board's strategic direction for service to customers and industry best practices.
  - Includes both new and strengthened termination rights and automatic compensation reductions (i.e. default and gating Performance Metrics) for failures to meet minimum emergency response, customer satisfaction, cybersecurity, and reliability standards.
  - Provides a new DPS investigative process to reduce compensation for failures to provide safe, adequate, and reliable service to customers.
  - Requires PSEG LI to implement plans to fix known operational issues identified by LIPA staff or the DPS, with oversight by the Board.
  - Strengthens PSEG LI's dedicated management team with new positions for Chief Information Officer, Chief Information Security Officer, Vice President for Business Services, Director of Human Resources, and Director of Emergency Response.
  - Ensures that all Long Island employees report to managers dedicated to Long Island operations and links the compensation for all PSEG LI employees to Service Area performance.
  - Includes a Duty of Candor with a termination right for failure to timely and accurately disclose significant operational issues that impair PSEG Long Island's ability to provide reliable service, emergency response, cybersecurity, financial

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<sup>9</sup> DR 3 Attachment 2

<sup>10</sup> <https://www.wshu.org/long-island-news/2021-11-10/after-isaias-failures-lipa-renews-a-contract-with-pseg-long-island>

impairment, noncompliance with laws, or circumstances that may endanger public health, safety, and welfare.

- Includes new standards requiring greater long-term planning, transparency, and accountability for delivering projects and services on time and within budget.
  - Requires PSEG LI to demonstrate cost savings or improved service for hiring or retaining PSEG affiliates to perform services for LIPA.
  - Requires the separation of all LIPA information technology systems from those of PSEG affiliates pursuant to a plan approved by the Board on September 28, 2022.
  - Provides LIPA with new rights to independently test and validate the performance of mission-critical information technology systems, such as those that failed during Tropical Storm Isaias.
  - Eliminates PSEG LI's eight-year term extension option; instead, the Second A&R OSA will expire on December 31, 2025.<sup>11</sup> However, upon mutual agreement, parties may extend the end of the term up to five additional years to December 31, 2030, with mutually acceptable adjustments.<sup>12</sup>
- Amended and Restated Power Supply Agreement (A&R PSA): National Grid Generation (NG Generation) provides capacity and energy from its oil and gas fired generating plants located on Long Island under the A&R PSA, which provides for the purchase of generation (including capacity and related energy) from these fossil fuel generating plants. The A&R PSA commenced May 28, 2013, and expires April 30, 2028.<sup>13</sup>
  - Fuel Management Agreement (FMA) and Power Supply Management Agreement (PSMA): PSEG ER&T provides fuel management services for both the PSA generating facilities and other units for which LIPA is responsible for providing fuel. Certain other services related to power supply management and commodity activities are also provided by PSEG ER&T. The agreement with PSEG ER&T expires December 31, 2025, and will continue to be automatically extended until December 31, 2033 if there is an extension of the A&R OSA.<sup>14</sup>

## The LIPA Reform Act

The LIPA Reform Act which was passed and codified as Chapter 173, Laws of New York on June 21, 2013, by the New York State Assembly and Senate, significantly changed LIPA's role.<sup>15</sup> The LIPA Reform Act is divided into two parts, Part A and Part B.

Part A addresses the reorganization of the Authority and imposed new substantive obligations on any service provider and effectively shifted major operational and policy-making responsibilities for the T&D system from LIPA to PSEG LI, including responsibilities for capital expenditures, budgets, and emergency response. The LIPA Reform Act requires that staffing at the Authority be kept at levels only necessary to ensure that the Authority is

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<sup>11</sup> <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>12</sup> Second A&R OSA, Section 2.1(A) TERM.

<sup>13</sup> <https://www.lipower.org/wp-content/uploads/2016/10/A-and-R-PSA-effective-28-May-13.pdf>

<sup>14</sup> <https://www.lipower.org/wp-content/uploads/2016/10/Appendix7.pdf> Article 2 - Term (2.1.iii)

<sup>15</sup> <http://legislation.nysenate.gov/pdf/bills/2013/S5844>

able to meet obligations with respect to its bonds and notes and all applicable statutes and contracts, and to oversee the activities of PSEG LI.<sup>16</sup>

Part A also created a new Long Island-based office of the DPS to review and make recommendations to LIPA and/or PSEG LI related to:

- The operations and terms and conditions of service.
- Rates and budgets established by the authority and/or its service provider including charges related to energy efficiency and renewable energy programs.
- Ensuring that the authority and the service provider provide safe and adequate transmission and distribution service at rates set at the lowest level consistent with sound fiscal operating practices.
- Part A also gives DPS the responsibility to investigate and mediate customer complaints. Additionally, the DPS shall, upon notification to LIPA, undertake a comprehensive and regular management and operations audit of the authority pursuant to subdivision (bb) of Article 5, Title 1-A, Section 1020-F of the public authorities law.<sup>17</sup> Comprehensive management and operations audits shall be initiated at least once every five years.<sup>18</sup>
- The LIPA Reform Act requires LIPA's service provider, PSEG LI, to annually prepare and maintain an emergency response plan to assure the reasonably prompt restoration of service in the case of an emergency event, and to establish separate responsibilities of the Authority and its service provider. The emergency response plan must be submitted to the DPS for review on or before February third each year.<sup>19</sup>
- PSEG LI must submit reports to DPS detailing PSEG LI's planned capital expenditures and performance related to the metrics in the A&R OSA.

Implementation of the LIPA Reform Act required the transfer of substantial operational duties and obligations from LIPA to PSEG LI and greater operational flexibility for PSEG LI to carry out its duties. In response to the LIPA Reform Act, LIPA re-negotiated the OSA with PSEG LI to address the changed relationship between the parties in connection with the provision of electric service.<sup>20</sup> On January 1, 2014, PSEG LI became the retail brand for electric service on Long Island.<sup>21</sup>

Part B of the LIPA Reform Act, also referred to as the Securitization Law, established the Utility Debt Securitization Authority (UDSA). The Securitization Law's sole purpose is to provide a legislative foundation for the UDSA's issuance of restructuring bonds to allow the

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<sup>16</sup> <http://legislation.nysenate.gov/pdf/bills/2013/S5844> and Prospectus – LIPA Electric System Revenue Bonds 2017

<sup>17</sup> <http://legislation.nysenate.gov/pdf/bills/2013/S5844> Part A, Section 2

<sup>18</sup> <http://legislation.nysenate.gov/pdf/bills/2013/S5844> Part A, Section 2.4bb.2

<sup>19</sup> <http://legislation.nysenate.gov/pdf/bills/2013/S5844> Part A, Section 2.4.cc.2

<sup>20</sup> Prospectus – LIPA Electric System Revenue Bonds 2017

<sup>21</sup> Prospectus – LIPA Electric System Revenue Bonds 2017

Authority to retire a portion of its outstanding indebtedness, providing savings to the Authority’s customers on a net present value (NPV) basis. The restructuring bonds are repaid by an irrevocable, non-bypassable restructuring charge on all the Authority’s customers. The UDSA has a governing body separate from that of the Authority and has no commercial operations.<sup>22</sup>

In accordance with the Securitization Law, the UDSA sold about \$936 million of bonds in 2022.<sup>23</sup> In 2021, the Securitization Law was amended to permit UDSA to issue restructuring bonds in an aggregate principal amount not to exceed \$8 billion.<sup>24</sup>

### **Three-Year Rate Plan**

LIPA is not subject to rate regulation by the NYS Public Service Commission (PSC). The LIPA Reform Act required DPS to establish an evidentiary process for an initial Three-Year Rate Plan (2016 – 2018) and any subsequent LIPA proposal that would increase base rates by more than 2.5 percent of total revenues. In accordance with the LIPA Reform Act, on January 30, 2015, the Authority and PSEG LI submitted a Three-Year Rate Plan to the DPS for rates and charges to take effect on or after January 1, 2016. Evidentiary hearings were held and other parties had the opportunity to present evidence and cross-examine the Authority, PSEG LI, and DPS witnesses. Following the review of the Three-Year Rate Plan by DPS, on September 28, 2015, DPS submitted its rate recommendation to the Authority’s Board (the DPS Recommendation). On December 16, 2015, the Authority’s Board implemented the Three-Year Rate Plan set forth in the DPS Recommendation. LIPA has not submitted any subsequent proposals that would increase the rates and charges and thus increase the aggregate revenues by more than 2.5, since the initial Three-Year Rate Plan.<sup>25</sup> LIPA has not voluntarily submitted a rate review since 2015.

### **Regulations**

As a public authority, LIPA is subject to a variety of rules and regulations and oversight by various State Agencies, including the following.

- **Department of Public Service (DPS)** – As discussed above, the LIPA Reform Act created a new Long Island-based DPS office to review LIPA and/or PSEG LI with regard to core utility operations, investigate and mediate customer complaints, and undertake management and operations audits.<sup>26</sup>
- **Public Authorities Control Board (PACB)** – Pursuant to the LIPA Act, the Authority is required to obtain approval of the PACB before undertaking any “project.” The PACB was created in 1976 in response to the growing amount of Public Authority Debt. It is codified in Section 50 of the NYS Public Authorities Law (PAL). The PACB is a five-member board appointed by the Governor. A “project” is defined by the LIPA

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<sup>22</sup> [http://legislation.nysenate.gov/pdf/bills/2013/S5844 Part B](http://legislation.nysenate.gov/pdf/bills/2013/S5844%20Part%20B)

<sup>23</sup> Fact Verification, UDSA Series 2022 and 2023 Official Statements

<sup>24</sup> <https://www.lipower.org/wp-content/uploads/2023/03/UDSA-YE-FS-2022-PARIS-filing.pdf>

<sup>25</sup> <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>26</sup> LIPA Reform Act

Act to mean an action undertaken by the Authority that: 1) causes the Authority to issue bonds, notes or other obligations or shares in any subsidiary corporation; 2) significantly modifies the use of an asset valued at more than \$1 million owned by the Authority or involves the sales, lease or other disposition of such an asset; or 3) commits the Authority to a contract or agreement with a total consideration of greater than \$1 million and does not involve the day-to-day operation of the Authority.<sup>27</sup>

- **Office of the New York State Comptroller (NYS Comptroller)** – Pursuant to the LIPA Act, LIPA must obtain the written approval of the NYS Comptroller of any private sale of bonds or notes issued by LIPA and the terms of such sale. By letter dated July 22, 1999, the Comptroller set forth his determination that pursuant to Section 1020-cc of the LIPA Act, certain LIPA contracts that exceed what is now a \$50,000 threshold must be approved by the Comptroller before such contracts become effective. The Authority submits LIPA contracts, as well as certain qualified third-party contracts, to the Comptroller for approval. In addition, the Comptroller periodically conducts audits of LIPA to examine LIPA’s policies, procedures, controls and other financial and management practices. As part of the Comptroller’s review and approval process, the NYS Attorney General reviews and approves the contracts submitted to the Comptroller “as to form.”<sup>28</sup>
- **Public Authorities Reform Act (PARA)** – PARA was signed into law in December 2009. Among other things, PARA created an independent Authorities Budget Office (ABO) with certain oversight powers and expanded on the filing and publication requirements of the Public Authorities Accountability Act (PAAA). The requirements as set forth in the PAAA and PARA include requirements related to: the reporting of certain information publicly and to the ABO, the duties of the Board of Trustees, lobbying, property disposition, appointment of the Chief Executive Officer (CEO), mission statements and measurement reporting, subsidiaries of public authorities, public authority debt, and whistleblower protection.<sup>29</sup>
- **State Administrative Procedures Act (SAPA)** – Changes to LIPA’s tariff and regulations are subject to SAPA requirements. SAPA requires: notice published in the New York State Register; a proposal memo available on LIPA’s website and at its headquarters; a 60-day public comment period; public comment hearings held in both LIPA Counties (Nassau and Suffolk); proposal and comments summarized for the Board of Trustees (BOT); resolution placed on the Board agenda at an open meeting; and BOT discussion and vote on the resolution.<sup>30</sup>

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<sup>27</sup> LIPA Reform Act

<sup>28</sup> LIPA Reform Act

<sup>29</sup> <https://web.osc.state.ny.us/stateauthority/MyWebHelp/Content/Manual/background.htm>

<sup>30</sup> [https://dos.ny.gov/system/files/documents/2021/08/rulemakingmanual\\_08-21.pdf](https://dos.ny.gov/system/files/documents/2021/08/rulemakingmanual_08-21.pdf) and <https://www.nysenate.gov/legislation/bills/2017/s5795/amendment/a>

## Climate Leadership and Community Protection Act (CLCPA)

CLCPA, enacted on July 18, 2019 by Governor Cuomo, is designed to reduce New York’s carbon footprint. CLCPA has the goal of reducing greenhouse gas emissions 40 percent by 2030 and 85 percent by 2050. Specific initiatives include:

- Doubling distributed solar deployment to 6,000 MW by 2025
- Deploying 3,000 MW of energy storage by 2030
- Seventy percent utility renewable generation by 2030
- Achieving 9,000 MW of offshore wind generation by 2035
- 100 percent clean energy by 2040
- 185 trillion BTU reduction through EE by 2025
- Requiring zero emission vehicles by 2035<sup>31</sup>

CLCPA will have profound impacts on how LIPA operates the system and procures its energy.

### Roles and Responsibilities

The roles and responsibilities of the three major entities involved in the electric utility function: LIPA, PSEG LI and the Long Island Department of Public Service (DPS LI) have interconnected roles with diverse functions. For this reason we have highlighted the following as established by the LIPA Reform Act (“Reform Act”), and the Second Amended and Restated Operations Services Agreement (“Second A&R OSA”) between LIPA and PSEG LI.

- LIPA’s role is as follows:
  - As asset owner and contract manager, to maintain the integrity of the LIPA T&D System and other asset base through contract oversight of PSEG LI’s operation and management of the T&D System and achievement of the performance metrics, which may be adjusted, as set forth in Section 4.4 of the Second A&R OSA, and oversight of other Operations Services performed by the Service Provider under the OSA, including power supply and management.
  - Manage LIPA’s financial and debt responsibilities (including budget related items to support both), wholesale market policy, approval of fuel and power contracts, and comply with related bond covenants and resolutions.
  - Prepare the LIPA portion of the budget and approve the annual operating and capital budgets submitted by PSEG LI subject to the provisions of the OSA.
  - Set rates and charges, through the ratemaking process outlined in the OSA and as required by the Public Authorities Law (LIPA Act) and the Reform Act.
  - Manage LIPA contracts not assigned to the Service Provider in the OSA.
  - Manage internal LIPA staff and comply with legal and regulatory obligations and responsibilities under applicable statutes and regulations.
  - Make the final decision on customer complaint appeals based on written recommendation provided by DPS LI.

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<sup>31</sup> <https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program> and <https://www.governor.ny.gov/news/governor-hochul-drives-forward-new-yorks-transition-clean-transportation>



- Provide staffing support and resources to the LIPA Board of Trustees and other corporate governance functions.
- Consult with PSEG LI on the preparation and maintenance of an emergency response plan as required by the Reform Act.
- PSEG LI's role is as follows:
  - For all matters below, PSEG LI will function in accordance with prudent utility practices and as appropriate, in a manner that is consistent with other electric utilities in New York. As asset manager, to manage, operate and maintain the T&D System and set related plans, policies, procedures and programs (subject to LIPA's bond and other financing obligations) (see Section 4.2 of the Second A&R OSA).
  - Prepare, in consultation with LIPA, an emergency response plan and manage emergency preparedness, response and reporting (see Section 4.2 of the Second A&R OSA and LIPA Reform Act).
  - Prepare annually the Utility 2.0 Plan, long range capital and operating plans, and, if it elects to do so, to propose optional capital investments (which PSEG LI may propose to fund) subject to the provisions of and LIPA's rights under the OSA.
  - Be the name and face of operations in the LIPA service area with full authority to determine policies and procedures with respect to use of its name and service mark in all media and public communications on utility-related matters.
  - Prepare the annual operating and capital budgets and management of the budgets within the parameters of the OSA. Prepare and submit, together with LIPA, rate filings to DPS, as required by the Reform Act (see Article 6 of the Second Amended A&R OSA).
  - Operate the T&D System in a manner that provides the lowest level of charges consistent with safe and reliable service, including necessary oversight of physical and cyber security.
  - Annually, submit for review by DPS LI the Service Provider's planned capital expenditures.
  - Annually, submit for review by DPS LI proposed plans to implement energy efficiency and renewable energy programs, demand response, distributed generation or advanced grid technology programs, and any other related programs; and consider, consistent with system reliability, such programs and options in establishing capital plans.
  - Provide information related to the provision of Operations Services and cooperate with LIPA as provided in the OSA, and with DPS LI staff as necessary for each to perform their respective obligations in a timely manner.
- DPS LI's role, as specifically provided in the LIPA Reform Act, is carried out in a manner consistent with NYS DPS regulation of other New York electric utilities, and is highlighted as follows:
  - Generally review and make recommendations to LIPA and as appropriate to PSEG LI, with respect to the operations and terms and conditions of service and the rates and budgets established by LIPA and PSEG LI and with respect to each specific

area of DPS review enumerated in the Reform Act. DPS LI has noted that its focus areas include, but are not limited to:<sup>32</sup>

- Review of proposed budgets for sufficiency to meet LIPA’s statutory obligations, including examination of budget items for tree trimming and vegetation management, inspection programs, compliance with safety standards, emergency operations and repairs, provision of safe and reliable service, capital projects, and other programs.
  - Review of tariffs.
  - Review LIPA and PSEG LI’s actual financial and operational books and records.
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- Review and make recommendations on proposed rates in rate plans submitted to DPS and other rate submissions in accordance with the Reform Act, and make recommendations designed to ensure that the authority and the Service Provider provide safe and adequate T&D service at rates set at the lowest level consistent with sound fiscal operating practices.
  - Resolve, where possible, all residential and non-residential customer complaints. Provide written recommendations to designated LIPA and/or PSEG LI staff for corrective action on unresolved complaints and provide written recommendation to LIPA management for decision on appeal.
  - Review and make recommendations with respect to the emergency response plan of LIPA and PSEG LI and with respect to the performance of PSEG LI in restoring service and meeting the requirements of the emergency response plan during an emergency event, including storm response of PSEG LI, and assessment of the reasonableness of storm costs.
  - Review PSEG LI’s annual proposed capital expenditure plans and make recommendations for improvements in the manufacture, conveying, transportation, distribution or supply of electricity, or in the methods employed by the Service Provider, to allow for safe and adequate service.
  - Perform a comprehensive management and operations audit of LIPA and PSEG LI, the first such audit having been completed in 2013 and the second such audit having been completed in 2018, and subsequent audits to be performed periodically thereafter. Provide the results and recommendations to the LIPA Board as provided for in the Reform Act.
  - In the management and operations audit, review overall operations and management of LIPA and PSEG LI and make recommendations, where appropriate, with respect to LIPA’s duty to set rates at the lowest level consistent with sound fiscal operating practices and to provide safe and adequate service. Review the application, if any, of the performance metrics designated in the OSA and the accuracy of the data relied upon with respect to such application.
  - Review and make recommendations with respect to plans for the implementation of energy efficiency and renewable energy programs, demand response, advanced

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<sup>32</sup> LIPA Reform Act. [DPS Long Island - Electric Service on Long Island | Department of Public Service \(ny.gov\)](https://www.dps.ny.gov/long-island)



grid technologies, distributed generation, net metering, and customer empowering programs and policies.

- Review the data in PSEG LI's metrics report and make recommendations with respect to PSEG LI's incentive compensation calculation.
- Review and make recommendations with respect to the net metering program implemented under subdivision (h) of section one thousand twenty-g of the Public Authorities Law.

### **Prior Management Audit**

Prior management audits provide a backdrop of issues that contribute to the review topics and shape the investigation of this management audit.

In 2016, DPS commissioned NorthStar to perform a Comprehensive Management and Operations Audit of LIPA. NorthStar's audit was completed June 29, 2018. NorthStar's final report provided results of its analysis, including conclusions, related to the following scope areas:

- Executive Management and Governance
- Enterprise Risk Management
- Budgeting and Financial Reporting
- Debt Management
- Load Forecasting, System Planning, and Distributed Platform (DSP) Development
- Transmission and Distribution
- Program and Project Planning and Management
- Work Management and Outside Services
- Customer Operations
- External Outreach and Communications
- Performance Management
- Fuel and Purchased Power
- Pension and OPEB

## **B. AUDIT SCOPE AND OBJECTIVES**

As indicated in the RFP, the audit scope is comprehensive, focusing on LIPA's operations and management, including the Authority's duty to set rates at the lowest level consistent with standards and procedures provided in Public Authorities Law §1020-f(u). As set forth in the RFP the audit addresses:

- The Service Provider's construction and capital program planning in relation to the needs of customers for reliable service.
- The overall efficiency of the Authority's and its Service Provider's operations.
- The manner in which the Authority is meeting its debt service obligations.
- The Authority's Power Supply Charge and recovery of costs associated with such clause.
- The Authority's and its Service Provider's annual budgeting procedures and process.

- The application, if any, of the performance metrics designated in the Second Amended and Restated Operations Service Agreement (Second A&R OSA) and the accuracy of the data relied upon with respect to such application.
- The Authority’s compliance with debt covenants.

Additional scope areas include ERM and Corporate Governance, Advanced Metering Infrastructure, COVID-19 Impacts, Treasury Operations and Fixed Obligation Coverage Ratio, Cyber Security and System Design and Performance, the Authority’s progress in meeting requirements of the Climate Leadership & Community Protection Act (CLCPA), and implementation of recommendations related to the prior LIPA audit in Matter 16-01248. The audit emphasizes LIPA’s and the Service Provider’s efficiency and effectiveness in meeting their mission, particularly with respect to meeting its performance goals, meeting its contractually mandated duties, and the extent to which there are opportunities for improvement. This is especially important in light of the issues resulting from Tropical Storm Isaias that led to the Second A&R OSA with PSEG LI.

NorthStar’s preliminary work plan addresses the issues of:

- Purpose, mission, planning, goals and objectives, and strategies
- Functions, processes, practices, and systems
- Organizational design
- Staffing, responsibilities, and accountabilities
- Cost control/cost oversight
- Efficiency and effectiveness
- Results and performance
- Opportunities for improvements, including “best practices” (based on past experience) that are appropriate to LIPA and PSEG LI’s operating environment.

NorthStar addresses all these areas and the associated evaluative criteria specified in the RFP, as well as some additional evaluative criteria based on our prior audit experience. We examined operating conditions as they exist today, with significant focus on how LIPA is managing the operation of the electric T&D system through the Second A&R OSA with PSEG LI. We reviewed what changes/improvements have been made since the prior management audit, and how the transition to the Second A&R OSA is being managed. The audit identified and addressed gaps and recommended improvement opportunities that will benefit LIPA’s ratepayers as this new management relationship develops. It included the day-to-day and long-term oversight by LIPA employees over PSEG LI as well as other long-term contractors that assist LIPA in running the electric company.

## **C. APPROACH TO THIS AUDIT**

The audit approach was designed to help assure that LIPA is addressing strategic and operational concerns consistent with the needs of its customers. More specifically, whether:

- All construction program planning issues which may affect LIPA operations are being addressed in an effective manner.

- LIPA’s corporate mission(s), objectives, goals, planning, and operations are consistent with customers’ needs.
- Providing a final report with detailed and practical recommendations that address strategic and operational issues facing LIPA.
- Defining and quantifying the expected recommendation implementation costs and benefits, as appropriate.
- Providing a final report that is well-documented, easy to understand, and will withstand public scrutiny.

## **D. ORGANIZATION OF THE REPORT**

The report is organized to provide an orderly flow of topics and conclusions that reflect the issues identified by the audit, rather than by the ordering of the elements in the feedback loop. The remainder of the report is organized as follows:

Chapter I:	Executive Summary
Chapter II:	Background (this chapter)
Chapter III:	Governance
Chapter IV:	Budget and Financial Reporting
Chapter V:	Debt Management
Chapter VI:	Load Forecasting
Chapter VII:	Power Supply
Chapter VIII:	System Planning
Chapter IX:	Transmission and Distribution Operations
Chapter X:	Program and Project Management
Chapter XI:	Work Management
Chapter XII:	Outside Services
Chapter XIII:	Customer Operations and Communication
Chapter XIV:	Advanced Metering Infrastructure (AMI)
Chapter XV:	Information Technology and Cyber Security
Chapter XVI:	Performance Management
Chapter XVII:	Previous Audit Recommendations Implementation
Appendix:	Customer Benefit Analyses

### III. GOVERNANCE

This chapter provides the results of NorthStar’s review and assessment of LIPA’s executive management and corporate governance, including the following audit scope areas:

- LIPA’s Board of Trustees
- Corporate Governance
- Executive Management
- Current and Future Organizational Structure
- Communication and Control
- Strategic Planning
- Enterprise Risk Management
- Pension and OPEB Investments

Corporate governance refers to the processes, systems and associated checks and balances by which a utility is governed and controlled, and includes the relationships and potential conflicts in goals and activities between management and its varied stakeholders. At LIPA, these processes are highlighted by the following:

- LIPA’s mission, goals and objectives.
- Oversight and organizational relationships within LIPA and PSEG LI.
- Role of the Board of Trustees (Board or BOT).
- Communications and control.
- Strategic planning.

#### A. BACKGROUND

LIPA is a Public Authority, governed differently than investor-owned utilities, as discussed in Chapter II – LIPA Background. Rather than a shareholder-elected Board of Directors, LIPA has a government-appointed Board of Trustees. Additionally, nearly all of the traditional core utility services such as system maintenance, procurement, billing, customer service, daily system dispatch and operations are provided to LIPA’s customers by a Service Provider under a contract called the Operating Service Agreement. Beginning in 1998, the Authority contracted with KeySpan and then National Grid under a Management Services Agreement (MSA) to provide the majority of the services necessary to serve the Authority’s customers. National Grid’s contract expired December 31, 2013, and PSEG LI became the Service Provider. PSEG LI’s contract is presently set to terminate December 31, 2025.<sup>1</sup>

As a result of the LIPA Reform Act of 2013 (LRA), the terms of the OSA were modified, and PSEG LI now provides service under the Second A&R OSA. The LRA significantly changed LIPA’s role and imposed new substantive obligations on any service provider - shifting major operational and policy-making responsibilities for the Transmission and

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<sup>1</sup> Second Amended and Restated Operations Services Agreement between Long Island Lighting Company d/b/a LIPA and PSEG LI LLC

Distribution (T&D) system from LIPA to PSEG LI, including responsibilities for capital expenditures, budgets, and emergency response.

The LRA and the Second A&R OSA define the respective roles and responsibilities of LIPA and PSEG LI and the extent of LIPA’s oversight of PSEG LI. Simply stated, LIPA owns the T&D system assets and associated debt and is responsible for the oversight of PSEG LI. PSEG LI operates the T&D system assets. The LRA further requires that staffing at the Authority be kept at levels only necessary to ensure that the Authority is able to meet obligations with respect to its bonds and notes and all applicable statutes and contracts, and to oversee the activities of the Service Provider.<sup>2</sup> As a result, with the exception of its finance, and legal responsibilities, LIPA’s organization structure largely focuses on the Service Provider contract oversight/administrative function. In addition, LIPA is also responsible for conducting wholesale market activities and approval of power and fuel supply contracts per the Second A&R OSA.<sup>3</sup> **Exhibit III-1** is a high-level overview of the division of responsibilities between LIPA and PSEG LI.

**Exhibit III-1**  
**Division of Responsibilities between LIPA and PSEG LI**

	LIPA	PSEG LI
Number of Employees	66 <sup>4</sup>	2,486 <sup>5</sup>
Ownership of T&D System Assets	✓	
Financing and Debt Management	✓	
Reporting	✓	
Oversight of PSEG LI Activities	✓	
Meter Reading		✓
Billing and Collections		✓
Customer Service		✓
Managing Customer Delinquencies / Disconnections		✓
Forecasting		✓
Power Supply		✓ [Note 1]
Wholesale Market Activities	✓	
Approval of Power and Fuel Supply Agreements		✓
Naming/Branding on Customer Bills		✓

Note 1: PSEG Energy Resources & Trade LLC (PSEG ER&T) also provides power supply and fuel management services, which is overseen by LIPA, and there is a 4 FTE employee difference than Exhibit III-17 due to different source documents.

Source: NorthStar analysis, <http://www.lipower.org>, Second A&R OSA

<sup>2</sup> <http://www.lipower.org/pdfs/company/papers/LIPAPSEG/LIPABillS5844.pdf> - SB 5844, Part A

<sup>3</sup> Second A&R OSA Section 4.2.A.4 - Power Supply and Clean Energy Programs Scope Function

<sup>4</sup> DR 2.

<sup>5</sup> DR 1097 as of July 7, 2023, Attachment 2. Exhibit III-17 includes 20 additional resources from ManagCO and PSEG NJ Service Company.

LIPA's staff was increased from approximately 50 positions in 2018 to 66 positions as of December 31, 2022, although there are many vacant positions noted in its organization charts.<sup>6</sup>

## **B. WORK TASKS**

There are many work tasks in this audit chapter, established by the DPS audit scope of work.

### **LIPA's Board of Trustees**

- Interview members of the Board of Trustees.
- Review the structure and operation of the Board of Trustees relative to LIPA's organizational documents and good practices for non-profit organizations and municipal utilities.
- Assess whether the Board of Trustees exercises appropriate authority and responsibility, given the governance documents and constraints.
- Assess the role of the Board and executive management in the development of budgeting guidelines and budget approvals.
- Evaluate the processes used by the Board to review budget variances and compliance and authorize budget adjustments.
- Review and assess the role of the Board in the hiring and performance evaluation of the CEO and other senior executives.
- Review the composition and operations of Board Committees relative to good practices for municipal utilities.
- Examine the roles and responsibilities of the Board in evaluating feedback of performance results based on metrics.

### **Corporate Governance**

- Evaluate the governance, organizational structure, missions and relationships within LIPA, specifically as they relate to the Second A&R OSA, the construction program planning process, debt service management, fuel and purchased power management, annual budgeting process and other topics related to this management audit.
- Evaluate the corporate mission, values and the corporate objective and goal setting processes.
  - Determine if corporate mission is aligned with regulatory requirements (e.g., energy efficiency, renewable resources, other demand side management programs, customer services and communication requirements).
  - Determine if objectives and goals are supportive of the LIPA/PSEG LI mission and values.
  - Assess the formal and informal processes used by senior management to communicate the corporate mission, objectives and goals.

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<sup>6</sup> DR 2.

- Assess LIPA and PSEG LI’s use of measurable goals, metrics, key performance indicators, performance improvement processes, etc., to achieve the corporate mission and objectives.
- Assess the effectiveness of the means and modes of communication between LIPA and PSEG LI and determine whether appropriate protocols are in place to address the needs and/or issues of each organization.
- Examine performance and compliance with procedures and practices related to the scope of this audit, e.g., internal controls, internal audit function and any voluntary compliance with the Sarbanes Oxley Act.
- Evaluate the process in place for LIPA and PSEG LI to assess, review, and respond to tips, anonymous or otherwise, from employees and contractors through its “whistleblower” program.
- Examine LIPA and PSEG LI’s records management program and procedures for records storage, retention and final disposition. Determine whether the program adheres to applicable state and federal guidelines and regulations. Assess how PSEG LI ingests, indexes and manages records in the LIPA EDRM as specified in Section 4.2(A)(1)(r) of the Second A&R OSA and provide recommendations for improvement.
- Evaluate LIPA and PSEG LI’s management of their real estate records such as deeds, easements, leases and other real estate agreements. Determine how LIPA and PSEG LI manages and maintains these interests and associated records and documents in an electronically accessible inventory in accordance with Section 4.2 (A)(2)(r) and provide recommendations for improvement.
- Evaluate PSEG LI’s EHS program including, but not limited to processes for compliance, goal and objective target setting, risk assessment, communication, training, monitoring and measurement, program audits and senior leadership engagement.
- Evaluate the timeliness and scope of PSEG LI’s completion of audits in relation to the Second A&R OSA such as audits of pole/site attachment fees, rents and other “non product” revenues and capital assets.
- Review PSEG LI procedures in place for updating and maintaining the CAM based on changes to any processes.

## **Executive Management**

- Determine if LIPA’s corporate structure is sufficiently robust to serve the needs of its ratepayers.
- Evaluate the use of measurable goals, metrics, key performance indicators to achieve LIPA’s corporate mission and objectives, with the Performance Measurement subarea.
- Assess the extent to which LIPA executive management has addressed performance improvement opportunities within the LIPA organization.
- Assess whether adequate controls exist to address staffing and management concerns within and between LIPA and PSEG LI.
- Review the types of communication among LIPA executive management, including frequency, formality, content, and effectiveness for raising and resolving issues in a timely manner.
- In conjunction with the strategic planning evaluation, assess the role of the Executive management in LIPA’s strategic and contingency planning processes.



- Assess the overall working relationship between LIPA executive management and the Board of Trustees, its committees and individual Board members.
- Determine what information is provided to the Board of Trustees and whether it is adequate to communicate issues, opportunities and needs of LIPA relative to its ratepayers.
- Evaluate the reports provided by LIPA executive management to the Board, with a focus on issues related to this management audit.

## **Current and Future Organization Structure**

- Review the LIPA's overall organization and evaluate the assignment of major functions to assure they can provide quality service to customers and sufficient support to operations.
- Review any recent outside assessments of LIPA overall organization and any LIPA responses.
- Review the organizational responsibilities for strategic planning, capital budgeting and project prioritization, and O&M budgeting.
- Evaluate the spans of control, lines of responsibility, number of management levels and staffing levels in the current organizational structure. Assess if LIPA and PSEG LI have addressed vacant positions.
- Review the LIPA/PSEG LI organization to ensure it provides an efficient utilization of resources with no duplication of services.
- Evaluate the use of formal and informal committees and work groups in LIPA's regular operations, currently and under the proposed ServCo model.
- Evaluate the organization structure of the ServCo, including the authority, responsibilities and duties of the joint operating committee.
- Assess the functions, roles, reporting relationships and responsibilities of each party in the ServCo model -- LIPA, PSEG LI, and other sources.
- Identify the personnel of the ServCo by source.
- Assess whether LIPA has identified the processes need to assure proper allocation of costs and other factors essential to successful a ServCo operating model.
- Determine if the major functions in the new ServCo model are suitably staffed with qualified personnel to effectively manage PSEG LI's operations under the Second A&R OSA. Review PSEG LI compliance with hiring standards provided in the Second A&R OSA.
- Review hiring practices and assess if each organization have processes for talent acquisition supporting an appropriately experienced and demographically diverse senior leadership team.
- Determine if LIPA and PSEG LI have implemented processes and tools to enable remote working/management.

## **Enterprise Risk Management**

- Review the process employed by LIPA and PSEG LI to identify, assess, and rank risks to the organization, including physical, financial, and operational dimensions.
- Assess the process used by LIPA and PSEG LI to develop and track Key Risk Indicators.

- Determine whether the schedule used by LIPA and PSEG LI to update the risks and mitigations is reasonable.
- Assess the variables and any software used in the models for ERM.
- Examine and assess the steps that LIPA and PSEG LI are taking to address the areas identified as the highest risk.
- Determine whether LIPA and PSEG LI engage in adequate training, monitoring, and reporting on risks and risk management activities.
- Assess whether the risk philosophy or risk strategy, risk culture, and risk appetite for the organization is effectively understood and communicated throughout the organization.
- Assess the process used by LIPA and PSEG LI to inform management and the Board of a potential high-risk event.
- Review the process by which LIPA/PSEG LI inform the Board of critical risks and associated mitigations. (New)
- Determine the extent to which LIPA's and PSEG LI's ERM programs are integrated with operations including, strategic and resource planning, auditing, budgeting, and capital project prioritization. (New)
- Determine how LIPA/PSEG LI consider risks in the approval capital and operational plans. (From RFP with modifications)
- Examine the weight given to the variables in the risk/benefit analyses. (Covered in C1.1a)

## **Strategic Planning**

- Determine whether LIPA and PSEG Long Island have sufficiently robust strategic planning processes, consistent with industry practice, that address each entity mission, vision and purpose and the long-term goals of the State of New York. (New RFP items included as sub-bullets)
  - Determine how effectively the Authority is fulfilling its purpose and mission, particularly in meeting the needs of its customers.
- Determine whether PSEG Long Island's strategic plan is consistent with and supportive of LIPA's plan and objectives. (New RFP items included as sub-bullets)
  - Review how well PSEG LI has followed the Authority's purpose and mission.
  - Review and assess how PSEG LI formulates strategies in accordance with the Authority's strategic plan.
  - Determine how effectively PSEG LI has established objectives, formulated its strategic plan, follows through with its strategic plan, and whether these are consistent with the defined purpose of the Authority.
- Determine whether LIPA's and PSEG Long Island's strategic plans are reflected in shorter-term operational plans and are executed upon. (New RFP items included as sub-bullets)
  - Evaluate how effectively the Authority and PSEG LI execute their strategic plans.

- Determine the flexibility of the Authority and PSEG LI in light of actual experiences, changing conditions, and new priorities.

## **Communication and Control**

- Determine whether effective channels of communication and controls are in place between LIPA and PSEG LI, conveyed through administrative policies and procedures, are followed and effective.
- Determine whether an effective process is in place for both LIPA and PSEG LI to communicate the results of consultant reports, internal audits, etc., to corporate management, and between LIPA and PSEG LI, and to ensure that follow-up action is taken on any noted deficiencies.
- Evaluate whether LIPA and PSEG LI's corporate management is provided with sufficient and appropriate information through reporting systems to enable them to effectively evaluate the extent to which corporate goals and objectives are being achieved.
- Evaluate LIPA and PSEG LI's policies to ensure that their operations are transparent to key stakeholders, including but not limited to, providing adequate information in a timely manner in response to requests made by DPS.
- Evaluate whether LIPA and PSEG LI have effective and robust methods and means of communication to inform the development of strategies, policies, and other projects, including but not limited to engagement with customers, external stakeholders, external subject matter experts, and others, and between LIPA and PSEG LI.
- Determine whether LIPA adequately defines the specific long-range and short-range positions it wishes to occupy, and conveys that information to PSEG LI, and how PSEG LI operationalizes LIPA policies and objectives.

## **Pension and OPEB Investments**

- Obtain and review internal and external reports that describe each Trust's Pension & OPEBs plan asset management strategy including:
  - Procedures used in the management of Pension and OPEB trust funds
  - Methods used to determine the asset allocation of the Pension and OPEB trust funds to ensure the proper investment mix between asset classes
  - The fund manager selection and evaluation processes.
- Determine what measurements of plan risk the Trust relies on and assess how these relate to the Authority's ability to meet its plan obligations.
- Determine what measures of plan asset allocation the Trust uses and assess whether these measures provide appropriate diversification of plan funds.
- Compare PSEG Thrift and Pension Investment Committee performance to leading practices.
- Review and evaluate LIPA's available liquidity balance related to unrestricted OPEB Account established to pre-fund certain future post-employment retirement obligations of the PSEG LI employees, including Board approval.

## C. FINDINGS AND CONCLUSIONS

### LIPA's Board of Trustees

Corporate governance refers to the system of rules, practices and processes by which a company is directed and controlled. Corporate governance essentially involves balancing the interests of the many stakeholders in a company. These include management, customers, suppliers, financiers, government and the community, and includes the relationships and potential conflicts in goals and activities between management and its varied stakeholders.

LIPA's Board of Trustees (BOT) is a policy-making body, responsible for defining the mission, values and strategic direction of the Authority; monitoring performance against policies established by the BOT; adopting annual budgets; setting rates; hiring, evaluating and discharging selected Officers; approving certain contractual agreements; and, fulfilling its fiduciary responsibilities.<sup>7</sup>

Effective Board management and governance has the following attributes:

- An experienced and knowledgeable governance Board with appropriate committees to provide effective oversight and direction.
- Top management with the right number of people with the right skills.
- An executive compensation system with appropriate checks and balances.
- A proper organizational structure, focus, and direction supported by effective corporate oversight and planning.
- Effective communications among executives and the Board on important business, legal and regulatory issues and comprehensive reports on cost and performance results.
- A process for developing management talent and filling key positions with highly qualified individuals.

For a typical investor-owned utility, stakeholders include the Board of Directors, shareholders, regulators, customers, generators and other vendors, and the general public. As a not-for-profit municipal utility, LIPA faces additional considerations. The shareholder-elected Board of Directors is replaced by Board of Trustees appointed by political bodies. Shareholders are replaced by the citizens of the state, and LIPA is governed by its Board of Trustees. Additionally, LIPA outsources the bulk of its operational responsibilities and a portion of its management activities, rather than employing all staff on its own books. The LIPA governance structure, therefore, must navigate potentially competing interests of a variety of political bodies, along with a legacy of debt, and management of a variety of key vendors providing essential services to its customers.

While these differences are important and must be taken into consideration in the execution of this management audit, ultimately LIPA's objective is identical to that of any other utility:

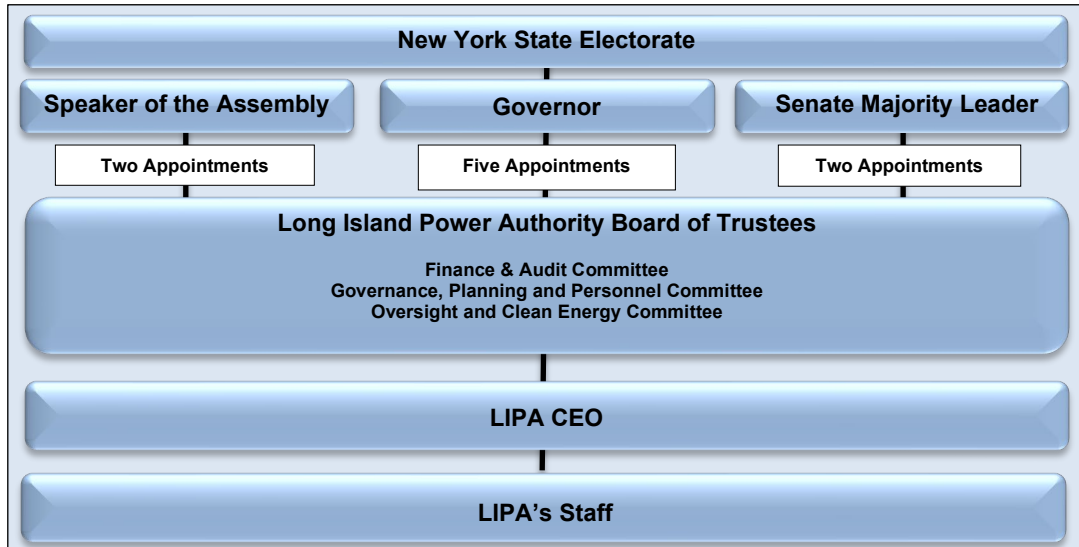
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<sup>7</sup> <https://www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf>. Accessed on January 8, 2024.

to deliver safe, reliable electric service to its customers at a reasonable cost. Thus, while the methods and external stakeholders may be different, the end result is the same.

**Exhibit III-2** provides LIPA’s current governance structure. LIPA is governed by a nine-member Board of Trustees. The law sets up a nine-member Board – five appointed by the Governor, two by the Senate Majority Leader and two by the Speaker of the Assembly.<sup>8</sup>

**Exhibit III-2  
LIPA Governance Structure**



Source: <http://www.lipower.org>

The roles of various groups are as follows:

The BOT currently has three committees: Finance and Audit (F&A), Governance, Planning and Personnel and Oversight and Clean Energy.<sup>9</sup> The Board Committee leadership is shown in **Exhibit III-3**.

<sup>8</sup> <https://www.lipower.org/about-us/board-of-trustees>. Accessed on January 8, 2024.

<sup>9</sup> <https://www.lipower.org/about-us/board-of-trustees/committee/>. Accessed on January 8, 2024.

**Exhibit III-3**  
**LIPA Board of Trustees – Committee Leadership**

Trustee	Finance and Audit	Governance, Planning and Personnel	Oversight and Clean Energy
Tracey Edwards, <b>BOT Chair</b>			
Claudia P. Lovas			✓
Valerie Anderson Campbell	✓	Chair	
David J. Manning	Chair		✓
Vanessa Baird-Streeter		✓	
Laureen Harris	✓		
Dominick Macchia	✓		Chair
Mili Makhijani, Esq.		✓	

Source: <https://www.lipower.org/about-us/board-of-trustees/#>  
Committee Leadership members were not updated as of 12-1-2023.

LIPA’s mission is to enable the provision of clean, reliable, and affordable electric service for its customers on Long Island and the Rockaways. The LIPA Board of Trustees aims to achieve excellence in governance in keeping with its important civic responsibility. That begins by defining the mission and values that determine how LIPA serves its community. The LIPA Board has approved several policies intended to clarify its role and responsibilities as fiduciaries, set appropriate governance priorities, and enhance its collective performance as the governing body for our local, publicly owned, not-for-profit electric utility. The Board commits to continue to review and enhance its policies and practices over time to ensure the achievement of LIPA’s mission to enable clean, reliable and affordable electric service to LIPA’s customers on Long Island and the Rockaways.

The LIPA Board adopted a governance model that it believes represents the best practices for public power utilities in the United States and is recommended by the American Public Power Association (APPA) for its members.<sup>10</sup>

- The governance process adopted by the LIPA Board recognizes that it is the role of the Board to set policy and provide specific direction to the Authority on its mission and ends to be achieved in the form of specific policy statements.
- The LIPA CEO develops tactical plans (represented as the goals for the year) in pursuit of the Board-defined policies and reports back to the Board periodically (at least annually) on their attainment.
- The Board reviews the performance of the CEO (who is responsible for the performance and evaluation of the entire LIPA staff and the Service Provider) and may determine whether there is a need to reconsider the goals and policies in light of the CEO’s performance.

<sup>10</sup> <https://www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf>. Accessed on January 8, 2024

**1. The LIPA Board has improved its diversity and depth since the LRA, but faces the dilemma most boards of public power agencies face; how to increase the level of utility, financial and energy industry experience consistent with an organization of LIPA’s size, complexity and revenues. The Board should utilize independent resources to augment its own skills and expertise when needed.**

- The LRA requires that all trustees have relevant utility, corporate board or financial experience.
- Typical practice for Board composition is to develop a breadth and depth of skill sets associated with business in general (e.g., accounting, finance, law, marketing, and operations) and related to the business’ industry. The level of experience and position of board members should be roughly commensurate with the size, breadth, and complexity of the enterprise.<sup>11</sup>
- Presently, the BOT has no members with experience running a similarly large electric utility organization, either as a senior executive or as a Board member.<sup>12</sup> The professional backgrounds of the current LIPA Board members are shown in **Exhibit III-4**.

**Exhibit III-4  
LIPA Board of Trustees Background**

Trustee	Professional Background
Tracey Edwards, Chair	Prior NYPSC Commissioner, Verizon Communications Executive
Claudia P. Lovas	Attorney
Valerie Anderson Campbell	Executive Recruiter and Consultant
David J. Manning	Director, Stakeholder Relations Office at Brookhaven National Laboratory
Vanessa Baird-Streeter	Deputy County Executive of Suffolk County, Financial Analyst
Laureen Harris	Attorney
Dominick Macchia	International Representative for the IBEW
Mili Makhijani, Esq.	Attorney

Source: <https://www.lipower.org/about-us/board-of-trustees>

- Trustee biographical summaries demonstrate backgrounds leading financially successful organizations in both the private and public sectors. However, they have less experience in the areas of finance, accounting, customer service or investor-owned utility corporate boards.<sup>13</sup>
- In addition to the need for relevant experience, Trustees are given a substantial workload to understand the complex issues LIPA faces and to develop a thorough understanding of the environment and technical challenges facing an electric utility of LIPA/PSEG LI’s size.

<sup>11</sup> NorthStar analysis

<sup>12</sup> <https://www.lipower.org/about-us/board-of-trustees/#>

<sup>13</sup> <https://www.lipower.org/about-us/board-of-trustees/#>



- Materials provided to the Board are numerous, complex and require understanding of unique utility issues. These factors underscore the commitment to a heavy workload.
- Trustees do not receive compensation for their effort but are entitled to reimbursement for reasonable expenses in the performance of their duties.<sup>14</sup> Their non-LIPA professional responsibilities may limit the amount of time that can be devoted to the volume of LIPA oversight materials.

**2. The degree to which the Board exercises authority and responsibility may be measured in part by its activity level and participation. While LIPA’s Board activity level may be comparable to some other public power boards, it is relatively low compared to boards of large investor-owned utilities.**

- The BOT meets six times per year plus Tariff and Budget Public Comment Sessions (a total of seven meetings in 2022 and 2023). BOT meetings are typically less than one-day sessions and include Board Committee meetings on the same day.<sup>15</sup>
- LIPA staff prepare and present materials to the Board in a Briefing, normally held the week before the Board meeting.<sup>16</sup> Board materials routinely exceed hundreds of pages.
- The public sessions of the full Board meetings span roughly two hours, including public comment. The Board meets in executive session following the public meeting.
- By Committee Charters, BOT committees meet no less than four times per year, normally on the same day as the full Board. During CY 2022 and CY 2023, the number of Committee meetings held are shown in **Exhibit III-5**. The Governance, Planning and Personnel Committee met its four minimum meeting requirements in 2022, but only two in 2023.<sup>17</sup>

**Exhibit III-5  
2022/2023 BOT Committee Meetings**

Committee	Number of Meetings 2022	Number of Meetings 2023
Finance and Audit	7	7
Governance, Planning and Personnel	4	2
Oversight and Clean Energy	7	6

Source: <https://www.lipower.org/about-us/board-of-trustees/meetings/>

- LIPA prepares the Boards Consent Agenda the week before the Board meeting date and Board member discussion of the Consent Agenda is not formally part of the pre-

<sup>14</sup> [https://legislation.nysenate.gov/pdf/bills/2013/S5844 - S5844 \(nysenate.gov\)](https://legislation.nysenate.gov/pdf/bills/2013/S5844 - S5844 (nysenate.gov)). Accessed on January 8, 2024.

<sup>15</sup> <https://www.lipower.org/about-us/board-of-trustees/meetings/>. Accessed on January 8, 2024.

<sup>16</sup> DRs 14, 16, 1010 and 1109, Board member interviews

<sup>17</sup> <https://www.lipower.org/purpose/> By-Laws and Committee Charters, Governance, Planning and Personnel Committee Charter, March 30, 2022 and <https://www.lipower.org/about-us/board-of-trustees/meetings/>. Accessed on January 8, 2024.

Board meeting Briefing.<sup>18</sup> The Authority covers many decisions in the Consent Agenda thereby shortening the duration of the full Board meeting. Although any Board member has the ability to move items from the Consent Agenda to a full discussion, during the course of meetings observed by NorthStar some significant policy issues were addressed as Consent Items.<sup>19</sup> These include:

- Consideration of Approval of the Annual Report and Amendments on the Board Policy on Enterprise Risk Management.
  - Consideration of the Selection of Firms to Provide Information Technology Consulting Services.
  - Consideration of Approval of the Annual Report and Amendments to the Board Policy on Audit Relationships.
  - Consideration of Approval of the Selection of Firms to Provide Rate Consulting Services.
  - Consideration of Approval of the 5-Year Strategic Roadmap.
  - Consideration of Amendments to the Board Policy on Procurement.
- Committee agenda topics pertain to their charter scope and include:
    - Annual performance reports and activity updates.
    - Charter amendments and revisions.
    - Financial reports and Audit activities (F&A).
    - Board Policy.
    - Performance metrics and updates.
    - Budgets.
    - Emergency response and summer preparation.

**3. The results of consultant studies, internal audits, operating performance, and status reports are routinely provided by LIPA and PSEG LI executive management to the full Board and Committee meetings.**

- Audit reports include a management distribution list and the Board Finance and Audit Committee receives summary briefings.<sup>20</sup>
- LIPA and PSEG LI executives provide reports and briefings to Board Committees as described above.
- The Board, on the recommendation of the Finance and Audit Committee selects an independent certified public accounting firm to conduct annual audits of LIPA.<sup>21</sup>
  - The Finance and Audit Committee reviews the audit services to be performed by an independent auditor annually.

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<sup>18</sup> DRs 14, 16, 1010 and 1109, Board member interviews

<sup>19</sup> NorthStar observation

<sup>20</sup> DR 35, 36 and - Board and Committee Materials. [Board & Committee Meetings - Lipower](#). Accessed January 8, 2024.

<sup>21</sup> [By-laws-and-Charters.pdf \(lipower.org\)](#) and Board Policies – Audit Relationships - [Board of Trustees - Lipower](#). Accessed on January 8, 2024.

- The Finance and Audit Committee will meet each year with the external auditors at the commencement of the annual audit and again after the audit is complete.
  - LIPA’s Internal Audit function includes LIPA and its service providers.<sup>22</sup>
    - The Finance and Audit Committee reviews the audit plan and structure of the Internal Audit department annually.
    - LIPA’s Director of Audit meets with the Finance and Audit Committee in Executive session at least twice yearly to review the Internal Audit Reports outside the presence of LIPA or PSEG LI staff.<sup>23</sup>
- 4. The Board’s role in the hiring and evaluation of the CEO and other executives is appropriate and consistent with industry practice. However, the accountability for attracting and hiring key officer positions is not entirely clear in LIPA’s By-Laws and Board Committee Charters, which can complicate situations such as when the CEO is also the CFO.**
- The CEO, CFO, and General Counsel of the Authority are elected by the Trustees.<sup>24</sup>
    - The Governance, Planning and Personnel Committee makes recommendations to the full Board relating to attraction, appointment, evaluation, retention, compensation, and separation from employment of LIPA’s CEO.<sup>25</sup>
  - The Governance, Planning and Personnel Committee consults with the CEO and advises the Board with respect to the attraction, appointment, retention and separation from employment of the CFO and General Counsel.<sup>26</sup>
  - The CEO appoints the Secretary and Controller and other officers as appropriate. Any officer elected by the Trustees may be removed by the Trustees at any time, with or without cause.<sup>27</sup>
  - The Board annually evaluates the CEO’s performance by comparing LIPA’s performance to the policies established by the Board, and the skills of the CEO to the competency profile established for the position.<sup>28</sup>
    - The Board periodically reviews the CEO’s compensation using a benchmarking survey.

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<sup>22</sup> Board Policy: Audit Relationships - [Board-Policies-9-2023.pdf \(lipower.org\)](#)

<sup>23</sup> <https://www.lipower.org/purpose/> Board Policies. Accessed January 8, 2024.

<sup>24</sup> By-Laws of the Long Island Power Authority, Article IV – Section 2, as amended May 20, 2020, <https://www.lipower.org/purpose/> . Accessed January 8, 2024.

<sup>25</sup> [By-laws-and-Charters.pdf \(lipower.org\)](#) Governance, Planning And Personnel Committee Charter, page 25 of 28. Accessed January 8, 2024.

<sup>26</sup> [By-laws-and-Charters.pdf \(lipower.org\)](#) Governance, Planning And Personnel Committee Charter, page 25 of 28. Accessed January 8, 2024.

<sup>27</sup> [By-laws-and-Charters.pdf \(lipower.org\)](#), Article IV – Section 2, as amended May 20, 2020, <https://www.lipower.org/purpose/> . Accessed January 8, 2024.

<sup>28</sup> [By-laws-and-Charters.pdf \(lipower.org\)](#) Governance, Planning And Personnel Committee Charter, page 25 of 28. Accessed January 8, 2024.

- The Board appoints and, if necessary, discharges the CEO.

## Corporate Governance

Corporate governance refers to the system of rules, practices and processes by which a company is directed and controlled. Corporate governance essentially involves balancing the interests of the many stakeholders in a company. These include its shareholders, management, customers, suppliers, financiers, government and the community, and the relationships and potential conflicts in goals and activities between management and varied stakeholders.

### 5. LIPA's corporate mission is aligned with regulatory requirements.

- LIPA's Board policies, mission and vision statements are readily available in various public communications and on the LIPA web site.
- LIPA's stated purpose is to serve customers and the community by providing clean, reliable, and affordable energy to Long Island and the Rockaways. As a not-for-profit utility, LIPA attempts to be a value driven organization that puts customers first in all our actions.<sup>29</sup>
- LIPA's vision is to be our customers' trusted energy partner. To achieve this vision, LIPA will:
  - Actively engage with our customers and the communities we serve;
  - Respond to our customers' needs and exceed their expectations;
  - Be a recognized innovator in our industry to better serve our customers; and
  - Be known as a steward of our environment and community.
- In relationship to regulated energy requirements, "LIPA's vision for clean energy and power supply is to provide clean, reliable, resilient electricity to our customers at an affordable cost that both maintains the economic competitiveness of our region and minimizes the economy-wide greenhouse gas emissions of Long Island and the Rockaways by encouraging the electrification of vehicles, buildings, and equipment."<sup>30</sup> To achieve the vision for clean energy, LIPA will:
  - Achieve a zero-carbon electric grid by 2040, while meeting or exceeding LIPA's share of the clean energy goals of New York's Climate Leadership and Community Protection Act (CLCPA), including those for renewables, offshore wind, distributed solar, and storage.
  - Demonstrate innovation and be recognized among the leading utilities in reducing economy-wide greenhouse gas emissions through energy efficiency and beneficial electrification.
  - Improve equity for disadvantaged communities, as measured by meeting or exceeding LIPA's share of New York's environmental justice goals as defined by the CLCPA and the Climate Justice Working Group, including ensuring that

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<sup>29</sup> LIPA Board Policies as of September, 2023, <https://www.lipower.org/purpose/>

<sup>30</sup> LIPA Board Policies as of September, 2023

disadvantaged communities receive 40 percent of the overall benefits of clean energy, energy efficiency, energy assistance, and energy transportation investments, but not less than 35 percent of the overall benefits of spending on clean energy and energy efficiency programs, projects or investments.

## 6. PSEG LI has an effective Ethics and Compliance Program.

- PSEG LI maintains a comprehensive Standards of Conduct policy.<sup>31</sup> The policy is well documented, frequently communicated to employees and other stakeholders, and reinforced with periodic trainings. The Standards of Conduct policy provides multiple channels for individuals to raise concerns about potential violations of the Standard of Conduct, including:
  - Immediate supervisor or manager.
  - Skip-level manager or member of Senior Leadership Team.
  - Office of Ethics & Compliance at 973-430-6405 or [ethics.compliance@pseg.com](mailto:ethics.compliance@pseg.com).
  - Human Resources (e.g., HR Business Partner or Labor Relations).
  - Law Department.
  - PSEG Helpline at 1-800-655-7269 or <https://pseg.alertline.com> (available 24/7 and can be anonymous).
  - Employee Concerns Program, for concerns on nuclear safety or quality, at 856-339-1402, or [ECP@pseg.com](mailto:ECP@pseg.com) (available 24/7 and can be anonymous).<sup>32</sup>
- Once a concern is raised, PSEG LI Ethics & Compliance Program (E&CP) follows a thorough and consistent process to investigate concerns. The concern is categorized by the nature of the allegation. Depending on the nature of the concern the investigative process may include interviews, email reviews, document review, search of external sources, and assistance from outside resources. The investigation reports generally follow the following format:
  - Executive summary
  - Allegation
  - Objective and scope of the investigation
  - Background
  - Investigative summary
  - Conclusion
  - Corrective Action – Corrective actions are determined by a Human Resources panel for management employees, or a consensus call for union employees.
  - Other Recommendations for Corrective Action – Other recommendations are typically observations made by the investigators to remediate the concern (other than employment actions or discipline). For example, the ethics and compliance team may recommend training if a compliance issue is identified.<sup>33</sup>

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<sup>31</sup> DR 174 Attachment I.

<sup>32</sup> DR 174 Attachment I.

<sup>33</sup> DR 174, IR 124 and 146.

- PSEG LI also has the ability to open an investigation based on concerns from management unrelated to a whistleblower tip. For example, PSEG LI can open an investigation based on exit interviews, matters reported in the news, or other current events. PSEG LI has opened investigations based on news articles describing risks that may impact their business.<sup>34</sup>
- The PSEG LI E&CP meets the guidelines and framework (described above) of an effective Ethics and Compliance Program.
- Although NorthStar cannot conclude on whether the Office of Ethics and Compliance reached the correct conclusions, NorthStar did review a sample of investigation reports and noted that the investigative team took appropriate steps to investigate concerns.<sup>35</sup>

**7. LIPA has a policy on Whistleblower and Ethics Complaints. This policy, although less mature than PSEG LI’s Ethics and Compliance Program, is sufficient for LIPA’s organization.**

- LIPA maintains a comprehensive Code of Ethics and Conduct.<sup>36</sup>
- LIPA has multiple methods for employees and stakeholders to report complaints, including:
  - Authorities Budget Office: The Authorities Budget Office or ABO is an independent office that oversees the operations of New York State Public Authorities. A Whistleblower or Ethics Complaint may be filed with the ABO by calling 1-800-560- 1770 or online at Complaint Form.
  - Ethics Hotline: LIPA maintains an independent Ethics Hotline through NAVEX Global called EthicsPoint. A Whistleblower or Ethics Complaint may be filed with LIPA through EthicsPoint by calling: (844) 915-1626 or online at [lipower.ethicspoint.com](http://lipower.ethicspoint.com).<sup>37</sup>
- Due to the smaller size of LIPA’s organization, it has significantly fewer complaints submitted than PSEG LI.<sup>38</sup> As such, LIPA does not have the same formal investigative process as PSEG LI. Rather, LIPA follows a decision tree based on the nature of the complaint. Based on the nature of the complaint, the matter is either: investigated by LIPA general counsel, referred to the service provider, or an investigation is coordinated with the service provider. Depending on the nature of the complaint, the general counsel’s office will conduct an investigation and prepare a report. This report is shared with the CEO and the VP of Audit. If applicable this report will also be shared with the Board of Trustees.<sup>39</sup>

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<sup>34</sup> IR 124 and 146.

<sup>35</sup> DR 207, IR 124, IR 146.

<sup>36</sup> DR 206.

<sup>37</sup> DR 174.

<sup>38</sup> DR 207.

<sup>39</sup> DR 174.

**8. LIPA ability to have a formal oversight role over the PSEG LI’s Ethics and Compliance Program is constrained due to the lack of detailed information.**

- LIPA does not have direct access to concerns submitted to PSEG LI and therefore cannot conduct an effective systematic review of PSEG LI investigations.
- PSEG LI’s EC&P does not provide LIPA with specific information to identify trends or systemic issues which may impact the larger organization, nor does it allow for LIPA to comprehensively evaluate if conclusions and remediation are appropriate.

**9. PSEG LI’s record management program is deficient.**

- The Second A&R OSA states in Section 4.2 (A)(5)(r)(g):

“The Service Provider is responsible for developing and maintaining a comprehensive document management program with records storage, retention and destruction guidelines and procedures, in accordance with applicable state and federal guidelines and regulations, provided that, in accordance with, and subject to the provisions of Section 4.2(A)(1)(r), the Service Provider will utilize the LIPA Enterprise Document Retention and Management System and integrate and maintain the data, information, and reports on such system as referenced in such Section.”

- PSEG Corporate records management policy titled “PSEG Practice 105-1” sets forth the responsibilities and guidelines for the identification, retention, maintenance and disposal of records. The policy describes the purpose, scope, tools and controls of the company’s record management program. Practice 105-1 governs all records and information, regardless of its format, medium or location, and extends to all records and information created by any electronic device, including, but not limited to mobile phones, computers, digital tablets and/or smartphones.<sup>40</sup>
- PSEG LI does not have enterprise-wide document management system.<sup>41</sup> Currently, most corporate documents and records are created electronically and on different devices. PSEG LI relies upon individual employees’ understanding of what records to retain and the length of retention (e.g., company email). Without an enterprise-wide approach for managing electronic records, PSEG LI and LIPA records administered by PSEG LI are not properly managed and controlled. PSEG LI risks potential public safety, property, reliability, regulatory, financial, or other impacts that result from the use of inaccurate or incomplete records.
- PSEG LI records retention schedule, that includes LIPA records, used to retain records involved in the operation of the Long Island electric system does not cite the “Retention and Disposition Schedule for New York Local Government Records (LGS-01) 2020”

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<sup>40</sup> DR 460 Attachment 1.

<sup>41</sup> DR 460.



(Local Government Records). The Local Government Records document is identified by the LIPA records retention policy LEG-POL-002.<sup>42</sup>

- PSEG LI does not follow its own policy demonstrating controls over the records program.
  - Practice 105-1 requires that each PSEG LI line of business Vice President provide an annual attestation of compliance with the records management program.<sup>43</sup> The PSEG LI Records Coordinator did not receive a signed attestation of compliance from any line of business in 2022.<sup>44</sup>
  - Practice 105-1 states that the PSEG LI Records Management Group (RMG) is responsible for conducting evaluations of effectiveness of the records management program.<sup>45</sup> As of March 2023, the PSEG LI RMG had not performed an evaluation of the records program effectiveness.<sup>46</sup>
- LIPA’s oversight of PSEG LI’s destruction of records is ineffective and does not comply with PSEG LI record management procedures and records disposition.
  - A PSEG LI Internal Audit of the record management program in October 2021 identified physical records held off-site had never been destroyed, resulting in records retained beyond defined retention periods.<sup>47</sup>
  - Practice 105-1 refers to Instruction 105-1-2, a PSEG corporate Document Disposal Guidelines document that includes a physical record destruction process where the annual destruction list of records eligible for destruction is sent out to the business units for review and authorization.<sup>48</sup>
  - PSEG LI RMG implemented a process where the business units’ destruction authorizations are then sent to LIPA for approval. Practice 105-1-2 is a PSEG corporate document; LIPA authorization is not included in this document.
  - An email with a list of records was sent to LIPA on January 26, 2022 for authorization to destroy records.<sup>49</sup> PSEG LI stated that no action was taken by LIPA as of January 2023.<sup>50</sup>
- The Second A&R OSA states in Section 4.2 (A)(2)(r)(iv) that the Service Provider is responsible for the:

“management of real estate records, including deeds, easements, leases and other real estate agreements, including maintaining an accurate and electronically accessible spreadsheet of LIPA real estate interests and related records and documents and, after implementation of the electronic system

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<sup>42</sup> DRs 175 Supplement 1 and 593 Attachment 1.

<sup>43</sup> DR 460 Attachment 1.

<sup>44</sup> DR 600.

<sup>45</sup> DR 460 Attachment 1.

<sup>46</sup> DR 601.

<sup>47</sup> DR 29 Attachment 65.

<sup>48</sup> DR 1633.

<sup>49</sup> DR 463 Attachment 1.

<sup>50</sup> IR 70

currently planned for electronically maintaining such interests, records and documents, maintaining an accurate and electronically accessible inventory of the same”

- PSEG LI’s list of LIPA property records has missing data such as addresses, document dates, recording dates, segment/project name, file/document numbers, and Seller/Buyer information.<sup>51</sup>

#### **10. LIPA has not implemented an effective records management program.**

- LIPA developed LEG-POL-002 dated February 16, 2021 as its record retention policy. The policy establishes a framework for the creation, maintenance, disposition, preservation, and destruction of records. The policy requires that all records be identified that retention periods be established, and that all records be retained until their retention periods expire, at which time they shall be promptly destroyed.<sup>52</sup>
- LIPA does not comply with its own policy. LIPA does not have or maintain a record inventory that identifies its physical and electronic records for record management purposes.<sup>53</sup>
  - A record inventory is not just a list of records; it is the primary document used to develop the record retention schedule. It includes pertinent information such as record type, record code, record description, functional area, media format, and location. A record inventory serves as the tool to identify requirements for the design, justification, and establishment of a records management program.
  - LIPA requested a record inventory from its offsite vendor facility. The document provided to NorthStar was a listing of boxes and certain characteristics such as size of boxes, receipt date, destruction information that was “undefined”, and box location. The document is not a records inventory detailing the organization’s physical and electronic records. LIPA stated that it does not maintain a master list of records at in its Uniondale office.<sup>54</sup>
- LIPA’s records management program does not operate under a Board-certified record retention schedule.
  - LIPA’s Board’s policy on Staffing and Employment authorizes and directs the Chief Executive Officer to develop “a record retention policy that complies with applicable New York State laws and regulations.”<sup>55</sup>
  - LEG-POL-002 dated February 16, 2021 is LIPA’s record retention policy. LEG-POL-002 refers to the “Retention and Disposition Schedule for New York Local Government Records (LGS-01) 2020” (Local Government Records) as the

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<sup>51</sup> DR 459 Attachment 1 (For examples see Appraisals, Boxes- Hard Copies, Condemnations, Franchise Agreements, LIPA Electric Easements, and LIPA Sold Parcels Tabs). NorthStar analysis.

<sup>52</sup> DR 175 Supplement 1.

<sup>53</sup>DR 595 Supplement 1.

<sup>54</sup> DR 595.

<sup>55</sup> Board of Trustee meeting July 24, 2019, [www.lipower.org/about-us/board-of-trustees/meetings/](http://www.lipower.org/about-us/board-of-trustees/meetings/)

“retention schedule” adopted by LIPA.<sup>56</sup> Local Government Records document provides retention and disposition schedules for all types of government records. It is unclear exactly how LIPA implements the retention and disposition schedules for the specific types of records created and maintained by the Authority. For example, the Local Government Records document provides retention and disposition schedules for records that should be maintained by the Coroner, Games of Chance/Bingo/Lottery, Probation, School Districts/BOCES, and other types of government institutions.<sup>57</sup>

- The Local Government Records document states that:

“Before any records listed on the Retention and Disposition Schedule for New York Local Government Records may be disposed of and even if the local government previously adopted Schedules CO-2, MU-1, MI-1, and ED-1, the governing body must formally adopt the Schedule by passing a resolution” and “The Schedule must be adopted no later than January 1, 2021.”<sup>58</sup>

- A model resolution was included in the Local Government Record document - **Exhibit III-6**.

**Exhibit III-6**  
**Model Governing Body Resolution for Retention and Disposition Schedule  
for New York Local Government Records**

**RESOLVED**, By the \_\_\_\_\_ [title of governing body] of \_\_\_\_\_ [local government name] that *Retention and Disposition Schedule for New York Local Government Records*, issued pursuant to Article 57-A of the Arts and Cultural Affairs Law, and containing legal minimum retention periods for local government records, is hereby adopted for use by all officers in legally disposing of valueless records listed therein.

**FURTHER RESOLVED**, that in accordance with Article 57-A:

a) only those records will be disposed of that are described in *Retention and Disposition Schedule for New York Local Government Records* after they have met the minimum retention periods described therein;

b) only those records will be disposed of that do not have sufficient administrative, fiscal, legal, or historical value to merit retention beyond established legal minimum periods.

Source: DR 175 Supplement 1.

- NorthStar requested the Board resolution adopting the Local Government Record schedule. The LIPA response referenced the Board policy on Staffing and Employment dated June 2021.<sup>59</sup> No resolution was provided in the policy.

<sup>56</sup> DR 175 Supplement 1.

<sup>57</sup> DR 175 Supplement 1.

<sup>58</sup> DR 175 Supplement 1.

<sup>59</sup> DR 596.

- LIPA’s Board did not pass a resolution in compliance Article 57-A of the Arts and Cultural Affairs Law and the schedule was not adopted prior to the January 2021 deadline.
- LIPA does not comply with its own policy on the disposition of records. LEG-POL-002 requires that all records be retained until their retention periods expire, at which time they shall be promptly destroyed.<sup>60</sup>
  - LIPA states that it does not currently track document disposition, nor does LIPA have other support related to specific disposition of records.
  - Under LIPA’s current systems, such tracking of the destruction of documents would be a purely manual process which would be very time-consuming. As a result, LIPA likely retains documents beyond their required retention periods.<sup>61</sup>
- LIPA has not audited its record management program since the prior management audit.<sup>62</sup>
- LIPA is implementing an Electronic Document and Records Management System (EDRMS). LIPA engaged a vendor in 2021 to facilitate a phased implementation of the system.<sup>63</sup> A requirement for PSEG LI to adopt LIPA's document management system was incorporated into the Second A&R OSA.<sup>64</sup> Once fully implemented, the platform is supposed to manage the lifecycle of LIPA's records, including records disposition and tracking and reporting on disposed records.<sup>65</sup> The EDRMS project has experienced delays since the project start in 2021.<sup>66</sup>

**11. PSEG LI’s Environmental, Health and Safety (EHS) program is reasonable. The EHS program has established policies, procedures and governance structure; communication channels; systems and training; and monitoring and audits.**

**Policies, Procedures and Governance Structure**

- PSEG LI is subject to the PSEG corporate Policy 2 “Environment, Health and Safety”. This policy states that PSEG corporate and its subsidiaries are committed to responsibly conduct business in a manner that protects the environment, health and safety of employees, contractors, customers and the public. PSEG LI must implement this commitment through the establishment and maintenance of management systems for Health and Safety, Nuclear Safety, Climate Change, Compliance, Risk Reduction, Pollution Prevention and Resource Conservation, Open Communications, and Continuous Improvement.<sup>67</sup>

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<sup>60</sup> DR 175 Supplement 1.

<sup>61</sup> DR 963.

<sup>62</sup> DR 597.

<sup>63</sup> DR 175.

<sup>64</sup> DR 798.

<sup>65</sup> DR 963.

<sup>66</sup> DR 798 and Supplement 2..

<sup>67</sup> DR 896 Attachment 24.

- PSEG LI’s EHS program is defined by the PSEG corporate “PSEG Environment, Health and Safety Program Guide.”<sup>68</sup> This Guide states that it “applies to all PSEG operations and activities where the Business has a controlling interest (i.e., where the Business is in a position to dictate Compliance with the PSEG EHS Policy and Program Guide)”. The Guide is an overview of the “14 Core Elements” of EHS and covers subjects such as:
  - Top Management Commitment
  - Identify and Assess EHS Aspects, Hazards and Issues
  - Identify Applicable Legal and Other Requirements
  - Define Performance Indicators, Objectives and Targets
  - Define Structure and Roles
  - Develop Control Programs
  - Establish Incentives and Disciplinary Programs
  - Integrate EHS Considerations into Business Plans and Decisions
  - Conduct Training, Maintain Awareness and Assure Competence
  - Maintain EHS Management Documentation and Records
  - Manage Contractor, Supplier and Business Partner Relationships
  - Communicate with Internal and External Stakeholders
  - Monitor, Measure and Verify Performance
  - Implement Corrective and Preventive Action to Continuously Improve Performance
  
- PSEG LI EHS program has extensive procedure documentation. The PSEG LI Health and Safety Manual is provided to employees in hardcopy or electronic format to ensure compliance with Federal, State and Local regulations, as well as corporate requirements. Employees are required to sign an “Acknowledgement Form” that they have received a hardcopy or have electronic access to the Manual. The employee’s supervisor is to place the signed form in the employee’s personal file.<sup>69</sup> The Manual contains 22 chapters listed in **Exhibit III-7**.

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<sup>68</sup> DR 176 Attachment 1.

<sup>69</sup> DR 896 Attachment 23.

**Exhibit III-7**  
**PSEG LI Health and Safety Manual**

Chapter No.	Title	Chapter No.	Title
1	General Health and Safety Overview	12	Materials Handling and Rigging Equipment
2	Federal, State, and Local Agencies – Reporting & Inspection Compliance	13	Hand and Portable Powered Tools, Machines, Compressed Air Equipment, and other Hand-Held Equipment
3	Walking and Working Surfaces	14	Welding, Cutting, and Brazing
4	Means of Egress	15	Excavations, Trenching, and Shoring
5	Maintaining and Driving of Company Vehicles	16	Electrical – Overhead
6	Occupational Health and Environmental Control	17	Electrical – Underground
7	Hazardous Materials	18	Tree Trimming/Brush Cutting
8	Personal Protective Equipment	19	Office Safety
9	General Environmental Controls	20	Customer Services – Meter Services
10	Medical and First-Aid	21	Substations
11	Fire Protection	22	Temporary Traffic Control Zone, Work Area Protection and Flagging

Source: DR 896 Attachments 1 to 23

- NorthStar’s review of the Manual found the following:
  - The Manual states that contractors and their employees must follow all applicable regulatory requirements, the standards and procedures contained within the Manual. There is no indication whether contractors are required to sign the “Acknowledgement Form” that they have received a hardcopy or have access to an electronic version, similar to what PSEG LI employees must do.<sup>70</sup>
  - The Manual is to be updated every three years or incrementally as significant changes occur. The Manual was revised in December 2013, March 2015 and December 2020. As of May 2023, the Manual had not been updated. Given the evolving nature of Federal, State, and Local regulations and PSEG LI’s corporate core commitment to continuous improvement, certainly there are recent “lessons learned”, leading practices, or new safety technologies recently deployed that would justify updating the Manual.<sup>71</sup>
  - The Manual does not recognize or reference PSEG corporate policies such as Policy 2 “Environment, Health and Safety” and PSEG Practice 575-1 “PSEG Environment, Health and Safety Program Guide”.
- PSEG LI implemented and maintains a three-level safety council governance structure as shown in **Exhibit III-8**.

**Exhibit III-8**  
**PSEG LI Safety Council Structure**

Tier	Organization	Sponsorship	Membership	Meeting Frequency
Level One Safety Council	Organized within a functional area or within a particular yard as appropriate to the operations and work groups.	Sponsored by a manager within the area Has an elected Chairperson and a recording secretary who are typically union represented employees.	Employees and supervisors from all of the various areas represented by the council	Monthly

<sup>70</sup> DR 896 Attachment 23.

<sup>71</sup> DRs 896 Attachments 23, 24, and DR 1577.

Level Two Safety Council	represent one or more entire business units	The executive sponsor for a Level Two Safety Council is the vice president(s). The council selects their own chairperson and recording secretary. <sup>72</sup>	Representatives of each of the represented areas from within the business unit(s). Each of the executive sponsors, chairpersons and recording secretaries from the Level One Councils All of the directors, safety program managers, a representative from Health and Safety Compliance, Union safety advocates, trainers and representatives from other key areas. There is also a delegate designated between Level Two Councils to allow for sharing of information across them.	Bi-Monthly
Level Three Safety Council	The Level Three Council crosses all areas of PSEG LI and all of the Level Two Safety Councils roll up to it.	The executive sponsor for the Level Three Safety Council is the President and COO of PSEG Long Island, the Chairperson is the Manager, Health and Safety Compliance and the Recording Secretary is appointed by the council members.	Executive sponsors, chairpersons and recording secretaries of each of the Level Two Safety Councils, all officers and directors of PSEG Long Island, representatives from Human Resources and Health and Safety Compliance, the lead safety advocate, Union Leadership and other key individuals.	Quarterly

Source: DR 899

## Communications

- The PSEG LI EHS program utilizes the following means of communicating safety plans and performance, issues or events related to environment, wellness, and safety that occur across the enterprise, training and development, and other important notifications.
  - Safety Councils – The safety council structure promotes communication, both up and down, as well as across the council structure. PSEG LI states that the council structure provides a mechanism for concerns to be elevated to the next level when necessary, for example; when a concern involves multiple departments or business units. NorthStar reviewed a selection of materials and meeting minutes presented at Level 1, 2 and 3 Safety Councils. The meeting minutes viewed appeared comprehensive in nature, action items are identified and assigned, performance metric updates are provided, crossover issues discussed, as well as department issues. Level 2 Council reports are provided in Level 3 Councils. Level 2 Council meeting minutes did not indicate any time for Level 1 Council reports.<sup>73</sup> In one

<sup>72</sup> The Chairperson for the three Level Two Safety Councils and the Manager, Health and Safety Compliance also sit on the PSEG Enterprise wide Health, Safety and Wellness Council.

<sup>73</sup> DR 899 Attachments 1 to 10.



instance, NorthStar noted that PSEG LI management left before a Level 1 Council meeting was over and questions went unanswered.<sup>74</sup>

- Weekly Safety Meetings – occurs every Friday and includes a number of management and union participants. NorthStar observed two Weekly Safety meetings that included discussion of safety events that occurred during the week, new safety technologies that were being tested in pilot programs (e.g., 360 Camera system and Blind Spot Detection system), and updates on safety metrics and areas for improvement.

## Systems and Training

- PSEG LI uses a Safety Information Management System (AVA) to collect data on all safety events that occurred in the current year and the prior year. AVA exports data into a spreadsheet that can be sorted by date, event type, and department for weekly reporting. The data in the spreadsheet is reconciled to a summary safety dashboard in SIMS AVA to ensure all events are included before issuing the weekly report.<sup>75</sup>
- PSEG LI has a number of work force training sessions and resources to ensure compliance with regulatory and company safety requirements. These include, but not limited to:
  - Driver Safety – Various driver training programs targeting defensive driving behaviors, professional driver, and smith system driver.
  - Annual Expert Training – required training focused on generic health and safety for the physical work force.
  - CPR/First Aid – required first aid, CPR and AED training. In 2023, the training included the nationally recognized “Stop the Bleed” training.
  - Forklift (Powered Industrial Truck) Training - Any employee coming into a position requiring the operation of a forklift receives initial forklift training and periodic training every three years thereafter. Forklift operators are also assigned forklift training modules within the AlertDriver program. Supervisors must report new hires to the Health and Safety Compliance area for inclusion into the program.
  - Other forms of training include task and equipment training as well as programs designed to impact safety performance, health, wellness, environmental compliance, and hazardous materials safety among others.
- PSEG LI has also implemented training programs for their safety professionals to become Certified Utility Safety Professionals (CUSPS). PSEG LI further promotes learning and development through involvement in external conferences and industry groups.<sup>76</sup>

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<sup>74</sup> DR 899 Attachment 6.

<sup>75</sup> DR 474 Attachments 1 to 5.

<sup>76</sup> DR 475 and fact verification.

## Monitoring and Audits

- PSEG LI stated that:

“Compliance with the EHS program guide is verified annually through an annual certification process. That process begins with a comprehensive review by the environmental and health and safety professionals during which compliance with each of the fourteen elements is verified and evaluated for potential gaps. During this process, actions, programs and initiatives related to each of the fourteen elements are documented. The results of this process are reviewed with each of the Directors and business leads who sign off on the certification upon completion of their review. This process is then repeated with the Vice Presidents over each business unit followed by the President of PSEG Long Island. Once all officers have signed off on the annual certification it is sent to the Director – EH&S Compliance and Planning for his review with the PSEG Board of Directors Audit Committee for review.”<sup>77</sup>

- PSEG LI EHS annual certifications for CY2018 to CY2022 were merely statements that systems, procedures and practices had no exceptions with respect to the Guide.<sup>78</sup>
- PSEG LI provided the 2021 annual certification review work product document listing the fourteen elements and the key actions, programs and initiatives undertaken to ensure compliance with each element.<sup>79</sup> This “annual certification review work product document” is an overly generous description of an EHS program evaluation.
  - The 2021 annual certification document is neither dated nor signed.
  - Blue text edits are included within the text of the Guide elements, modified from the prior year to note actions and initiatives undertaken.
  - A list of improvements during the year is provided.
- PSEG LI provided excerpts from 2022 safety scorecards.<sup>80</sup> EHS-related metrics included:
  - T&D-13 Serious Injury Incident Rate (SIIR)
  - T&D-14 OSHA Recordable Incident Rate
  - T&D-15 OSHA Days Away Rate (Severity)
- LIPA hired an independent third-party consultant to verify that five recommendations emanating from the 2020 triennial Safety Assessment of PSEG LI were implemented. Consultant found certain 2020 recommendations implemented, or were no longer an issue, but did provide some additional recommendations. The consultant also performed onsite field observations of PSEG LI work practices and safety management

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<sup>77</sup> DR 176.

<sup>78</sup> DR 897 and Attachments 1 – 5 and NorthStar analysis

<sup>79</sup> DR 176 Attachment 2.

<sup>80</sup> DR 176 Attachments 3 and 4.

processes, including a comparison to industry best practices.<sup>81</sup> LIPA was to conduct the third triennial Safety Assessment of PSEG LI in 2023.<sup>82</sup>

- An independent review benchmarked PSEG LI's safety performance against a nationwide panel of electric utilities. Since 2014 through year-to-date 2022, the study found an improvement of approximately 80 percent in both the OSHA Recordable Incident Rate and the OSHA Days Away Rate. PSEG LI was found to have surpassed the LIPA Board Policy standard of top quartile and was within top decile performance for both OSHA measures, as compared to industry benchmarked peers.<sup>83</sup>

## **12. PSEG LI did not provide procedures for updating and maintaining the Contract Administration Manual (CAM) based on changes to any processes.**

- The CAM sets forth documentation, reporting, and other procedures for all aspects of the administration of the OSA. PSEG LI is responsible for maintaining the CAM by making necessary updates, supplements, or revisions from time-to-time to reflect applicable contract standards and directions of LIPA and PSEG LI management. All CAM material is maintained on a SharePoint site, which includes the process owner and approvers, as well as the last time the CAM was updated.<sup>84</sup>
- In May, 2022, PSEG LI Internal Audit found that although the CAM processes were generally being adhered to, instances were found where the reportable information was not being sent to LIPA timely and supporting documentation was not retained. In response, calendar reminders are now distributed, timeframes for reports submitted, and submission dates are required.
- In response to NorthStar's request to provide CAM updates, LIPA and PSEG LI have been negotiating updating the CAM associated with the Second A&R OSA, Section 4.2(D)(5). Progress has stalled, primarily on one issue relative to the standards and processes to be applied to requests for lateral transfers between PSEG LI and Affiliates. In the interim, PSEG LI had not offered employment to or hired, or caused or permitted an Affiliate to offer employment to or hire any existing ServCo employees without LIPA's prior written approval and the parties developed an approval process to address any transfer requests. The parties have subsequently agreed upon CAM language to codify what had been the approval practice. Specifically, LIPA will reasonably consider exceptions to a prohibition on lateral hiring on a case by case basis.
- PSEG LI considers the current status of this CAM complete.<sup>85</sup>

## **Executive Management**

Executive Management typically includes officers of the organization: the Chief Executive Officer (CEO), Chief Operating Officer (COO), the Chief Financial Officer (CFO) and all the

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<sup>81</sup> DR 1624 Supplement 1.

<sup>82</sup> December 2022 Board of Trustee meeting minutes.

<sup>83</sup> December 2022 Board of Trustee meeting minutes.

<sup>84</sup> DR 29 Attachment 72.

<sup>85</sup> DR 1384, as of November 6, 2023.

Vice Presidents, plus certain positions key to the management of the organization. Executive Management provides the connection between the Board of Trustees and the daily operations of the organization and has the overall responsibility for the operations of the organization. An effective management organization, oversight, and planning process are essential to a well-managed, efficient organization, meeting its goals in a cost-effective manner.

LIPA's organization is particularly important since so many key elements of its operations are outsourced to external vendors. It is essential that oversight responsibilities and ultimate authority within LIPA are clear to LIPA staff, PSEG LI, customers and stakeholders. Additionally, it is important that roles and responsibilities are clearly delineated between LIPA personnel and outside vendors so that duplication of effort is minimized, overlapping and related activities are clearly understood, and that there are no gaps in services.

The extent to which LIPA and PSEG LI are organized in an efficient and productive manner is important to providing a satisfactory level of customer service at the most reasonable rates.

- Officers - The role of the Authority's Officers (i.e., Chief Executive Officer, Chief Financial Officer, and General Counsel) is to make recommendations to the Board; undertake the administrative and operational means necessary (in conjunction with the Service Provider) to achieve defined results; represent the interests of the Authority in regulatory proceedings; finance the business and operations of the Authority; manage legal matters; and hire, evaluate and establish compensation and salary policies for Authority Staff.<sup>86</sup>
- LIPA Staff - LIPA's staff serve three functions:
  - Assisting the Board in setting policies and monitoring outcomes relative to the Authority's mission and values;
  - Overseeing the Service Provider's implementation of its responsibilities under the Second A&R OSA, including annual performance metrics and incentives for delivering customer value and reasonable budgets to achieve agreed-upon goals; and,
  - Managing the internal operations of the Authority (outside of the Second A&R OSA) in the areas of public policy, finance and risk management, treasury, investor relations, wholesale market activities, legal affairs, internal administration and stakeholder relationships. **Exhibit III-9** provides the LIPA management organization.<sup>87</sup>
- Service Provider - The role of the Service Provider is to operate LIPA's T&D system; become the name and face of electric utility service in the LIPA service territory; communicate with public officials, customers, community or industry groups and the

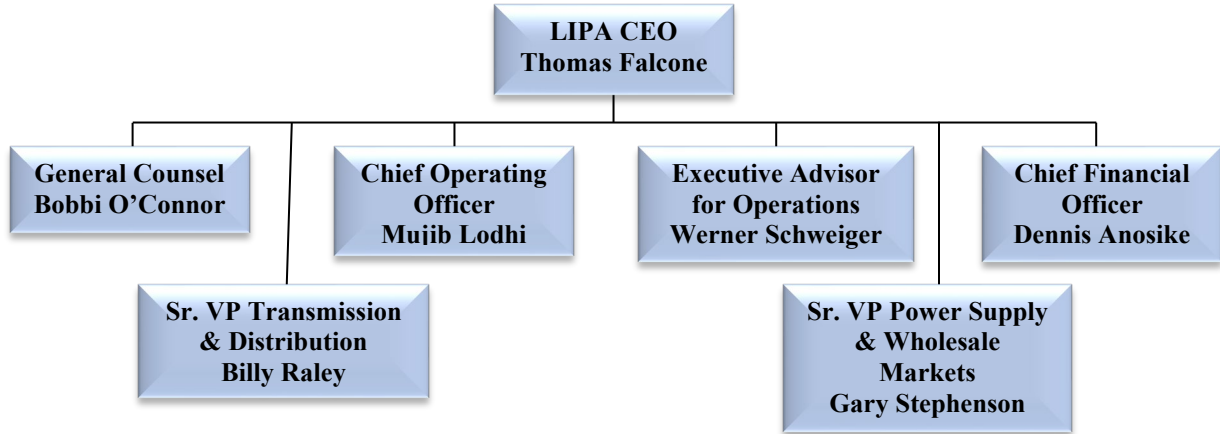
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<sup>86</sup> Policy on Purpose of the Board, approved September 21, 2016, amended February, 15, 2023.

<sup>87</sup> DR 2 and Fact Verification

media; report to the BOT as needed; and cooperate with the Department of Public Service (DPS) in its review of the Service Provider's operations.<sup>88</sup>

**Exhibit III-9  
LIPA Organization [Note 1]**



Note 1: Director of Audit reports administratively to the CEO and operationally to the Finance and Audit Committee of the Board of Trustees.

Source: [Executive Staff - Lipower](#)

**13. The overall working relationship between LIPA executive management and the BOT is collegial. The BOT members are challenged by the vast amount of information provided by LIPA, PSEG LI and additional parties with limited time for its assimilation.**

- Every December, as part of its overall agenda-setting process, the LIPA Board reviews an outline of its agenda for the following year.<sup>89</sup>
- The following is a partial list of the many regular reports given to the Board of Trustees and its Committees:<sup>90</sup>
  - LIPA's CEO Report is presented to the Board at every meeting.
  - LIPA's Secretary's Report on Board Policies and Communication is a written submission to the Board prior to every Board meeting.
  - LIPA's Budget Presentation is presented annually to the Board at the November meeting by LIPA's CEO and CFO.
  - An overview of Financial Results is presented to the F&A Committee at every meeting by LIPA's Vice President, Controller and by PSEG Long Island.
  - LIPA's Internal Audit Activities is presented at every F&A Committee meeting by LIPA's Director of Internal Audit.

<sup>88</sup> Second A&R OSA §4.2

<sup>89</sup> DR 13.

<sup>90</sup> DR 13.

- PSEG Long Island Operating Report is presented at every Oversight and Clean Energy Committee (“Oversight Committee”) meeting by PSEG Long Island’s President and Chief Operating Officer.
  - The Isaias Task Force Report is presented four times a year at LIPA Board meetings by LIPA’s Chief Operating Officer and Senior Vice President of Customer Experience.
  - Metric Report is presented four times a year at LIPA Board meetings by LIPA’s Chief Operating Officer and Senior Vice President of Customer Experience.
  - Accomplishments and Work Plans are presented annually to the Board at the first meeting of each year by LIPA’s CEO and Secretary to the Board.
  - PSEG Energy Resources & Trade (ER&T) Metric Performance is presented to the Oversight Committee by PSEG ER&T.
  - Board Committees’ Annual Self Reports are presented annually to the respective Committees by the Secretary to the Board.
  - Investment Report is presented annually to the F&A Committee by LIPA’s CFO.
  - Independent Auditors Report is presented annually to the F&A Committee by LIPA’s External Auditors.
  - Annual Financial Report is presented annually to the F&A Committee by LIPA’s Vice President, Controller.
  - Summer Preparation for Power Supply and T&D is presented annually to the Oversight Committee.
  - Internal Audit Annual Review of the Confirmation of Independence and Code of Ethics is presented annually to the F&A Committee by LIPA’s Director of Internal Audit.
  - Internal Audit Plan, Budget and Resource Requirements is presented annually to the F&A Committee by LIPA’s Director of Internal Audit.
  - PSEG ER&T on Power and Fuel Supply Management is presented bi-annually to the F&A Committee.
  - Capital Program and FEMA Project Update is presented annually to the Oversight Committee.
  - Update on the PSEG Long Island Emergency Restoration Plan is presented annually to the Oversight Committee.
  - The 2018 Management Audit Annual Review was presented to the Oversight Committee by LIPA Internal Audit. This report was provided annually until the last update in November 2022.
  - Utility 2.0 Plan and Energy Efficiency Update is presented annually to the Oversight Committee by PSEG LI.
  - Annual Energy Efficiency Report is presented annually to the Oversight Committee.
  - LIPA Staff report to the Trustees on compliance with certain Board policies annually.
- Briefing packets and Board meeting materials for the Board and Committee meetings are rarely less than 100 pages and often exceed 1,000 pages.<sup>91</sup>

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<sup>91</sup> DR 14 Attachments 1 – 27, and [Board & Committee Meetings - Lipower](#) .

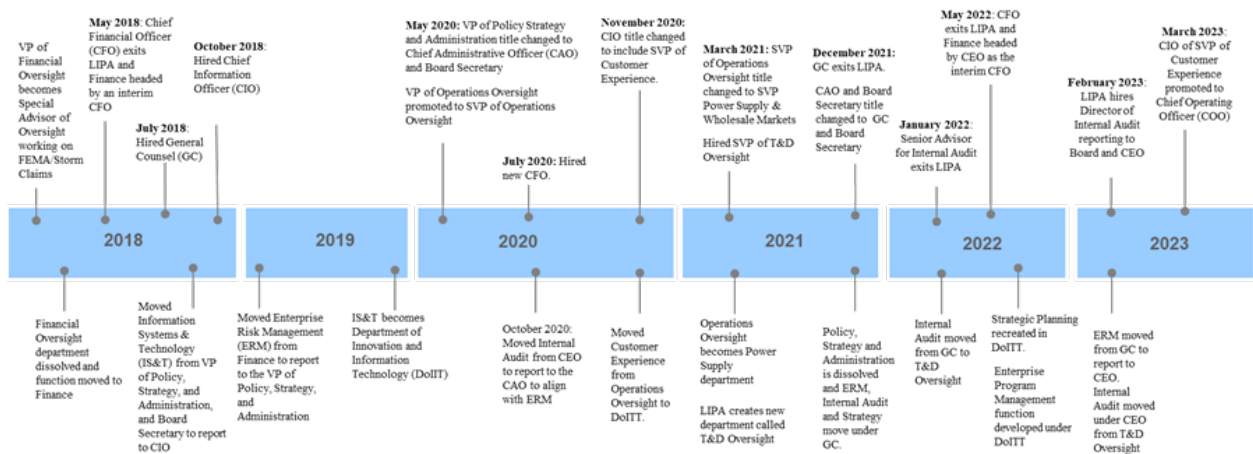
- Board briefing sessions for the Board and Committee meetings are generally held the week prior to the Board meetings when materials are made available.<sup>92</sup>

## Current and Future Organizational Structure

**14. LIPA’s organization structure includes the functions required for oversight according to the Second A&R OSA as well as performing the Authority’s administrative operations. However, LIPA’s is forced to continually reorganize due to management and staffing changes and resignations which limit its ability to oversee operational activities in greater detail.**

- LIPA has changed its organization structure each year since the prior management audit in 2018. Timeline of key organizational changes is provided in **Exhibit III-10** below.

**Exhibit III-10  
Timeline of LIPA Organization and Staffing Changes 2018 to 2023**



Source: DR 965, NorthStar analysis

- NorthStar requested information regarding LIPA re-organization efforts since 2018 and the objectives of these efforts. LIPA stated that it restructured or moved departments and functions to address various needs and optimize its operations. The objectives behind the organizational changes were to ensure efficient and appropriate resource allocation, align related functions within departments, maximize leadership effectiveness, leverage leadership expertise based on prior experience, and adapt to LIPA’s evolving needs.<sup>93</sup>
- LIPA does not perform any organizational analysis to plan for the multiple re-organization efforts since 2018.<sup>94</sup> For recent organizational changes, LIPA stated that it is obvious the renegotiated OSA would increase the workload at LIPA as well as its

<sup>92</sup> DRs 14, 16, 1010 and 1109, Board member interviews

<sup>93</sup> DR 965.

<sup>94</sup> DRs 1246, 1247, 1248, 1249, and 1251.



needs associated with day-to-day operations.<sup>95</sup> However, LIPA does not provide any supporting analysis such as a business case for change, organization/functional/skills and capabilities gap analysis, functional alignment, RACI charts, resource needs, work load levels, department goals, objectives, budgets, performance management, etc.

- Based on the size of the organization, LIPA has experienced a significant number of employee departures from the organization.
  - LIPA is a relatively small organization and loss of management and staff personnel greatly impact day-to-day activities, knowledge transfer, talent pipeline and succession planning as well as increase recruiting costs and reliance on external consultants. LIPA has experienced a loss of resources from voluntary/involuntary departures since 2018 with most occurring in 2021 and 2022 as shown in **Exhibit III-11**.

**Exhibit III-11**  
**LIPA Employee Departures by Department**

Department/Year	2018	2019	2020	2021	2022	Total
Finance	4		1	1	5	11
DoITT and Customer Experience				4	3	7
Legal	1			1	2	4
Internal Audit				1	1	2
HR & Administration	1			1	1	3
Operations Oversight*		3				3
External Affairs			1	1		2
T&D Oversight					1	1
Power Supply					1	1
<b>Total</b>	<b>6</b>	<b>3</b>	<b>2</b>	<b>9</b>	<b>14</b>	<b>34</b>

\*Operations Oversight was renamed Power Supply in 2021.

Source: DR 1058 Supplement 1, NorthStar Analysis

- NorthStar’s review of the LIPA 2022 organization structure identified 86 fulltime positions and three part time positions. There were 25 vacancies that represents just under 30 percent of LIPA full time positions.<sup>96</sup>
- LIPA had 10 employee departures in the first six months of 2023.<sup>97</sup>
- Notably, from CY2021 to Q2 2023, LIPA’s Department of Innovation and Information Technology (DoITT) & Customer Experience had 11 employees exit the Authority – of those 11 employees, six left within their first year of employment.<sup>98</sup> DoITT has 15 budgeted employees.
- LIPA experienced a number of senior executives and director level management resources exit the organization since 2018 with most occurring in 2022 as shown in

<sup>95</sup> DR 1247.

<sup>96</sup> DR 2.

<sup>97</sup> DR 1058 Supplement 1.

<sup>98</sup> DR 1058 Supplement 1.

**Exhibit III-12.** Most notably, this included two CFOs, a General Counsel, Senior Advisory of Audit, and a VP of Strategy and Performance Management.

**Exhibit III-12  
LIPA Senior Executive and Director Level Departures Since 2018**

Position/Title	Year of Departure	Years of Service
<b>Chief Financial Officer (CFO)</b>	<b>2018</b>	<b>2</b>
Director of Operations Services Oversight	2019	5
Director of Performance Assessment and Contract Administration	2019	6
Director of Performance Assessment and Contract Administration	2019	7
Director of Communications	2020	5
<b>General Counsel</b>	<b>2021</b>	<b>3</b>
Deputy General Counsel	2022	6
Assistant General Counsel	2022	4
Director of Transmission and Distribution System Oversight	2022	7
Director of Information Security and Compliance Oversight	2022	2
<b>CFO</b>	<b>2022</b>	<b>2</b>
<b>Senior Advisor of Audit</b>	<b>2022</b>	<b>7</b>
Director of Power & Fuel Supply Services	2022	21
Director of IT	2023	<1
<b>Vice President of Public Policy and Regulatory Affairs</b>	<b>2023</b>	<b>9</b>
<b>Vice President of Strategy and Performance Management</b>	<b>2023</b>	<b>&lt;1</b>

Source: DR 1058 Supplement 1.

- Staffing issues are impacting LIPA’s ability to perform oversight, execute important projects, and increasing its reliance on outside consulting services.
  - The ERDMS project has been delayed due to LIPA SME and management constraints and employee turnover.<sup>99</sup>
  - PSEG LI implemented a White Paper tracker for the System Separation Program tracking LIPA turnaround time to review and approve documents. It was agreed that LIPA would take two weeks for this action. LIPA review time was between one to three months.<sup>100</sup>
  - LIPA’s Diversity, Equity and Inclusion (DE&I) Roadmap has experienced many delays due to competing organizational priorities.<sup>101</sup>
  - The Authority has increased consulting and services spend from \$5M to over \$12M from 2018 to 2022.<sup>102</sup>

<sup>99</sup> DR 462 and 798.

<sup>100</sup> DR 1512 Attachment 1.

<sup>101</sup> DR 1222

<sup>102</sup> see Chapter X Outside Services.

- Talent Management and other related employee attraction/retention risks were presented as “high-risk” to F&A Committee in September 2023.<sup>103</sup>
- LIPA lacks consistent leadership in the Finance function. A critical responsibility of LIPA is to manage the debt associated with ownership of the T&D system that serves customers on Long Island. Strong and stable leadership in the Finance function is important for debt management, treasury operations, interactions with banks and credit rating agencies, clear separation of duties, as well as oversight of PSEG LI.
  - As shown in **Exhibit III-11**, the Finance function had the highest attrition from 2018 to 2022 with 11 employees exiting the organization. In 2022, LIPA had 26 positions in Finance, which eight were vacant.<sup>104</sup>
  - As shown in **Exhibit III-12**, LIPA had two CFOs in four years, and the current CEO has been interim-CFO since June 2022. In the December 13, 2023 Board meeting, the Board was requested to approve a resolution appointing a Chief Financial Officer of the Long Island Power Authority and its wholly owned subsidiary, the Long Island Lighting Company d/b/a LIPA.
- LIPA does not observe any formal or informal span of control guidelines.<sup>105</sup>
- NorthStar requested LIPA to provide studies showing its near and future organization structure and possible scenarios. LIPA stated that there are no organizational structure changes anticipated at this time. LIPA awaits the outcome of the Legislative Commission on the Future of LIPA, and will respond appropriately to any legislative changes adopted related to LIPA’s organizational structure.<sup>106</sup>

**15. LIPA engaged consultants to perform three focused organization studies – Finance & Treasury, Rates, and Procurement. LIPA has not fully implemented recommendations from these studies.**

- LIPA engaged an outside consulting firm to conduct a Finance and Treasury (F&T) Management System and Process Assessment in 2020. A “draft” report was submitted to LIPA in June 2020 with over 40 recommendations. The report noted a number of findings which are summarized in **Exhibit III-13**.

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<sup>103</sup> See F&A Committee Meeting, September 27, 2023.

<sup>104</sup> DR 2.

<sup>105</sup> DR 969.

<sup>106</sup> DR 1269.

**Exhibit III-13**  
**Summary of Finance and Treasury Management System and Process Assessment**  
**Findings 2020**

Issue Area	Finding
Roles and Responsibilities	Does not perform any activities related to financial strategy formulation and implementation, and long-range financial planning.
	Does not perform activities related to financial risk management and financial performance management
	F&T is not proactive in understanding key utility operations or in oversight of third-party operator, which then impacts their ability to oversee key risk areas.
	Data reporting and/or metrics development to aid management decision making around performance and risk exposures are lacking.
Staff and Organizational Structure	F&T organization structure does not assign clear accountability for risk management and no process for identifying and managing finance and operational risks.
	Ineffective assignment of work.
	Limited resource capacity/inadequate staffing
	Process accountability for certain key functions/activities not defined.
Inefficient business policies and processes	Key business objectives are not defined at a level that allow for clarity of mission/goals, communication, and accountability.
	Inadequate desktop procedures.
	Manual and tedious processes
Low Technology Leverage	Limited to low integration between systems.
	No use of data extraction tools.
	No use of workflows.

Source: DR 21 Supplement 1.

- LIPA has not addressed all of the recommendations classified as “Roles and Responsibilities” and “Staffing and Organization Structure” that resulted from from this study.<sup>107</sup> Hiring resources is not a plan.
- LIPA engaged a firm to implement a Treasury Management System (TMS). The TMS project began in February 2023 and implementation is scheduled for November 2023. LIPA suggests that this project will address both system and process deficiencies.<sup>108</sup>
- LIPA engaged a consultant to perform a review of the LIPA/PSEG LI Rate Functions in 2022.<sup>109</sup> LIPA provided a “memorandum” without a date of the consultant’s work product.<sup>110</sup>
  - The memorandum stated that the existing LIPA/PSEG LI operating structure for administering LIPA rates was adequate to serve the historic function of developing a cost of service that results in annual cash flows from rates that are necessary to operate the business. However, the existing LIPA/PSEG LI operating structure:
    - Does not allow LIPA the flexibility to firmly establish and manage the strategic aspects of rate design and the related areas that support customer programs.

<sup>107</sup> DR 1234.

<sup>108</sup> DR 1234 Supplement 1.

<sup>109</sup> DR 21.

<sup>110</sup> DR 21 Supplement 2.

- Creates an environment where there is little motivation for PSEG LI to innovate under the current contract.
  - Places LIPA at a disadvantage when it comes to establishing a regulatory position or commenting on a proceeding since LIPA may be dependent on PSEG LI to provide some of the necessary analysis to support a position.
- The memorandum provided a series of recommendations as summarized in **Exhibit III-14**.

**Exhibit III-14**  
**LIPA/PSEG LI Rates Organization Study Recommendations 2022.**

Issue Area	Recommendation
People	Transition the current rate administration structure from PSEG LI to LIPA and create a load research group or absorb the PSEG LI's load research group.
	Alternatively, increase staffing and expertise to provide greater oversight of and coordination with PSEG LI load research. PSEG LI could continue to execute the administrative and operational aspects of rates including increases to existing tariffs
	PSEG LI should hire someone to their rates staff who has rate, statistical analysis and data base management experience to analyze the impacts of new rate structures on customers.
	PSEGLI needs to address succession planning risks by having individuals capable of implementing a simple rate increase to existing rate options.
	LIPA needs to recruit a full-time rate expert to oversee PSEGLI rate activities.
Process	LIPA should perform data analytics from the AMI to review its cost of service and identify anomalies.
	LIPA should expand the customer data base beyond meter information to include other publicly available information to support load research.
Systems	LIPA should acquire a statistical software package such as SAS to access the customer use data base.

Source: DR 21 Supplement 2.

- LIPA developed a plan to build out a new rates department and transition the PSEG LI rates group to an administrative role. However, this plan has challenges. LIPA's rate department relies on external consultants to execute work.
  - LIPA's regulatory and rates function was led by a VP of Public Policy and Regulatory Affairs who left the Finance department in January 2023 while the memorandum recommendations were being addressed. LIPA hired a Director of Rates in May 2023.<sup>111</sup>
  - LIPA developed a staffing plan to address certain recommendations from the 2022 consultant memorandum. The LIPA staffing plan lacks fundamental components such as implementation budget, a proposed annual department budget, implementation schedule, acquisition of required systems, tools, models (e.g., SAS), and a defined PSEG LI rates department transition strategy and activities.

<sup>111</sup> DRs 2, 1058, 1095 and LIPA Organization Chart as of July 2023 ([https://www.lipower.org/wp-content/uploads/2023/07/2023\\_LIPAOrgCharts\\_Senior-1.pdf](https://www.lipower.org/wp-content/uploads/2023/07/2023_LIPAOrgCharts_Senior-1.pdf)).

- LIPA identified three consulting firms to provide services associated with rate support for next five years. These contracts were approved at the June 28, 2023 Board of Trustee meeting.<sup>112</sup>
- LIPA engaged a consultant to perform a study to improve the Authority’s procurement practices and oversight of PSEG LI’s procurement activities. The final report was provided on July 25, 2022 with 18 recommendations.<sup>113</sup> Summary of issues from the consulting report included:
  - The procurement function is not perceived as a strategic function within the Authority and has limited key resources;
  - Procurement is not perceived as a high priority by Departments which causes delays in processing essential process tasks; and
  - Contract management and vendor performance practices need to be further strengthened.
- The report’s specific recommendations pertaining to LIPA’s procurement organization structure and staffing were:
  - Consider hiring an experienced VP of Procurement who can provide overall leadership to maturing the procurement organization and streamline the functions. This may eventually lead to restructuring the procurement function to ensure procurement gets a higher priority and a more strategic role within the Authority proportionate to LIPA’s critical dependence on its procurement function to deliver on its mission and objectives.
  - Hire an additional procurement buyer with experience in public procurement
  - Consider hiring ad hoc temporary procurement expertise to execute on non-routine projects
  - Develop a corporate procurement strategy reflecting LIPA’s procurement vision, strategic aims and objectives, and including performance targets and indicators to measure the performance of procurement operations.
  - Consider, in collaboration with the HR Department, setting up an internship program for graduate college or university students studying business administration, procurement management, or other procurement-related fields.<sup>114</sup>
- As of July 2023, LIPA had not addressed the organization structure and staffing recommendations from the 2022 Procurement report.<sup>115</sup>
- LIPA’s lean resources, staffing challenges, and oversight role versus PSEG LI operations role largely eliminates duplication of services except in certain areas such as Enterprise Risk Management, Internal Audit and Rates/Regulatory functions.

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<sup>112</sup> (<https://www.lipower.org/wp-content/uploads/2023/06/2.4-Consideration-of-Approval-of-the-Selection-of-Firms-to-Provide-Rate-Consulting-Services.pdf>)

<sup>113</sup> For more information see Chapter XI. Outside Services.

<sup>114</sup> DR 970 Supplement 1.

<sup>115</sup> DR 970 Supplement 2.

- LIPA and PSEG LI have Enterprise Risk Management functions that work closely together, but are focused on risks that impact their respective organizations.<sup>116</sup>
- LIPA and PSEG LI both use their respective Internal Audit functions in an oversight role. Review of audit reports from 2018 to 2022 found some areas of overlap such as storm operations/costs, management audit recommendations, AMI, OSA metrics, and Feed-in-Tariffs, .<sup>117</sup> LIPA and PSEG LI’s 2023 Audit Plan have audits of the same topic - Deferred Payment Agreements.<sup>118</sup>
- LIPA is developing a plan to create a regulatory Rates function in the Finance department. This action would relegate PSEG LI’s Rates function to an administrative role.<sup>119</sup>

**16. LIPA has a policy, vision statement, plan, training and other supporting documents asserting the organization’s commitment to diversity, equity, and inclusion (DE&I). However, LIPA’s ability to fulfill this commitment is limited.**

- LIPA does not monitor employee demographics, has not implemented its DE&I plan, does not track employee participation in DE&I training, and has not conducted or had a third-party conduct a pay equity analysis.
- LIPA’s Board established a policy on diversity and inclusion in June 2020. The latest policy update occurred in March 2023 and is now called the Policy for Social and Environmental Justice.
- LIPA created a Three-Year DE&I Roadmap in August 2021 in an effort to embed its vision and the Board’s policy statement into the culture of the organization. The LIPA Roadmap is provided in **Exhibit III-15**.

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<sup>116</sup> See ERM section of this Chapter

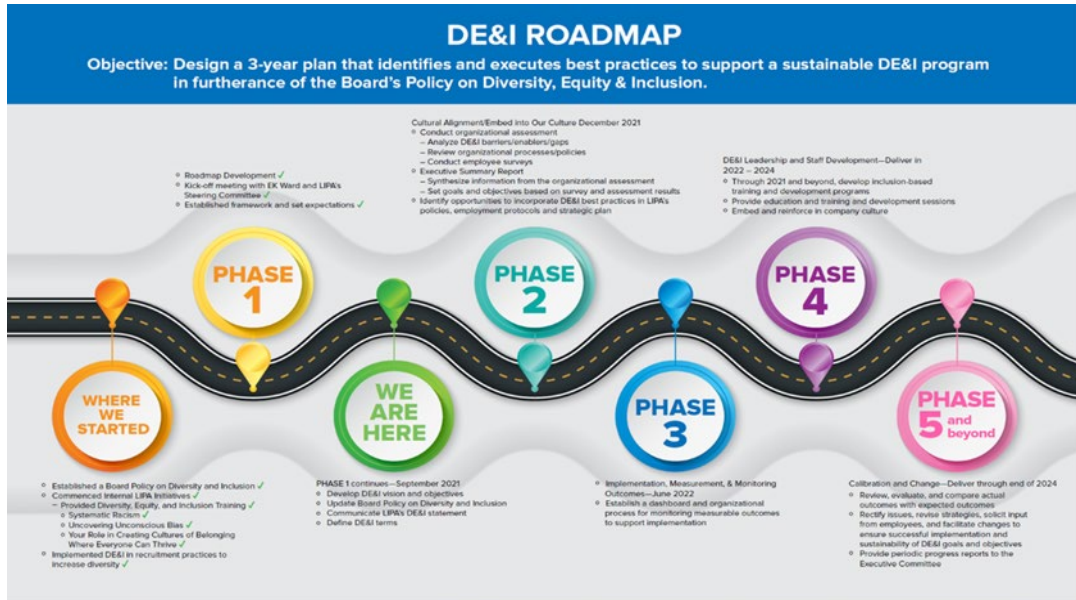
<sup>117</sup> DR 29 Supplement 1, DR 29 Attachments .1, 10, 14, 16, 18, 22, 28, 33, 34, 39, 44, 47, 56, 60, 73, and 90.

<sup>118</sup> DR 381 Attachment 1 and Supplement 1.

<sup>119</sup> DR 1095 and Supplements 5 and 6.



## Exhibit III-15 LIPA Diversity, Equity, and Inclusion Roadmap (2021)



Source: DR 1222 Supplement 2.

- LIPA has not made progress on implementing the objectives described in its Three-Year Roadmap due to the lack of dedicated resources and competing organizational priorities.<sup>120</sup> LIPA states it has and will continue to review the timeline of implementing its DE&I program and make necessary adjustments to set realistic and achievable targets for the future. LIPA does not prepare formal work products or documentation associated with its reviews.<sup>121</sup> The DE&I Roadmap has not been updated since its introduction in 2021.<sup>122</sup>
- NorthStar requested information hiring diversity at LIPA from 2018 to 2022 to understand how the organization has evolved pre- and post-Board Policy. Due to results from an employee survey regarding willingness to participate in a demographic survey, LIPA stated that it will not solicit or maintain information related to organizational diversity.<sup>123</sup>
- NorthStar requested information about LIPA programs/training targeting unconscious bias and inclusive leadership education and employee completion. NorthStar's interest is how LIPA addresses tendencies that may affect hiring decisions, promotion opportunities, and performance evaluations.
  - Since 2020, LIPA engaged four subject matter experts to conduct five sessions related to unconscious bias and inclusive leadership.

<sup>120</sup> DR 1222.

<sup>121</sup> DR 1386.

<sup>122</sup> DR 1388.

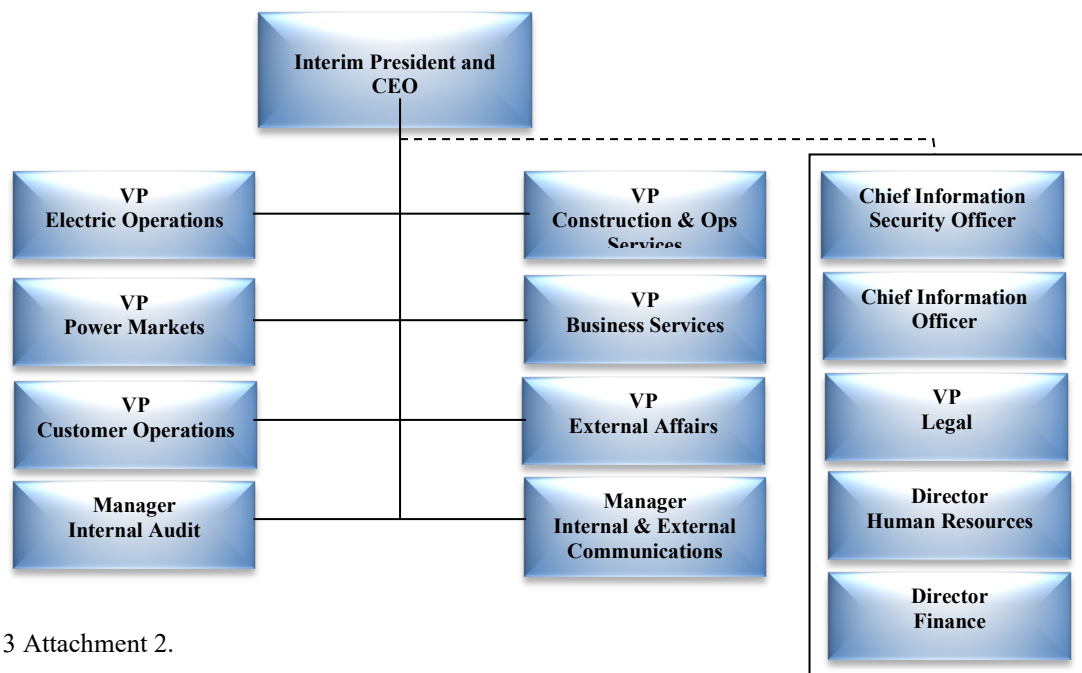
<sup>123</sup> DR 1228.

- LIPA states that it does not maintain employee attendance lists.<sup>124</sup>
- LIPA has not completed or had a third-party conduct an employee pay equity analysis from 2018 through 2022.<sup>125</sup>
- The LIPA states that it posts positions on a variety of diverse job sites such as the Professional Diversity Network, National Forum for Black Public Administrators, and others.<sup>126</sup> NorthStar requested information regarding talent acquisition metrics for these job sites. The LIPA states that it does not track that information due to the size of its organization. LIPA further stated that it has prioritized its limited resources on more immediate operational needs, such as candidate sourcing and selection, rather than extensive data tracking and analysis.<sup>127</sup>

**17. PSEG LI made a number of organization structure and staffing changes to align with the operational responsibilities provided in the Second A&R OSA.**

- **Exhibit III-16** provides the PSEG LI organization structure.

**Exhibit III-16  
PSEG LI Organization Structure (2022)**



Source: DR 3 Attachment 2.

<sup>124</sup> DR 1224.

<sup>125</sup> DR 1226.

<sup>126</sup> DR 1222.

<sup>127</sup> DR 1362.

- PSEG LI has increased the number of employees since the previous audit from 2,350 to 2,507 as of December 31, 2022.<sup>128</sup> PSEG LI personnel are associated with three entities that provide services to LIPA. These entities are:
  - Long Island Electric Utility ServCo LLC, a wholly owned subsidiary of PSEG Long Island LLC, is a service company which employs approximately 2,500 represented and non-represented employees who provide the Operations Services required by the A&R OSA. This corporate structure is required by Section 4.5 of the OSA.
  - Internal Services are Public Service Enterprise Group Inc. employees that are dedicated ServCo support staff.
  - PSEG Long Island, LLC, a wholly owned subsidiary of PSEG Energy Holdings, LLC, is LIPA’s service provider responsible for operating and managing LIPA’s transmission and distribution system and other utility business functions pursuant to the A&R OSA dated December 31, 2013. PSEG Long Island, LLC is a management company.<sup>129</sup>
- **Exhibit III-17** provides the number of employees at each entity.

**Exhibit III-17**  
**PSEG LI Employees by Source Company**

Source Company	Number of Employees
Long Island Electric Utility	2,486
Internal Services	10
PSEG LI, LLC	10
<b>Total</b>	<b>2,506</b>

Source: DR 1097.

- A number of changes to PSEG LI’s organizational structure were implemented as result of the Isaias Task Force recommendations as well as the requirements in the Second A&R OSA. PSEGLI created the following positions:
  - Vice President of Business Services
  - Director of Emergency Management
  - Chief Information Security Officer (CISO)
  - Director of Human Resources<sup>130</sup>
- PSEG LI’s anticipated organization changes were communicated to LIPA. This communication included LIPA’s approval of the PSEG LI-presented candidates for the above-referenced positions and other positions.<sup>131</sup> Further PSEG LI organization change discussions with LIPA were accomplished through PIPs and information

<sup>128</sup> NorthStar 2018 audit and DR 924 and 1097. Difference between DRs 924 and 1097 is inclusion of resources from Internal Services (PSEG Service Company (NJ)) and PSEG LI, LLC.

<sup>129</sup> DR 1401.

<sup>130</sup> DR 964.

<sup>131</sup> DR 1322.

requests. There remain certain organization changes for Business Services, Corporate Security, Legal, and Emergency Management.<sup>132</sup>

- A summary of key PSEG LI organizational changes include:
  - Transmission and Distribution (Electric Operations)
    - Emergency Planning, Delivery Operations Support moved to new Emergency Preparedness department.
    - Government Funds Compliance moved to Projects & Construction.
    - Public Works Projects moved to Projects & Construction.
    - System Planning moved to Power Markets.
    - Centralized Clerical Pool moved to Business Services.
    - Real estate group moved to Business Services.<sup>133</sup>
  - Business Services
    - Business Intelligence & Performance.
    - Strategic Planning.
    - Legal Records Management.
    - Move Corporate Security and Business Continuity Planning groups from Business Services to new Emergency Preparedness department.
  - Customer Operations
    - Move Energy Efficiency (EE) from PSE&G RES to PSEG LI.
    - Move Customer Satisfaction from Customer Experience & Utility Marketing to EE.
    - Move EE hotline to Call Center Operations.
- Organizational changes impacted every PSEG LI business unit except IT (CIO) and Internal & External Communications.<sup>134</sup>
- PSEG LI does not follow formal or informal span of control guidelines. Rather, the Company uses a position band framework. This framework classifies positions as Band A, B, C, S, D, and E. Band A are non-exempt positions, Band B is for project management as well as positions that may have supervisory responsibility or management of less than two full time equivalent employees excluding administrative associates. Bands C, S and D are management positions with Band E reserved for

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<sup>132</sup> DR 1323.

<sup>133</sup> Fact verification - The Real Estate group is currently located within Engineering Services; however, from an administrative and from a budget perspective Real Estate has moved to Business Services. Similarly, the cost center for the Centralized Clerical Pool has been moved to Business Services.

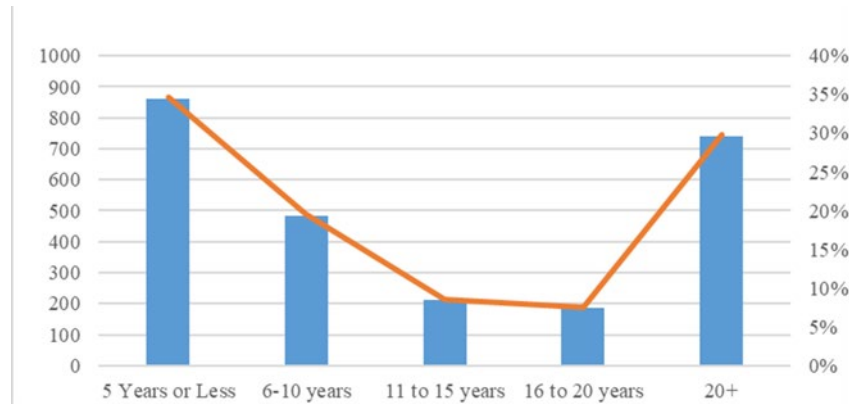
<sup>134</sup> DR 964.

Officers and Executive Management that anticipates increasing numbers of direct reports.<sup>135</sup>

**18. PSEG LI has a large number of relatively new employees as well as employees with over 20 years of experience. Investment in employee training and development programs have significantly diminished since 2018. PSEG LI is reviewing its employee compensation packages and incentive plans.**

- The aging of the US workforce has been documented as a critical issue.<sup>136</sup> For electric utilities, whose service quality and reliability depends on maintaining an adequate, knowledgeable workforce, managing the upcoming retirement transition is a particular challenge. Like many US utilities, PSEG LI is experiencing the aging of their workforce. As of December 31, 2022, PSEG LI had 740 employees, or just under 1/3 of total employees, with 20 plus years of service as shown in **Exhibit III-18**.

**Exhibit III-18**  
**PSEG LI Employee Number of Years of Service**



Source: DR 920. PSEG LI did not include data on the 20 employees from Internal Services or PSEG LI, LLC.

- In addition to the potential number of retirements, a recent industry survey indicated that over 60 percent of non-retirement attrition in energy companies occurs within five years of employment.<sup>137</sup> As **Exhibit III-18** indicates, there is a reduced number of employees after five years of service at PSEG LI.
- NorthStar reviewed PSEG LI employee years of experience in their current position as of December 31, 2022 as shown in **Exhibit III-19**. Data indicates that 33 percent have

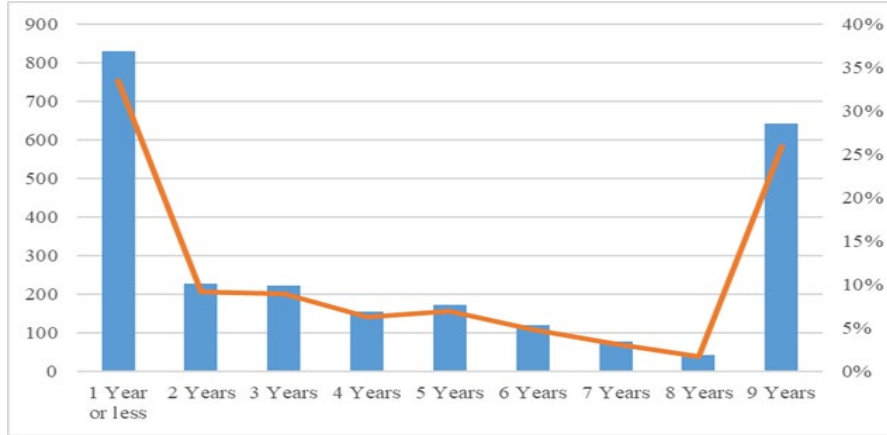
<sup>135</sup> DR 966.

<sup>136</sup> The U.S. Bureau of Labor Statistics estimates that by 2024, a quarter of the workforce will be over the age of 55, and of these, a third will be 65 or more. <https://www.bls.gov/careeroutlook/2017/article/older-workers.htm>

<sup>137</sup> Center for Energy Workforce Development (CEWD), Gaps in the Energy Workforce, 2021 Pipeline Survey Results. CEWD represents more than 120 energy companies as well as partnerships with the American Gas Association, American Public Gas Association, American Public Power Association, Distribution Contractors Association, Edison Electric Institute, National Rural Electric Cooperative Association, Nuclear Energy Institute and Utilities Technology Council.

been in their position for one year or less. This number increases to 65 percent of employees in their current position for five years or less.

**Exhibit III-19  
PSEG LI Employee Number of Years in Current Position**



Source: DR 1001. PSEG LI did not include data on the 20 employees from Internal Services or PSEG LI, LLC.

- PSEG LI’s focus on training and development investment has significantly diminished since 2018. The total training and development cost has decreased from \$173k in 2018 to under \$50k in 2022. This reflects an average amount spent per FTE of \$70 in 2018 to approximately \$20 in 2022.<sup>138</sup>
- NorthStar requested information regarding PSEG LI recruiting costs from 2018 to 2022. PSEG LI did not provide sufficient information for NorthStar to complete the analysis. PSEG LI did not provide the cost of internal transfers.<sup>139</sup>
- The average days for open position requisitions in each business unit from 2018 to 2022 is provided in **Exhibit III-20**.<sup>140</sup> T&D business unit has the highest is 113 days from 2018 to 2022 followed by Emergency Preparedness. Comparison of pre-Covid and Post-Covid average days open for position requisitions show challenges in Business Services, Customer Service, T&D as well as finding management talent in PSEG LI LLC. The extended average days open for position requisitions suggests efficiency issues in the recruiting process.

<sup>138</sup> DR 1635 Attachment 1.

<sup>139</sup> DRs 1096 Attachment 1 and 1366 Attachment 1.

<sup>140</sup> DR 1381 Attachment 1.

**Exhibit III-20**  
**PSEG LI Average Days Open for Position Requisitions from 2018 to 2022**

<b>Business Unit</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
Business Services	78	72	76	102	94	<b>84</b>
Construction & Ops Services	74	85	128	97	70	<b>91</b>
Customer Service	50	91	58	98	88	<b>77</b>
Emergency Preparedness	123	84	63	120	78	<b>94</b>
Energy Efficiency	58	91	97	121	56	<b>85</b>
Power System Management	74	71	86	106	62	<b>80</b>
Transmission & Distribution	62	139	176	109	77	<b>113</b>
PSEG LI LLC (ManageCo)	55	26	25	22	144	<b>54</b>
<b>Total</b>	<b>72</b>	<b>82</b>	<b>89</b>	<b>97</b>	<b>84</b>	<b>85</b>

Source: DR 1381 Attachment 1.

- PSEG LI stated that it has challenges in hiring and retaining Engineering, IT/Cybersecurity, Associate and Electric System Operator resources. PSEG LI cites competitive market from new energy companies on Long Island and demand for unique skill sets.
  - Average days open for 13 Cybersecurity positions are 86 days.
  - Average days open for 19 IT positions are 95 days.
  - PSEG LI states that part of the pre-employment screening for the Associate Electric System Operator & Special Service Operator Position is a PSP Metrics test. PSEG LI tested 72 candidates for the from January to mid-August 2023 - 54 candidates failed; 14 passed, and four are awaiting test results.<sup>141</sup>
- A recent April 2022 NERC Best Practices Review noted:
 

“PSEG LI is understaffed within its central compliance function and has limited its capabilities due to business unit staff turnover and retirements.”
- PSEG states that it has initiated a compensation study that will assess the Company’s pay-for-performance philosophy and evaluate its current MAST position titling, salary grade structure(s) and incentive plans.<sup>142</sup>

<sup>141</sup> DR 1229 Attachment 1.

<sup>142</sup> DR 1229.



**19. PSEG NJ’s enterprise-wide strategy for diversity and inclusion is reflected in a policy that applies to PSEG LI and other PSEG affiliates. PSEG LI has established initiatives, goals and objectives associated with this policy. As PSEG LI did not fully respond to many information requests – NorthStar cannot determine the effectiveness of the policy or related programs ensuring a diverse leadership.**

- PSEG NJ’s policy on diversity and inclusion was established in July 2020. Titled as “PSEG Policy 7”, the document applies to PSEG LI as well as other PSEG affiliates.<sup>143</sup>
- The policy focuses efforts on three “core pillars”.
  - Talent - Recruit, develop, and retain a high performing workforce with diverse backgrounds and experiences to drive continuous improvement and results.
  - Culture - Create high functioning teams where all employees feel valued and supported to do their best work.
  - Brand - Elevate PSEG’s reputation as a D&I leader in the external marketplace.<sup>144</sup>
- The policy lists 10 initiatives to be implemented to achieve diversity and inclusion goals. These initiatives include:
  - Pay Equity
  - All-inclusive Benefits
  - Rewards and Recognition
  - Employee Business Resource Groups
  - Local Inclusion Teams
  - Trainings and Awareness
  - Ongoing Partnerships and Outreach
  - Supplier Diversity
  - Philanthropic Funding and Support
  - Employee volunteerism<sup>145</sup>
- NorthStar requested information on PSEG LI’s implementation of these initiatives.
  - Pay Equity – PSEG LI stated that it conducts pay equity reviews to help ensure employees are being paid appropriately based on legitimate business factors and that gender and race are not factors in any pay decision. If pay gaps are identified, the Company works to close them. NorthStar cannot verify these statements. PSEG LI objected to the production of pay equity analysis on the basis of privilege.<sup>146</sup>
  - Training and Awareness – PSEG LI employees have access to training programs through PSEG University. PSEG University provides different training course options based on role and skill development needs. There are a number of DE&I training courses that include unconscious bias and inclusive leadership. Trainings

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<sup>143</sup> DR 1221.

<sup>144</sup> DR 1221.

<sup>145</sup> DR 1221.

<sup>146</sup> DR 1225.

are classified as required, nomination or optional for employees. NorthStar was not provided with DE&I training course descriptions, curricula, or complete employee attendance/non-attendance lists as PSEG LI did not fully respond to the information request.<sup>147</sup> As noted earlier, PSEG LI investment in training and development has significantly diminished since 2018.

- Ongoing Partnerships and Outreach – PSEG LI states that its diversity outreach initiatives focus on improving workplace diversity through strategic sourcing efforts from both community engagement and through university relations efforts. PSEG LI efforts in this area for 2023 only include, but are not limited to the following:
  - University Relations: Developed relationships with a number of local universities including those related to the Company’s DE&I initiatives including Historically Black Colleges or Universities (Hampton and Howard Universities), Hispanic serving institutions (City College), and Stony Brook University’s Diversity Professional Leadership Network. This outreach resulted in ten hires sourced from partner schools - three from City College of NY and seven hires from Stony Brook University.
  - Applicants of the Future: Participated in Job Fairs, Career Forums and developed a partnership with the Board of Cooperative Educational Services in Nassau and Suffolk Counties to include electric utility specific skills in their curriculum. These efforts resulted in five applications and one hire.
  - Women in Non-Traditional Roles Initiative: Partnership with IBEW 1049 aimed at increasing women’s interest in pursuing careers in the skilled trades and exploring opportunities with PSEG.
- NorthStar requested information on talent acquisition program and hiring practices as well as diversity goals and results for each level of management from 2018 to 2022.<sup>148</sup> PSEG LI stated that its diversity goals in management align with affirmative action goals in areas where the Company has identified underutilization based on availability rates. PSEG LI further stated that goals are not quotas, but rather targets that employers may use to measure progress toward achieving equal employment opportunity and overall effectiveness of their affirmative action program. PSEG LI did not fully respond to NorthStar’s request. PSEG LI provided Affirmative Action Plan goals for management, but did not provide any results or other indication of progress to achieving these goals.<sup>149</sup>
- PSEG LI stated that its commitment to DE&I is further embedded in its annual People Strong goal to increase representation of underrepresented groups within specific areas and levels of the organization. PSEG LI provided its “People Strong” strategic goal for 2023. To summarize, the goals are to increase the percentage of women in

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<sup>147</sup> DR 1223. Attachment 1 DE&I courses does not correspond with Attachment 2 or 3. Furthermore, most courses in Attachment 2 are required for all employees. PSEG LI did not provide list of employees that did not attend as requested. Finally, Attachment 3 is incomplete.

<sup>148</sup> DR 1231.

<sup>149</sup> DR 1231 Attachment 3. PSEG LI was nonresponsive – insufficient materials provided or not provided in the audit period.

management, increase percentage of diversity in management, increase percentage of women in union roles, enhance employee engagement, and supplier diversity from certified minority, woman, and disabled veteran-owned businesses.<sup>150</sup>

- NorthStar reviewed reports to management for DE&I that appeared in PSEG LI's Scorecard and People Strong goals.<sup>151</sup> The only metric consistently reported from 2018 to 2022 was Supplier Diversity.<sup>152</sup>

## **20. PSEG LI is largely compliant with hiring standards provided in the Second A&R OSA.**

- Service Provider hiring standards are provided in four sections of the Second A&R OSA.
  - Section 4.2(D)(2) – Dedicated Long Island Team.
  - Section 4.2(D)(3) - President and Chief Operating Officer, Role, Authority, and Reporting Relationships.
  - Section 4.2(D)(5) ServCo Employees.
  - Section 10.8 – Non-Discrimination
- PSEG LI has created and filled most of the Senior Manager Positions required by Section 4.2(D)(2) except the position of President and COO. This position has been filled on an interim basis since May 2022.<sup>153</sup>
- All senior management positions have a solid line reporting up to the interim President and COO of PSEG LI, except that the CIO, the CISO, and the heads of Legal, Finance, and Human Resources (as noted in Exhibit III-16).<sup>154</sup>
- The position of Chief Information Officer remains an employee position of PSEG LI, LLC (“Management Co”).<sup>155</sup> According to the OSA, this position will remain at PSEG LI, LLC until there is a change in personnel in accordance with the Second A&R OSA.
- PSEG LI appropriately notifies LIPA of PSEG LI employee transfers to PSEG affiliates in accordance with the Second A&R OSA.<sup>156</sup>
- PSEG LI and LIPA are working to develop CAM standards and processes to be applied to Section 4.2(D)(5).<sup>157</sup>

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<sup>150</sup> DR 1231 Attachment 4

<sup>151</sup> DR 1231.

<sup>152</sup> DR 1396 and 1399. For more information on Supplier Diversity, see Chapter XII – Outside Services.

<sup>153</sup> DR 1218.

<sup>154</sup> “Solid line reporting” is defined in the OSA as the primary reporting relationship between an employee and manager, where such manager is able to make day-to-day and operations decisions without approval from persons in New Jersey Affiliates or other Affiliates of the Service Provider, and the manager supervises, conducts performance evaluations, and makes other employment-related decisions.

<sup>155</sup> DR 1097.

<sup>156</sup> DR 1383 Attachment 1-3.

<sup>157</sup> See Conclusion 12.

- NorthStar could not confirm PSEG LI compliance Section 10.8 in terms of where discrimination provisions are included by contract for firms hired to perform work related to the T&D System. PSEG LI’s response did not provide contracts with this provision included for NorthStar review.<sup>158</sup>

**21. LIPA and PSEG LI have implemented reasonable policies, procedures and tools to enable a remote working environment for and management of eligible employees.**

- LIPA’s Remote Work Policy became effective in November 2020. The Policy states that full-time employees are eligible for remote work options through a “remote work request”.<sup>159</sup> However, remote work may not be appropriate for all employees or positions. Qualified full-time employees have three options for remote work.<sup>160</sup>
  - Option 1: work remotely up to 50 percent of the time. This option provides that the employee works five days per two-week pay period, including LIPA “All Staff” days or any other days where the employee’s presence is required for in-person meeting or events.<sup>161</sup>
  - Option 2: work remotely up to 90 percent of the time. This option provides where the employee is asked to work from the office a minimum of three days per month, including on scheduled LIPA “all-staff” days and any other days when the employee’s presence is required for in-person meetings or events.
  - Option 3 (Director level-positions): Directors that wish to secure an assigned office must commit to working in-office 4 out of 5 days each week. In addition, all full-time staff must be available for in-person work for business continuity needs; Emergency Response Oversight, in accordance with LIPA’s Emergency Response Oversight Policy and as necessary for business purposes or requested by Management.
- Full-time employees discuss their remote work request with their supervisors and submit a form to the Department Head. Each request is reviewed on a case-by-case basis based on “employee suitability” and “job responsibilities”.
- Remote workers must have an appropriate “alternate work site” within their home or remote location to maintain productivity and performance. LIPA also provides the necessary IT equipment such as monitors or a printer.
- LIPA assesses the effectiveness of its remote work policy and makes necessary adjustments based on feedback from employees and evolving business needs. LIPA’s remote work policy has been updated nine times since its original adoption in November 2020.

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<sup>158</sup> DR 1218.

<sup>159</sup> DR 1216 Supplement1. Policy states that Part time employees may work from the office or remotely.

<sup>160</sup> Full-time employees can move between Option 1 and Option 2 but must complete the same approval process.

<sup>161</sup> LIPA does not track the actual days the employee works in the office in each pay period. An employee that does not consistently meet this general guideline will either be asked to re-apply for Option 2 or increase their in-office presence to meet their job requirements.

- The authentication and authorization used to access LIPA IT services and tools are managed through MS Azure Active Directory (AD) and Multifactor Authorization (MFA). MS Azure AD provides single sign-in authentication when users login to the access services. The MFA process occurs when users are prompted during the sign-in authentication for additional forms of identification (e.g., cell phone number) before accessing resources.<sup>162</sup>
- Similar to LIPA, PSEG LI has policies, procedures and tools to enable remote work. PSEG LI's Flexible Work Model practice is described in the Human Resource Practice Guide 700-1 and applies to all employees and defines work locations into four categories – onsite, hybrid, remote local and remote non-local.<sup>163</sup>
  - Onsite - are roles that have specific onsite requirements (e.g., PSEG LI locations including field locations) or require in person interfacing with colleagues, clients, or customers. Employees must live within a commutable distance to their primary PSEG work location and be onsite four or five days each week.<sup>164</sup>
  - Hybrid - are roles that are a blend of onsite work/in-person interactions with some ability to work remotely. Employees must live within a commutable distance to their primary PSEG work location and be onsite a few days each week.
  - Remote Local - are roles that can be performed remotely to a large extent but require some level of purpose-driven in-person interactions on occasion and/or onsite emergency duties. Employees must live within a commutable distance to their primary PSEG work location and may be required to be onsite a few days each month.
  - Remote Non-Local - are roles that can be effectively performed remotely. Employees may live in approved states<sup>165</sup> and may have purpose-driven in-person interactions on occasion.
- In addition to the flexible work model, the Company offers flexible work options (FWOs) to help full-time MAST employees who are looking for balance between their work and personal lives.
  - Flexible work schedule
  - Alternate work site
  - Reduced work hours
  - Job sharing
  - Working remotely in a state other than one's permanent residence on a temporary basis

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<sup>162</sup> DR 1216.

<sup>163</sup> DR 1217 Attachment 1.

<sup>164</sup> Employees must be able to commute by car or public transportation to their primary PSEG work location within a reasonable amount of time, including for emergency response duty.

<sup>165</sup> PSEG LI provides lists of prohibited states, US territories or other locations outside the US for permanent and temporary remote work. Work in approved states and remote work out outside your place of residence for extended periods requires advanced approval. PSEG LI reserves the right to review and modify these lists. PSEG LI states that it is not responsible for unintended and unfavorable personal tax consequences on remote work arrangements.

## Enterprise Risk Management

LIPA and PSEG LI Enterprise Risk Management (ERM) Program are based on the standards developed by the Board of the Committee of Sponsoring Organizations of the Treadway Commission (COSO).<sup>166</sup> COSO is a joint initiative of five private sector organizations and is globally recognized as an authority on internal control and a thought leader on risk management, governance and fraud deterrence.<sup>167</sup>

In 2004, the COSO commissioned and published “Enterprise Risk Management—Integrated Framework”. In June 2017, COSO updated its 2004 publication to address the evolution of enterprise risk management and the need for organizations to improve their approach to managing risk to meet the demands of an evolving business environment. The updated document, now titled “Enterprise Risk Management—Integrating with Strategy and Performance”, highlights the importance of considering risk in both the strategy-setting process and in driving performance. The 2017 COSO ERM Framework consists of the five interrelated components of enterprise risk management. The five components are supported by 20 principles which identify fundamental concepts associated with each component and describe things that organizations would do under each component. The components and principles are presented in **Exhibit III-21**.

### Exhibit III-21 COSO Risk Management Components and Principles



Source: COSO ERM Framework, 2017. <https://www.coso.org/guidance-erm>

LIPA developed an initial ERM Procedures Manual in early 2017. It was updated in June 2019, October 2020, and most recently in December 2022. According to the manual, LIPA and PSEG LI leveraged COSO’s ERM Integrated Framework as the foundation for its ERM Program. This included the original framework published in 2004 and the 2017 update. The ERM Procedures Manual describes the elements of the ERM program and the roles and responsibilities of each stakeholder group.

<sup>166</sup> DR 242.

<sup>167</sup> [www.coso.org](http://www.coso.org)



The LIPA Board policy on ERM was originally adopted on March 29, 2017. It was last reviewed by the Board September 27, 2023. LIPA’s CEO (or his/her designee) is required to report annually to the Board on the Policy, including a review of significant risks and compliance with key provisions of the Policy. The adoption and amendment of the Board policy was preceded by the development of, or modifications to the Procedures Manual. **Exhibit III-22** provides a summary of the roles and responsibilities of the various organizations.

**Exhibit III-22**  
**ERM Program and Responsibilities**

<b>Organization</b>	<b>Role and Responsibilities</b>
LIPA Board of Trustees (BOT)	<ul style="list-style-type: none"> <li>• Establish and maintain an ERM policy.</li> </ul>
Finance & Audit Committee	<ul style="list-style-type: none"> <li>• Oversight of ERM program</li> </ul>
LIPA CEO	<ul style="list-style-type: none"> <li>• Maintain an ERM Program overseen by an Enterprise Risk Management Committee (ERMC) consisting of at least three staff appointed by the CEO, two of whom must be drawn from senior management, to oversee LIPA’s program and the activities of its service provider.</li> <li>• Ensure a similar committee exists at PSEG LI.</li> </ul>
LIPA Enterprise Risk Management Committee (ERMC)	<ul style="list-style-type: none"> <li>• Oversee all ERM activities and ensure they are in accordance with the ERM Board Policies.</li> <li>• Review and approve the LIPA risk profile and mitigations.</li> <li>• Review the PSEG LI risk profile.</li> <li>• Review the integration of ERM information into business processes.</li> <li>• Review deep dives of significant risks.</li> </ul>
PSEG LI Risk Management Committee (RMC)	<ul style="list-style-type: none"> <li>• Oversee PSEG LI’s ERM Program, to identify, assess, monitor, and manage their most significant risks, and report on those risks to LIPA’s ERMC.</li> <li>• Review and approve PSEG LI’s risk profile and mitigations.</li> <li>• Review the integration of ERM information into business processes.</li> </ul>
LIPA ERM Team	<p>LIPA’s Senior Manager of Risk Management and ERM Advisor.</p> <ul style="list-style-type: none"> <li>• Daily administration of the program.</li> <li>• Monitor implementation of mitigation activities.</li> <li>• Conduct deep dive analyses (working with Department Risk Owners and Subject Matter experts discussed below).</li> <li>• Identify and review strategic and emerging risks.</li> <li>• Perform external benchmarking.</li> <li>• Conduct a biennial review of the maturity of the program compared to industry best practices, which will be provided to the Board, senior management, and LIPA’s Internal Audit staff,</li> <li>• Facilitate discussions with stakeholders to identify emerging risks.</li> <li>• Maintain the emerging risk repository.</li> </ul>
PSEG LI ERM Team	<p>Program Manager and an Analyst.</p> <ul style="list-style-type: none"> <li>• Monitor implementation of mitigation activities.</li> <li>• Conduct deep dive analyses (working with Department Risk Owners and Subject Matter experts discussed below).</li> <li>• Identify and review strategic and emerging risks.</li> <li>• Perform external benchmarking.</li> <li>• Facilitate discussions with stakeholders to identify emerging risks.</li> <li>• Maintain the emerging risk repository.</li> </ul>
Department Risk Owners (LIPA and PSEG LI) – the most	<ul style="list-style-type: none"> <li>• Ownership of the entire department portfolio resides with the most senior person of each business unit or department (“Department Risk Owner”).</li> </ul>



Organization	Role and Responsibilities
senior person of each business unit or department	Each Department within LIPA and PSEG LI is responsible for participating in the annual Enterprise Risk Assessment Process (ERA). <ul style="list-style-type: none"> <li>• Identify subject matter experts to work with the ERM Team.</li> <li>• Where possible, consider and integrate ERM risk information into their business processes and decision making.</li> </ul>
Subject Matter Experts (LIPA and PSEG LI)	<ul style="list-style-type: none"> <li>• Manage assigned risks.</li> <li>• Work with the ERM Team to identify, assess, and monitor mitigation actions on the risks that could impede achievement of department objectives.</li> <li>• Provide emerging risk information to the ERM team.</li> </ul>

Source: DR 22 Supplement 4 and DR 241 Supplement 1.

LIPA and PSEG LI ERM Programs have similar structures and approach to risk assessments – the difference is largely in the classification of high-risks and reporting. PSEG LI’s ERM Program classifies risks as Tier 1 and Tier 2.<sup>168</sup> The risk assessment process is performed annually, beginning with risk discussions held with each entity’s respective departments. Based on this input, each entity develops/updates a register of the identified department risks.<sup>169</sup> Risks are assessed on a residual basis, meaning that controls and mitigation actions that have been implemented are recognized when assessing the current state of the risk.

The LIPA ERM Team develops the Enterprise Risk Reports for the ERMC. The PSEG LI ERM Team does the same to develop the report for the RMC. Both the ERMC and the RMC meet individually to discuss their risks and may request Department Risk Owners and subject matter experts be in attendance to report the information. The LIPA ERM Team will prepare a Report detailing the top risks of LIPA, highlighting changes from the prior year. Department heads from LIPA will discuss their respective risks along with their mitigation actions at an ERMC. Based on the ERM team’s experience and discussion with LIPA’s ERMC, LIPA determines which of the collective risks (PSEG LI and LIPA) are deemed to be the highest priority for LIPA. These risks are incorporated into the Annual Report to the Finance & Audit Committee of the Board and represent the most significant risks of the Authority.

Prior to the Second A&R OSA, there was a high level of collaboration between the two ERM programs. The two teams have taken the opportunity to improve their relationship, share best-practices/templates with one another and continue to strive to work collaboratively to ensure that risk information is collected and reported as transparently as possible. For example, the biennial ERM Maturity Assessment is taken jointly and represents the combined efforts of the two programs – LIPA/PSEG ERM Program.<sup>170</sup>

<sup>168</sup> DR 43.

<sup>169</sup> DR 43.

<sup>170</sup> DR 43.

**22. Continued development and effectiveness of the LIPA/PSEG LI ERM Program is inhibited by a weak risk culture in each organization. The current LIPA/PSEG LI relationship may impact the integrity risk assessment results that cascade through downstream risk processes.**

- The COSO defines risk culture as pertaining to ethical values, desired behaviors, and understanding of risk in the entity.<sup>171</sup> A strong risk culture requires transparency and means everyone understands the organization’s approach to risk, follows risk management policies and practices, and takes responsibility for managing risk.
- The frequency of ERM program maturity assessments has complied with LIPA’s ERM Board Policy – yearly from 2018 (baseline) to 2020, then transitioning to biennial reviews for 2022.<sup>172</sup> LIPA/PSEG LI ERM Program has a relatively low risk culture maturity score compared to other ERM activities in the diagnostic evaluation.<sup>173</sup>
- Building a strong risk culture is accomplished through senior management support, risk training, risk visibility and communication, alignment of risk performance to incentives.
  - The Board’s ERM policy does not include expectations of organizational risk culture and responsibility.<sup>174</sup>
  - Past ERM communications to LIPA/PSEG LI employees from senior management and the ERM Program in the past has been on a frequency best described as “periodic”.<sup>175</sup>
  - LIPA states that it does not communicate risks with auditors. PSEG LI does not have an external auditor.<sup>176</sup>
  - LIPA and PSEG LI do not communicate risks to external resources to create risk awareness except for ERM benchmarking organizations or for engagement planning purposes (i.e., NIST CSF assessment).<sup>177</sup>
  - The LIPA and PSEG LI ERM teams do not have formalized processes to report on risk culture.<sup>178</sup>
  - Only motivational system related to the LIPA/PSEG LI ERM Program are the OSA metrics and associated compensation tied to these metrics. No other incentive programs, reward systems or accountabilities to the ERM program exists. PSEG LI states that the idea of tying risk performance to remuneration is not a widely adopted concept within the utility industry, and is not currently considering

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<sup>171</sup> COSO, Enterprise Risk Management—Integrating with Strategy and Performance, June 2017.

<sup>172</sup> DR 243. The 2018 was the initial maturity assessment facilitated by PSEG. The assessments from 2019 to 2022 were facilitated by LIPA.

<sup>173</sup> DR 243 Supplements 1 through 4. In 2022 Enhance Risk Culture tied with Align Risk, Strategy and Performance with a maturity score of 2+.(scoring scale of 1 to 5; intermediate scores of + and -).

<sup>174</sup> LIPA Board Policies – Enterprise Risk Management. [www.lipower.org/purpose](http://www.lipower.org/purpose)

<sup>175</sup> DRs 215 and Attachments 1 and 2, 908 Supplement 1 through 3, 1075, 1076, and 1419.

<sup>176</sup> DR 1014.

<sup>177</sup> DRs 1406 and 1407.

<sup>178</sup> DR 785.

integrating this concept into the ERM Program.<sup>179</sup> Renumeration is not the only form of incentive to support a healthy risk culture.

- PSEG LI states there are annual ERM training sessions provided to employees involved in the risk assessment process. The training sessions are interactive (on Zoom) and provide opportunities for questions. The PSEG LI ERM Program Manager also provides training to new VPs, Directors, and other participants in the ERM program.<sup>180</sup>
- NorthStar requested lists of PSEG LI employees with ERM training, training curricula, and post-training surveys from 2019 to 2022.
  - PSEG LI does not perform annual ERM training. PSEG LI provided attendee lists for 2021 and 2022 only. There were over 75 PSEG LI employees trained in 2021 and 34 in 2022.<sup>181</sup>
  - PSEG LI conducted ad-hoc ERM training for eight new employees ranging from Manager to VP level. NorthStar cannot confirm when these ad-hoc trainings occurred.
  - PSEG LI did not provide any training materials or recorded training sessions. NorthStar cannot determine the adequacy of ERM training sessions.
  - PSEG LI does not have a continuous improvement process for ERM training. PSEG LI does not conduct post-training assessments.<sup>182</sup>

- LIPA described the ERM training program conducted for employees as follows:

“Annual training is facilitated to enable those employees involved in the LIPA and/or PSEG Long Island risk assessment processes to understand their roles and responsibilities. This training focuses on the risk assessment process, how to assess a risk using the risk criteria scales, and guidance on PSEG Long Island risk oversight and participation in their risk assessment process. that annual training is facilitated to enable those employees involved in the LIPA and/or PSEG Long Island risk assessment processes to understand their roles and responsibilities.”<sup>183</sup>

- LIPA does not provide annual ERM training for employees involved in the risk assessment process. NorthStar requested LIPA to provide the dates and times of the training sessions, lists of invitees, and lists of attendees from 2019 to current date. LIPA’s response states:

“LIPA developed the ERM Program in its current form beginning in April of 2017. Throughout 2017 and into 2018, the LIPA ERM Team trained and worked with each department to develop their respective profiles. Given the size of the organization, most employees were involved in the original risk

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<sup>179</sup> DR 1641

<sup>180</sup> DR 215 and Attachment 3.

<sup>181</sup> PSEG LI provided a list of ERM training for 53 attendees in November 2023 – fact verification.

<sup>182</sup> DR 1077.

<sup>183</sup> DR 247.

assessment process that was held in 2017 and 2018, and continue to be each year as it is facilitated. As a result, formal training sessions outside of the annual risk assessment process have not been necessary.”<sup>184</sup>

- LIPA completed training for new employee as well as executive-level, one-on-one ERM program training.<sup>185</sup> Training for most employees do not have any dates.<sup>186</sup>
- LIPA training materials for employees/executives involved in ERM process are summary in nature. At a minimum, these materials do not:
  - Reference the COSO ERM standard, which is the framework used to develop the ERM program, and how it is leveraged at LIPA/PSEG LI.
  - Describe different types of risk (e.g., enterprise, operational, project), importance of risk awareness and risk culture, or the value of risk-based decision-making in the organization.
  - Mention tools used to identify and define/describe risks, analyze root causes or consequences of risks, or develop effective pre- and post-event responses.
  - Discuss risk appetite, risk thresholds, or tools to monitor and track risk mitigation.
  - Reference the ERM program’s Procedures Manual for ERM.<sup>187</sup>
- LIPA does not conduct ERM post-training assessments for continuous improvement purposes.<sup>188</sup>
- ERM facilitated a workshop to the F&A Committee of the Board of Trustees on the ERM Program in July 2020. No other workshops were conducted for the F&A Committee. LIPA stated that the next one planned will be scheduled in 2023.<sup>189</sup>
- Risk identification is the most important aspect of the risk assessment process. Transparent discussions and thorough analysis provide the foundation from which risks are framed, associated mitigations are identified and applied, and effective KRIs are developed for monitoring and reporting. The LIPA/PSEG LI ERM Program has not identified risk culture as an enterprise risk despite many indications of issues.
  - Relatively low maturity level scores compared to other ERM activities from 2018 to 2022.<sup>190</sup>
  - No assigned responsibility and accountability for improving risk culture.
  - Lack of transparency that directly impacts ERM program and processes.
  - In December 2020, the LIPA CEO directed the LIPA ERM team to prepare a formal letter to PSEG LI identifying failures in the ERM process (e.g., lack of

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<sup>184</sup> DR 1078.

<sup>185</sup> DR 1078 Supplement 1.

<sup>186</sup> DR 1078 Supplement 1. See tab 3.

<sup>187</sup> DRs 242 and 1078 2-4.

<sup>188</sup> DR 1078.

<sup>189</sup> DRs 247 and 1078 Supplement 5.

<sup>190</sup> DR 243 Supplements 1 through 4. The ERM Diagnostic evaluations used a scoring scale of 1 to 5; intermediate scores of + and -.

cooperation and transparency, delay in providing risk information, etc.) and recommendations to improve the program.<sup>191</sup>

- The Isaias Task Force’s 90-Day Report found numerous examples where PSEG LI lacked transparency in its dealings with LIPA. The LIPA Board meeting minutes from February 2021 states that this lack of transparency impacted the effectiveness of LIPA’s ERM Program, including inaccurate and, at times, overly confident rankings by PSEG LI of certain key risks and poor implementation of mitigation strategies.<sup>192</sup>
- LIPA ERMC meeting in September 2021 notes challenges with PSEG LI matrixed departments being siloed. Specifically, PSEG LI IT department had little interaction with the Customer Operation’s business unit during the risk assessment process, which may have been a potential contributing factor to the failures in communication for Tropical Storm Isaias storm response.<sup>193</sup>
- The lack of PSEG LI transparency noted above continues. The LIPA ERM team’s assessment of PSEG LI Customer Operations function in the May 2023 ERMC meeting stated that:

“Top risks are not reflective of the most significant risks in Customer Operations. Risks are not being reflected in the profile due to the impression they will lead to new metrics.”<sup>194</sup>

“[PSEG LI is] not putting certain risks on their profiles because then they would have to do something about them.”<sup>195</sup>

“Overall, the culture is metric driven with minimal focus on innovation.”<sup>196</sup>

“PSEG LI tend to underestimate outsourcing risks. [PSEG LI] think transferring risks to vendors eliminates the risk to them.”<sup>197</sup>

**23. LIPA and PSEG LI’s ERM teams use a bottom-up risk assessment process to identify and rank risks across all departments. The process largely identifies and assesses risks that could affect the ability of LIPA and PSEG LI to achieve their mission. There are gaps as well as instances of overlapping risks, narrow or overly broad defined risks, and risks that do not rise to an enterprise level.**

- **Exhibit III-23** provides an overview of LIPA/PSEG LI’s enterprise risk assessment (ERA) approach. Both LIPA and PSEG LI use bottom-up approaches to identify, assess, respond, monitor, and report on risks to the organization.<sup>198</sup>

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<sup>191</sup> DR 903 Supplement 41.

<sup>192</sup> Board of Trustees Meeting, February 24, 2021.

<sup>193</sup> DR 903 Supplement 39 and 40.

<sup>194</sup> DR 903 Supplement 60.

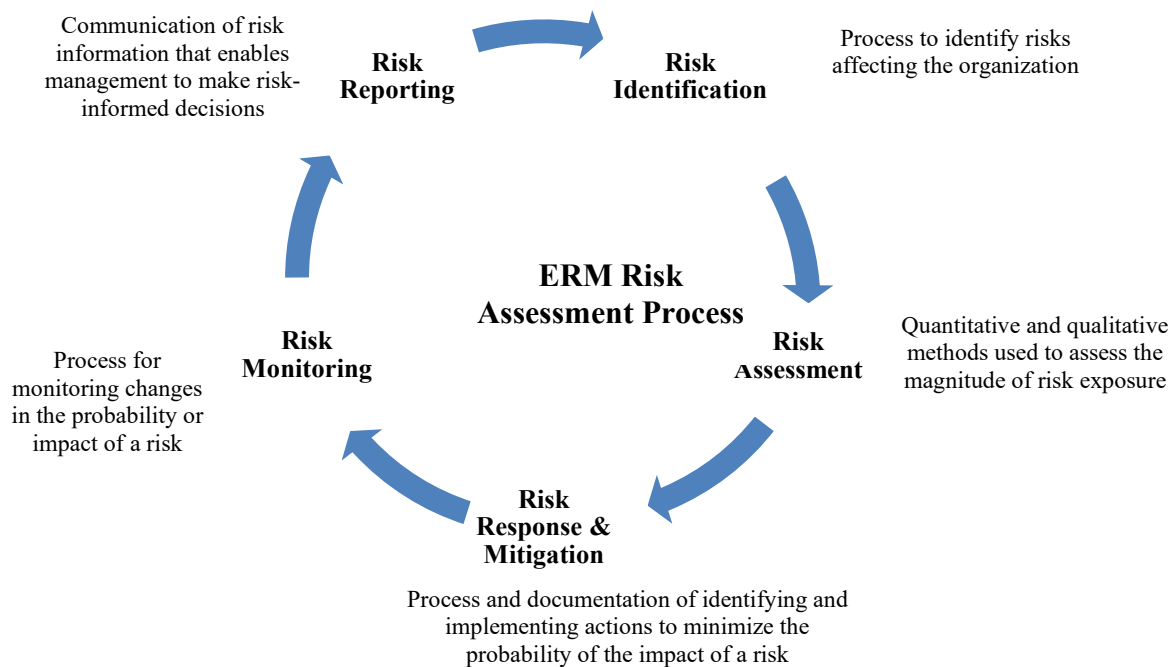
<sup>195</sup> DR 903 Supplement 53.

<sup>196</sup> DR 903 Supplement 60.

<sup>197</sup> DR 903 Supplement 53.

<sup>198</sup> DRs 43 and 241 Supplement 1.

**Exhibit III-23  
LIPA/PSEG LI's ERA Approach**



Source: DR 241 Supplement 1.

- The risk assessment is performed annually, beginning with risk discussions held with each entity's respective departments. Based on this input, each entity develops/updates a risk register, also called a risk profile, of the identified department risks.<sup>199</sup> Risks are assessed on a residual basis, meaning that the assessment involves evaluating the level of risk that remains after implementing mitigation and control measures.
- After all Departmental risk are identified, the LIPA risks are ranked from 1 to N, using a combination of the likelihood of the risk and the severity (no impact, incidental, minor, moderate, major and severe) in five areas: financial; reliability; reputation; regulatory, legal, and compliance; and, EHS. The risk registers also describe the velocity and outlook for each risk (**Exhibits III-24 and III-25**).<sup>200</sup> Likelihood is assessed over a two-year horizon and velocity is evaluated as the time it will take the organization to realize the impact if the risk were to occur. The last component of the assessment is determining Risk Outlook which is based on any changes from the prior year, consideration of any industry events, and what may be on the horizon.<sup>201</sup>

<sup>199</sup> DR 43.

<sup>200</sup> DR 43 Supplement 1, DR 224 Supplement 1.

<sup>201</sup> DR 241 Supplement 1.

**Exhibit III-24  
LIPA and PSEG LI Risk Evaluation Criteria**

Impact	Impact Categories	Likelihood	Velocity	Outlook
5- Severe	Financial	5- Almost Certain	High	Increasing
4- Major	Reliability	4- Likely	Medium	Decreasing
3- Moderate	Reputational	3- Possible	Low	Stable
2- Minor	Regulatory, Legal, & Compliance	2- Unlikely		
1- Incidental	Environmental, Health, & Safety	1- Highly Unlikely		

Source: DR 241 Supplement 1.

**Exhibit III-25  
Illustrative LIPA and PSEG LI Risk Assessment (2022)**

Rank	Risk	Risk Description	Department	Risk Exposure	Severity					Likelihood	Velocity	Outlook
					Financial	Reliability	Reputation	Regulatory, Legal, & Compliance	Environmental Health & Safety			
1	Reputation	Negative media coverage affects LIPA's reputation along with customer and stakeholder perception that could affect policy outcomes, LIPA's ability to retain key suppliers, operations, and/or access to affordable capital	External Affairs & Communications	High	Minor	No Impact	Major	Minor	No Impact	Likely	High	Stable
					<span style="color: green;">Low: 1-5</span> <span style="color: orange;">Med: 6-15</span> <span style="color: red;">High: 16-25</span>							
	Risk Name	Risk Description		Risk Exposure	Severity					Likelihood	Velocity	Outlook
1	Major Storm - Customer Expectations	Customer and stakeholder dissatisfaction with PSEG Long Island's response to a storm or major event can result in increased negative public perception and/or		20	1 - Incidental	1 - Incidental	5 - Severe	1 - Incidental	1 - Incidental	4 - Likely	High	Increasing

Source: DR 43 Supplement 1 and Attachment 4.

- PSEG LI’s ERM Program is similar to LIPA except for the classification of the top risks.
  - Once PSEG LI risk profiles are developed the PSEG LI ERM team, in collaboration with the RMC consisting of the Chief Executive Officer (CEO), Vice Presidents, and Managing Directors, group risks into Tier 1 and Tier 2 risks. The Tier 1 risks are the most significant and Tier 2 are the next highest priority.<sup>202</sup>
  - The PSEG LI list of high-priority risks is determined by the risk exposure score, blended score, and “enterprise effect” – does the risk effect the entire company as opposed to a specific risk significant to a discreet department.<sup>203</sup>
  - The Second A&R OSA metric BS-1 (ERM-1) Enterprise Risk Management (ERM) Report requires that an ERM Annual Report is delivered to LIPA by June 30th.<sup>204</sup> After the delivery of the Annual Report, a discussion is held in the month of July. The metric also compels PSEG LI to provide an update to the Annual Report in December to include progress made on mitigation actions, changes, if any in existing Tier 1 and 2 risks, any new risk issues as well as other requirements.<sup>205</sup>
- LIPA’s DoITT, Human Resources, Procurement, Legal, External Affairs, Communications, Public Policy and Regulatory Affairs, Finance, and Strategy have

<sup>202</sup> DR 43.

<sup>203</sup> DR 853 Attachment 2.

<sup>204</sup> DR 19 Attachment 5.

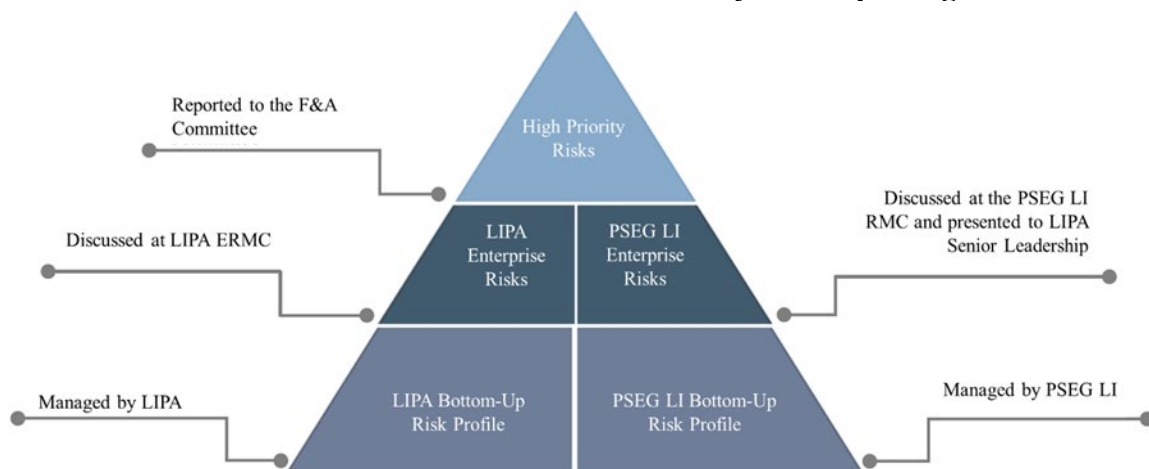
<sup>205</sup> DR 43.



Risk Profiles.<sup>206</sup> PSEG LI develops risk profiles for the following business units and departments: Corporate Communications, Construction and Operations Service, Customer Operations, Electric Operations, External Affairs, Finance, Human Resources, Information Technology, Legal, Power System Management, and Procurement.

- Each risk in a department’s profile is evaluated to determine a risk response strategy – that is to determine if it is in LIPA’s or PSEG LI’s best interest to mitigate, accept, avoid, or transfer the risk to another party.<sup>207</sup> Department Risk Owners are tasked with identifying and evaluating appropriate mitigation activities for all risks but especially those with high-risk exposures.<sup>208</sup>
- Upon completion of the LIPA and PSEG LI annual risk assessment processes, the LIPA ERM team with input from LIPA senior leadership develops a combined LIPA/PSEG LI “high-priority” risk list that is presented to the Finance & Audit (F&A) Committee of the Board (**Exhibit III-26**).<sup>209</sup> According to LIPA, to qualify for presentation to the F&A Committee, it must be considered high-priority by both LIPA and PSEG L and meet one or more of the following criteria:
  - Collaborative effort between LIPA and PSEG LI.
  - Vested interest between LIPA and PSEG LI.
  - Requires a major capital or O&M investment.<sup>210</sup>

**Exhibit III-26**  
**LIPA and PSEG LI Risk Profile Hierarchy and Reporting**



Source: DR 1068 Supplement 5.

<sup>206</sup> DR 1423. LIPA has risk profiles for listed departments for 2022 and 2023, except Strategy which has a risk profile for 2023 only.

<sup>207</sup> DR 241 Supplement 1

<sup>208</sup> DR 43 Supplement 1.

<sup>209</sup> DR 43.

<sup>210</sup> DR 1068 Supplement 3.

- The LIPA and PSEG LI ERM Teams participate in benchmarking with companies inside and outside the utility sector to incorporate best practices into the ERM Program. As early as 2014, the Edison Electric Institute (EEI) performs an annual survey of the top risks facing investor-owned electric utilities that is distributed in late-summer each year. The American Gas Association (AGA) began participating in the survey in 2019. These surveys are commonly used by utilities to benchmark their own risks and identify new risks. The EEI survey’s top risks from 2014 to 2021 as well as 2022 top 10 risks are shown in **Exhibit III-27**.

**Exhibit III-27**  
**EEI Top Risk Survey Results 2014 to 2022**

EEI Top Risks from 2014-2021	EEI Top 10 Risks in 2022
<ul style="list-style-type: none"> <li>• Cybersecurity</li> <li>• Strategy and Execution (including Business Model)</li> <li>• Pressure on Rates and Returns</li> <li>• Regulatory/Legislation</li> <li>• Operational Performance (Reliability)</li> <li>• Data Privacy/Sensitive PI Release</li> <li>• Safety – Employees and Public</li> <li>• Customer Expectations/Behavior</li> <li>• Catastrophic Event Response (including Storms)</li> <li>• Physical Security</li> </ul>	<ol style="list-style-type: none"> <li>1. Cybersecurity</li> <li>2. Pressure on Rates and Returns</li> <li>3. Safety – Employee and Public</li> <li>4. Regulation/Legislation</li> <li>5. Strategy and Execution (including Business Model)</li> <li>6. Workforce – Attract, Retain</li> <li>7. Decarbonization (Transition to Low- or No-Carbon)</li> <li>8. Catastrophic Event Response (including Storms)</li> <li>9. Third-Party Risk (Supply Chain/Vendor)</li> <li>10. Climate Adaption (Impact to Infrastructure)</li> </ol>

Source: DR 1073.

- Over 35 EEI ERM Committee Member Companies participated in the EEI’s 2022 Top Risk survey.
- NorthStar compared EEI’s 2022 Top Risk Survey to LIPA/PSEG LI ERM Program’s high-priority risks as presented to the Board’s F&A Committee in 2022 and 2023 in **Exhibit III-28**.

**Exhibit III-28**  
**Comparison of EEI’s 2022 Top Risk Survey Results to High-Priority Risks Presented to LIPA F&A Committee for 2022 and 2023**

EEI Rank	EEI Risk Name (2022)	LIPA/PSEG LI Risk Name (2022)	LIPA/PSEG LI Risk Name (2023)
1	Security: Cyber	Cyber Event (LIPA/PSEG LI) Breach of PII (PSEG LI)	Cyber Event (LIPA/PSEG LI) Breach of PII (PSEG LI)
2	Pressure on Rates & Returns	Insufficient Rates/Untimely Rate Relief (LIPA/PSEG LI) Rate Design (LIPA/PSEG LI)	Rate Design (LIPA/PSEG LI)
3	Safety – Employee and Public	Safety (PSEG LI)	Safety (PSEG LI)
4	Regulation/Legislation	Regulatory/Legislative (LIPA/PSEG LI)	Regulatory/Legislative (LIPA/PSEG LI)
5	Strategy & Execution (including Business Model)	<b>No Risk Presented</b>	Business Model (LIPA) Business Model Uncertainty (LIPA)

6	Workforce – Attract, Retain, Strength <sup>211</sup>	<b>No Risk Presented</b>	Talent Management (LIPA/PSEG LI)
7	Decarbonization (Transition to Low- or No-Carbon)	<b>No Risk Presented</b>	<b>No Risk Presented</b>
8	Catastrophic Event Response (including Storms)	Major Storm (PSEG LI)	Major Event (PSEG LI) Failure of Critical Business Systems (PSEG LI)
9	Third Party Risk (Supply Chain/Vendor)	Supply Chain Disruptions (PSEG LI)	<b>No Risk Presented</b>
10	Climate Adaption (Impact to Infrastructure)	<b>No Risk Presented</b>	<b>No Risk Presented</b>
<b>Not Included in EEI's Top Risks Surveys, but included in Board/F&amp;A Committee Meeting.</b>		Reputation (LIPA/PSEG LI) Outdated Primary Transmission Control Center (PSEG LI) Loss of Multiple Tie-Lines (PSEG LI) Physical Security Attack (PSEG LI) Changing Customer/Stakeholder Expectations (LIPA/PSEG LI)	Reputation (LIPA/PSEG LI) Outdated Primary Transmission Control Center (PSEG LI) Loss of Multiple Tie-Lines (PSEG LI) Physical Security Attack (PSEG LI) Call Center (PSEG LI)

Source: DRs 1073, 1012 Supplement 2, and F&A Committee Meeting September 27, 2023 (www.lipower.org)

- As shown in **Exhibit III-28**, LIPA ERM does not consider Climate Adaption or Decarbonization as high-priority risks for the Board/F&A Committee despite CLCPA legislation and the LIPA Board Policies:
  - T&D Operations #1683, amended November 17, 2021 – “Mitigate the effects of climate change through multi-year programs that reduce the number and duration of outages after significant system disruptions.”
  - Clean Energy and Power Supply #1727, amended May 18, 2022 - “Achieve a zero-carbon electric grid by 2040, while meeting or exceeding LIPA’s share of the clean energy goals of New York’s CLCPA, including those for renewables, offshore wind, distributed solar, and storage.”
  - Social and Environmental Justice #1788, amended March 29, 2023 - “Pursue initiatives that promote fairness and equity in the clean energy transition.”<sup>212</sup>
- LIPA/PSEG LI’s IRP was only recently released to the public in November 2023.<sup>213</sup> The IRP is a key input for system planning as well as CLCPA and Utility 2.0. The IRP is listed as a 2022 risk mitigation strategy for PSEG LI’s Strategy group.<sup>214</sup>
- In May 2023, the LIPA ERMC report notes that PSEG LI’s Construction Services added CLCPA as a risk due to the increase in the scope, scale, and number of projects that have been initiated in 2023. PSEG LI ranks CLCPA transition risk as “High”.<sup>215</sup>
- A review of 2022 LIPA/PSEG LI ERM profiles do not include Records Management as a risk despite serious management issues.<sup>216</sup> Record Management risk relates to the

<sup>211</sup> LIPA and PSEG LI have identified talent management as a top risk in 2023.

<sup>212</sup> <https://www.lipower.org/purpose/> - Board Policies.

<sup>213</sup> DR 1289.

<sup>214</sup> DR 43 Attachment 11.

<sup>215</sup> DR 903 Supplement 60.

<sup>216</sup> For more information, see prior section on Governance.

potential public safety, property, reliability, regulatory, financial, or other impacts that result from the use of inaccurate or incomplete records.

- LIPA does not have a functioning records management program. LIPA’s electronic records management system implementation project has experienced multiple delays.
- PSEG LI Records Management function was found to have deficient processes. PSEG LI Internal Audit reviewed the company’s record retention practices in October 2021 and issued a “Major Improvement Required” opinion.<sup>217</sup>
- NorthStar’s review of LIPA and PSEG LI 2023 high-priority risk portfolios found that certain risks are at times too narrowly or too broadly defined, and risks that may not rise to an “enterprise” level that diminish ERM program value. Strains on the LIPA and PSEG LI relationship may be contributing to resistance in recognizing and discussing certain risks and their impacts.<sup>218</sup> Examples include Supply Chain Impacts, Outdated Primary Control Center, Regulatory/Legislative, and Call Center.<sup>219</sup>
  - Regulatory/Legislative – This is a risk that is managed by both LIPA and PSEG LI.<sup>220</sup> NorthStar requested deep dive analysis for all high-priority risks in 2023 presented to the LIPA ERMC which included the Regulatory/Legislative risk. LIPA stated that the Regulatory/Legislative risk is too broad and no specific LIPA deep dive analysis was performed.<sup>221</sup> It is unclear how LIPA’s management can make informed decisions involving strategy and operations, which usually constitute the bulk of the important decisions in a firm, with an enterprise risk that is too broadly defined. The only analysis performed in this area was on CLCPA in December 2020 by PSEG LI.<sup>222</sup>
  - Supply Chain Impacts – LIPA/PSEG LI focus is largely on transformer inventory.<sup>223</sup> Broader issues exist in the supply chain function (refer to Chapter XII – Outside Services).<sup>224</sup>
  - Outdated Primary Control Center – Acute focus on a single, aging asset that has been on the risk list since 2017 ignores the broader asset management issues at PSEG LI.<sup>225</sup> Discussed in the June 2023 Quarterly Board report on performance metrics:

“LIPA has had continuing concerns about PSEG LI’s ability to meet the asset management performance metrics. PSEG LI did not meet the 2022 asset management-related metric T&D-1 and the 2023 metric related to the

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<sup>217</sup> DR 29 Attachment 65.

<sup>218</sup> DR 903 Supplement 60

<sup>219</sup> DR 1202 Attachment 1 and September 27, 2023 F&A Committee Meeting.

<sup>220</sup> September 27, 2023 F&A Committee Meeting.

<sup>221</sup> DR 1411.

<sup>222</sup> DR 784 Attachment 1.

<sup>223</sup> DR 1202 Attachment 1 and 1564 Attachment 2.

<sup>224</sup> DRs 29, 903 Supplements 25 and 27, 1048 Supplement 1 and 2. Also see Chapter XII – Outside Services.

<sup>225</sup> September 27, 2023 F&A Committee Meeting.

Enterprise Asset Management System implementation T&D-03 has experienced significant challenges.”<sup>226</sup>

“[PSEG LI] may not be thinking about risk management comprehensively enough. They need to think bigger.”<sup>227</sup>

- Like many utilities in the US, PSEG LI is confronted with aging infrastructure and climate change while controlling costs associated with maintaining an old and vulnerable system. PSEG LI asset management practices remain challenged, and development and implementation of the Enterprise Asset Management System may not occur till at least 2027, beyond the Second A&R OSA term.<sup>228</sup>
- Call Center –The Call Center is the primary source of customer interaction and today’s utility customers have high expectations for customer service. The PSEG LI Call Center performance was deteriorating as evidenced by increases in metrics (e.g., Average Handle Time was eight minutes in August 2022). LIPA requested PSEG LI for a “Get Well Plan” in August 2022.<sup>229</sup>

- October 2022 email to PSEG LI from LIPA ERM Team states:

“While I don’t necessarily think this would make it to the Tier 1/Tier 2 risk list it is obviously a risk of increased concern.”<sup>230</sup>

- During a PSEG LI RMC meeting in December 2022, Call Center risk exposure was rated “Medium”. The issue did not rank as a Top Tier 1 or 2 risk.<sup>231</sup>
- In a May 2023 LIPA ERMC meeting, the LIPA ERM Team discussed differences between the 2022 and 2023 risk list. LIPA ERM Team stated that it had strongly recommended that the Call Center issue be prominent in their profile. PSEG LI senior management thought it was more an issue that was being managed compared to identifying it as a top-tier risk.<sup>232</sup>
- Approximately nine months after adding Call Center to the high-priority risk list, LIPA’s “Get Well Plan” update presentation to the Oversight and Clean Energy Committee stated:

“LIPA is pleased with the actions taken and analysis performed, despite the temporary deterioration in performance in Q3.”<sup>233</sup>

- Inclusion of the Call Center as a high-priority risk as presented to the F&A Committee appears to be a reactionary decision lacking the analysis normally

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<sup>226</sup> June 23, 2023 LIPA Board of Trustee Meeting, Annual Report on the Board Policy on T&D Operations.

<sup>227</sup> DR 903 Supplement 53.

<sup>228</sup> Consideration of Approval of the Annual Report and Amendments on the Board Policy on Asset Management, September 27, 2023. . <https://www.lipower.org/about-us/board-of-trustees/meetings> also see Chapter IX – Transmission and Distribution and Chapter XI – Work Management.

<sup>229</sup> February 15, 2023 Oversight and Clean Energy Committee Meeting.

<sup>230</sup> DR 1611 Supplement 1.

<sup>231</sup> DR 902 Attachment 14.

<sup>232</sup> DR 903 Supplement 59.

<sup>233</sup> September 27, 2023 Oversight and Clean Energy Committee Meeting.

conducted during a rigorous risk identification process. The Call Center risk requires transparent discussions and analysis to determine if it is a symptom of broader issues with Talent Management and Customer Operations.

- LIPA ERM Program has overlapping risks in its 2023 portfolio. Examples include, Business Model Uncertainty, Business Model – Talent, Attraction and Retention, Succession Planning, Employee Time Constraints, and Employee Engagement.<sup>234</sup> Each of these risks relate to attracting and retaining talent with the necessary knowledge, skillsets and experience, as well as the having the resources to manage the number of competing priorities that impact the ability to perform necessary work. Some of these risks have no, poorly defined, or similar risk mitigation responses.

**24. LIPA and PSEG LI do not use any software (other than MS Excel) in the identification of risks and determination of risk scores. Variables used to assess risks include impact, likelihood, and severity. These variables are commonly used in the utility industry.**

- LIPA and PSEG LI predominantly use a qualitative approach for assessing enterprise risks. Subject matter experts (SME) involved in the risk assessment process use severity, likelihood, and velocity scales in addition to their own experience and understanding of current conditions.<sup>235</sup>
- The risk exposure score is calculated by multiplying the highest risk impact category (i.e., severity) by the likelihood, based on the risk ratings included in the severity scales. Otherwise, the ERM program does not utilize any quantitative models to determine risk scores.<sup>236</sup>
  - Severity is assessed in each of five areas: financial; reliability; reputation; regulatory, legal, and compliance; and, environmental health and safety (EHS), using a scale from 0 to 5 (0-no impact, 1-incident, 2-minor, 3-moderate, 4-major, and 5-severe), based on area-specific criteria.<sup>237</sup>
  - Likelihood and velocity are assessed using the criteria in **Exhibit III-29**.

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<sup>234</sup> DR 1423 Supplement 2.

<sup>235</sup> DRs 43 Attachment 13, 44 Supplement 1, and 44.

<sup>236</sup> DR 44.

<sup>237</sup> DR 44 Supplement 1 and DR 43 Attachment 13.

**Exhibit III-29**  
**ERM Likelihood and Velocity Criteria**

Rating	Criteria
<b>Likelihood</b>	
5 - Almost Certain	>75% probability of occurring within 3 years
4 - Likely	50% - 75% probability of occurring within 3 years
3 - Possible	25%-50% probability of occurring within 3 years
2 - Unlikely	5%-25% probability of occurring within 3 years
1 - Highly Unlikely	<5% probability of occurring within 3 years
<b>Velocity</b>	
10 - High	Impact of the risk will affect the organization within the next 12 months
5 - Medium	Impact of the risk will affect the organization between 12-24 months
0 - Low	Impact of the risk to the organization exceeds 24 months

Source: DR 44 Supplement 1 and DR 43 Attachment 13.

- LIPA and PSEG LI also assess the risk outlook – whether the risks are increasing, decreasing or stable.<sup>238</sup>
- According to PSEG LI, based on its ERM program benchmarking, other utilities of similar size and business model (i.e., IOU versus Public Power) are not using quantitative models with their ERM Program to assess risks.<sup>239</sup>

**25. PSEG LI’s ERM program recently developed different tools and pilot programs to address, monitor, and report on mitigation strategies for high-priority risks. The KRI metric pilot did not include basic risk analysis and relied on lagging indicators. PSEG LI’s risk mitigation effectiveness pilot uses subjective definitions of effectiveness and will not lead to improved risk-based decision making. PSEG LI does not have a method of tracking all risk mitigation efforts.**

- BS-2 (ERM-2) “ERM Key Risk Indicators” metric requires that PSEG LI develop a “proof of value” pilot on KRIs.<sup>240</sup> KRIs are metrics used by organizations to provide an early signal of changing risk exposures in the enterprise.<sup>241</sup> In 2022, PSEG LI developed a pilot program to identify KRIs for five high-priority risks. The high-priority risks identified for the pilot were:
  - Safety
  - Major Storm – Customer Expectations
  - Cyber Attack.
  - Failure of Critical Business System Applications.
  - Loss of Multiple Interconnections.<sup>242</sup>

<sup>238</sup> DR 44 Supplement 1 and DR 43 Attachment 13.

<sup>239</sup> DR 44.

<sup>240</sup> DR 19 Attachment 5.

<sup>241</sup> Committee of Sponsoring Organizations of the Treadway Commission, Developing Key Risk Indicators to Strengthen Enterprise Risk Management - Thought Leadership in ERM. M. Beasley, B. Branson, and B. Hancock. December 2010

<sup>242</sup> DR 244.



- PSEG LI and LIPA ERM teams hosted workshops with the risk owners and SMEs for each of the five risks. The workshop discussed:
  - Design of KRIs
  - Value of a good KRI.
  - Drivers of risk that could be measured with a KRI.<sup>243</sup>
- SMEs identified the KRIs, along with the data and the thresholds to support each KRI. PSEG LI and LIPA ERM teams asked that the SMEs provide at least 18-months of history to develop trends for each KRI, if possible.<sup>244</sup> **Exhibit III-30** lists the KRIs developed by the pilot.

**Exhibit III-30**  
**Key Risk Indicators and Design Objectives for Select PSEG LI Risks**

Risk	KRI Design Objective	KRI
Major Storm Response	Mitigate increase in restoration risk  Measure customer satisfaction after certain events	Vegetation – Distribution Critical Mile Hazardous Tree Customer – PSEG LI Overall Satisfaction Customer – Specific Outage Handling
Supply Chain	Mitigate risk exposure related to inventory levels of transformers	Single Phase Inventory Three Phase Inventory Three Phase – Group 224 Inventory Three Phase – Group 225 Inventory
Safety	Mitigate increasing safety risk exposure	OSHA Events OSHA Rates Moving Vehicle Accident (MVA) Events MVA Rates Red Light Cameras
Cyber Attack	Monitor risk of possible intrusion into PSEG LI systems	Percentage of Enterprise Servers Patched within SLA Percentage of Network-connected WIN Workstations and MDT Patch Days Percentage of Workstations and MDT with Endpoint Protections Percentage of Servers with Endpoint Protections Enabled Percentage of Phishing Test Failures
Loss of Multiple Interconnections	Monitor month end capacity levels for select transmission tie lines	Average Maximum Capacity Total Outages

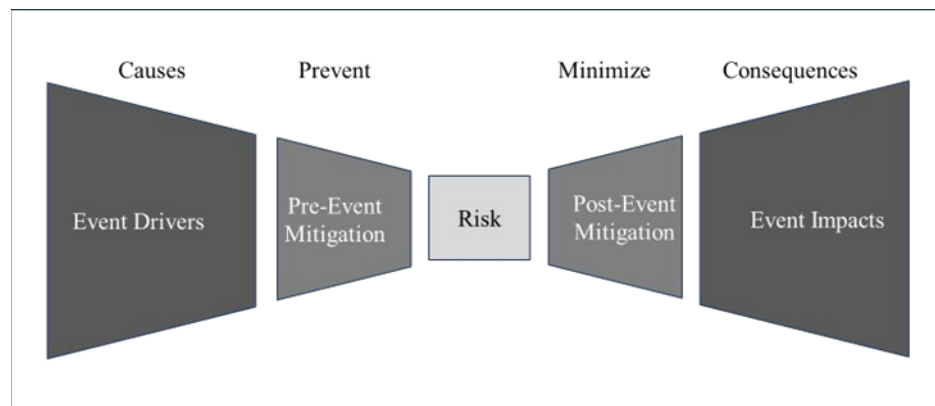
Source: DRs 339 Attachment 1 and 1565.

<sup>243</sup> DR 244.

<sup>244</sup> DR 244.

- The PSEG LI ERM Team developed dashboards for each of the risks and associated KRIs, in consultation with the LIPA ERM Team. The dashboards were reviewed with PSEG LI senior management and submitted to LIPA.<sup>245</sup> PSEG LI submitted the first KRI dashboard to LIPA on December 15, 2022. PSEG LI submits updated KRI dashboard quarterly and include it in the ERM Annual Report (June) and the ERM Annual Report Update (December).<sup>246</sup>
- Once the 2023 assessment cycle is complete, the ERM Teams will review the risk profile and determine if additional Tier 1 and Tier 2 risks would benefit from having KRIs developed.<sup>247</sup>
- NorthStar’s review of the KRI development process and the resulting dashboards found the following:
  - PSEG LI did not use bow-tie analysis as part of KRI development workshops. A bow-tie analysis is a structured approach to examining a risk event, its root causes, consequences, and risk response strategies (pre-event and post-event). The resulting bow-tie diagram provides the analytical foundation for developing KRIs as well as a useful tool to communicate key risks, evaluate risk responses, and the degree of control over risks.<sup>248</sup> A bow-tie analysis diagram is shown in **Exhibit III-31**.

**Exhibit III-31**  
**Bow-tie Analysis Diagram**



Source: “The Bow-Tie Analysis: A Multipurpose ERM Tool”, B. Hancock, NC State ERM Initiative.

- NorthStar requested all bow-tie analyses developed for PSEG LI’s highly-rated risks in 2022, which includes those risks included in the KRI pilot.<sup>249</sup> PSEG LI provided 11 bow-tie analyses, of which only two were developed in 2022 – Major

<sup>245</sup> DR 244.

<sup>246</sup> DR 339.

<sup>247</sup> DR 339 Attachment 1.

<sup>248</sup> “The Bow-Tie Analysis: A Multipurpose ERM Tool”, B. Hancock, NC State ERM Initiative.

<sup>249</sup> DR 784.

Storm and Multiple Interconnections.<sup>250</sup> Others were created at various times between 2019 and 2021. No bow-tie analyses were performed for Safety and Failure of Critical Business System Applications.<sup>251</sup> The 11 bow-tie analyses that were developed do not include post-event risk mitigation remedies.<sup>252</sup> LIPA’s own assessment recognizes the lack of PSEG LI risk analysis. LIPA states:

“There is a limited ability to anticipate risks that can happen with a primary focus on identifying risks based on historical events. When events do occur, they perform limited root cause analysis to understand what happened and develop effective mitigation actions.”<sup>253</sup>

- Supply Chain KRIs are narrowly defined to address internal transformer inventory levels only. This diminishes the value of identifying emerging issues and opportunities in procurement/materials management.
- KRI dashboards are solely comprised of lagging indicators. Furthermore, all KRIs are internal metrics. Reliance on internal lagging indicators reduces the line of sight to emerging risks and potential opportunities.
- KRIs do not include statements of risk appetite. According to COSO, risk appetite is the amount of risk an organization is prepared to take to achieve its goals. Risk tolerance is the amount of risk an organization is willing to take to meet aspirations.<sup>254</sup> While a risk appetite statement broadly defines the types and amount of risk an organization is willing to accept in pursuit of value, risk tolerances apply risk appetite to specific objectives, setting the boundaries of acceptable performance variations. By mapping KRI measures to identified risk appetite and tolerance levels, KRIs can be a useful tool for better articulating the risk appetite that best represents the organizational mindset.<sup>255</sup>
  - PSEG LI states that risk appetite is reflected in the thresholds that are established as the green, yellow, and red bands.<sup>256</sup>
- KRIs include indicators to determine trigger points for possible corrective actions.
  - Unacceptable (Red) – Existing mitigation activities and controls may not be adequate to maintain acceptable risk exposure. Requires escalation and/or may require corrective action.
  - Elevated (Yellow) – Existing mitigation activities and controls may be adequate; however, management should be notified of increasing risk exposure.

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<sup>250</sup> DR 784. Major Storm presentation that included a bow-tie analysis is dated 2022. Multiple Tie-Line Failure bow-tie was created in July 2022.

<sup>251</sup> DR 784 Attachment 2.

<sup>252</sup> DR 784 Attachments 2, 4-6, 8, and 9.

<sup>253</sup> DR 903 Supplement 60.

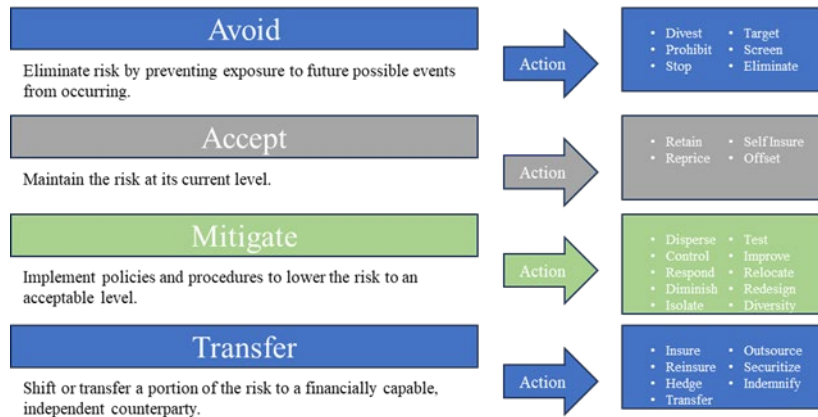
<sup>254</sup> COSO, “Risk Appetite — Critical to Success: Using Risk Appetite to Thrive in a Changing World,” May 2020.

<sup>255</sup> COSO, “Enterprise Risk Management – Understanding and Communicating Risk Appetite,” January 2012.

<sup>256</sup> DR 1565.

- Acceptable (Green) – Existing mitigation activities and controls are adequately addressing the Company’s risk exposure, which is within an acceptable tolerance and is stable.<sup>257</sup>
- LIPA receives quarterly updates of KRI dashboards. Most recently was delivered in September 2023.<sup>258</sup>
- To date, the KRI program has not been expanded beyond the five risks. The senior executive team at PSEG LI will determine if the program should continue and/or be expanded.<sup>259</sup>
- LIPA included BS-01 (ERM-1) “ERM – Implementation of the Risk Mitigation Effectiveness Process” in the 2023 OSA Performance Metrics.<sup>260</sup>
  - As part of the risk assessment process, risks are assessed on a residual basis, meaning that the assessment involves evaluating the level of risk that remains after implementing mitigation measures. Each LIPA and PSEG LI department, enterprise and “high-priority” risks have mitigation strategies in their respective risk profiles. These mitigation strategies are to be carried out by the responsible department to control the risks. Mitigation strategies are classified as Avoid, Accept, Mitigate or Transfer as shown in **Exhibit III-32**. A majority of LIPA/PSEG LI risks are classified as “Mitigate”.<sup>261</sup> As part of the annual risk assessment process, risks and associated mitigations are updated annually.

**Exhibit III-32  
Risk Mitigation Strategy Classifications**



Source: DR 241 Supplement 1.

<sup>257</sup> DR 1639. Waiting for response.

<sup>258</sup> DR 1412 Attachment 1.

<sup>259</sup> DR 1413.

<sup>260</sup> LIPA 2023 Performance Metrics. <https://www.lipower.org/about-us/contracts-reports/>. Accessed January 2024.

<sup>261</sup> DRs 43 and 1423.

- The pilot included 10 Tier 1 and 2 risks. The 10 risks are listed in **Exhibit III-33**.

**Exhibit III-33**  
**Risks Included in PSEG LI’s Risk Mitigation Effectiveness Pilot.**

<b>Risks in Effectiveness Pilot</b>	<b>KRI Pilot (Y/N)</b>	<b>Tier</b>
Major Event - Restoration	Y	1
Major Event - Customer	Y	1
Supply Chain	Y	1
Safety	Y	1
Third Party Cyber	N	1
Breach of Sensitive Information	N	2
Asset Management – Cathodic Protection	N	*
Physical Asset Protection	N	2
Cyber – SCADA	Y	1
Cyber – EMS	Y	1

Source: DRs 339 Attachment 1, 1411, and 1564 Attachment 2. \*Not listed as a Tier 1 or 2 risk.

- The objective of this pilot is to implement a process to assess the effectiveness of risk mitigation activities on a qualitative basis. PSEG LI levels of risk mitigation effectiveness are defined as:
  - Effective – The mitigation efforts in place are substantially managing the risk to a reasonable level.
  - Moderately Effective – The mitigation efforts in place are having some effect managing the risks, but additional actions and/or resources would help better control and manage the risk.
  - Not Sufficiently Effective – the mitigation efforts currently in place are not having the intended impact in managing the risk and adjustments are warranted.<sup>262</sup>
- PSEG LI’s defined levels of risk “effectiveness” is subjective even when using KRIs. Qualitative approach to risk mitigation effectiveness is not particularly insightful or transformational. A quantitative approach that is focused on cost/benefit of risk mitigation enables management to prioritize those mitigations that do the most to reduce the risk per dollar invested.
- Looking at risk mitigation cost relative to the amount of risk reduced embeds risk into management decision-making, facilitates fact-based discussions on risk mitigation strategies and alternatives, improves OSA metric development, informs capital/O&M budgeting and resource allocation, and benefits customers. A quantitative approach can lead to a better understanding of risk mitigation effectiveness.
- Results of the current Risk Mitigation Effectiveness pilot are due to LIPA in December 2023 as noted in the performance metric.

<sup>262</sup> 2023 PSEG LI Performance Metrics.

- PSEG LI developed a risk Mitigation Tracker tool in 2021 for high-priority risks. PSEG LI states that it updates the tracker throughout the year. PSEG LI uses the tool not only to track updates, but also as a decision tool to employ resources to control risk. NorthStar reviewed the documentation and found that it is not an effective tool for management decision making, is not updated throughout the year, does not indicate if a risk is being mitigated or not, does not indicate any resource levels dedicated to mitigation efforts, does not provide the cost/benefit of mitigation efforts.<sup>263</sup> The Mitigation Tracker Tool appears to be informational only.

**26. The LIPA ERM team does not execute its responsibilities as outlined in its own procedure manual.**

- The LIPA ERM procedure manual includes a section on ERM roles and responsibilities. For the LIPA ERM Team these responsibilities include:
  - Identifying and reviewing strategic and emerging risks.
  - Monitoring implementation of mitigation activities for the top risks from both LIPA and PSEG Long Island.<sup>264</sup>
- The LIPA ERM procedure manual describes a process for evaluating emerging risks for strategic planning purposes.<sup>265</sup> The ERM Emerging Risk Framework was developed in 2019 to establish the parameters and definition of how the LIPA/PSEG LI ERM programs would consider emerging risks.<sup>266</sup> The LIPA/PSEG LI ERM teams are supposed to research national emerging risk issues identified from different sources. The ERM teams select the risks that are the most appropriate for LIPA and PSEG LI and incorporate them into an Emerging Risk Repository. LIPA management is supposed to monitor trends (e.g., regulatory changes) that could impact business objectives and provide the information to the ERM Team. Also, LIPA management is supposed to update business objectives and strategies based on changing trends identified through the emerging risk identification process.<sup>267</sup>
- The Emerging Risk Repository is supposed to be updated at a minimum bi-annually (twice per year) and shared with the Vice President of Strategy and considered as an input into the Strategic Planning Process.<sup>268</sup> NorthStar reviewed the Emerging Risk Repository.
  - The Emerging Risk Repository has 10 risks that have not been updated since 2020.
  - Emerging Risk Repository includes CLCPA Compliance, Integration Development Costs for Offshore Wind, Cloud Computing, Outdated Strategic Assumptions, Worker Disengagement, Community Choice Aggregation (CCA), Extreme

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<sup>263</sup> DR 1612 Attachments 1 and 2.

<sup>264</sup> DR 241 Supplement 1.

<sup>265</sup> DR 241 Supplement 1.

<sup>266</sup> DR 1570.

<sup>267</sup> DR 241 Supplement 1.

<sup>268</sup> DR 241 Supplement 1.

Weather Events. These are not “emerging” risks for inclusion in a strategic planning process.

- LIPA states that PSEG LI included the most current emerging risk list in its 2023 ERM Annual Report and provided to LIPA in June. These risks were not in the Emerging Risk Repository.<sup>269</sup>
- LIPA/PSEG LI ERM teams do not follow its own procedure documentation regarding emerging risks. Emerging risks are not updated and presented to management twice per year.<sup>270</sup>
- LIPA ERM Procedure Manual notes the existence of a Mitigation Dashboard. The LIPA Mitigation Dashboard is described as an action-based dashboard for mitigating high-priority risks to be updated annually for significant risks and biannually for all others.<sup>271</sup> NorthStar requested a description of LIPA’s risk mitigation tracking tool. LIPA’s response stated that it does not have a risk mitigation tracking tool and doesn’t believe it is warranted at this time. LIPA states that its risk mitigations are more level of effort/ongoing compared to the PSEG LI risk mitigation actions that are project/time oriented with clear end dates.<sup>272</sup>
- LIPA ERM Team procedures document states that each department will consider developing KRIs for their significant risks. The ERM Teams work with subject matter experts to develop the KRIs which once developed will be updated on an agreed upon basis and included in a KRI Report. LIPA and PSEG LI will each have their own KRI Reports.<sup>273</sup>
  - The LIPA ERM team stated that it made initial efforts in exploring KRIs for certain risks and presented to LIPA ERMC in June 2022. The team outlined possible KRI metrics for Human Resource, Reputation, and Cybersecurity risks, and showed KRI metrics mapped to thresholds (green, yellow, and red) for certain metrics. Updates on KRIs were scheduled for September 2022<sup>274</sup> – this meeting never occurred and no further update on LIPA KRIs was provided to ERMC.<sup>275</sup>
  - A review of LIPA ERMC meeting materials demonstrates that KRIs were developed and reported to management prior to June 2022, it seems this practice ended.<sup>276</sup> The KRIs previously reported include:
    - January 2018 – Human Resources and Cybersecurity (Same risks in 2022)
    - February 2018 – Credit Downgrade
    - January 2020 – Reputation (Same risk in 2022)

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<sup>269</sup> DR 1570.

<sup>270</sup> DRs 241 Supplement 1 and 903 Supplement 42 through 51.

<sup>271</sup> DR 241 Supplement 1.

<sup>272</sup> DR 1613.

<sup>273</sup> DR 241 Supplement 1.

<sup>274</sup> DR 903 Supplement 56.

<sup>275</sup> DR 903.

<sup>276</sup> DR 903 Supplements 2, 4, 30

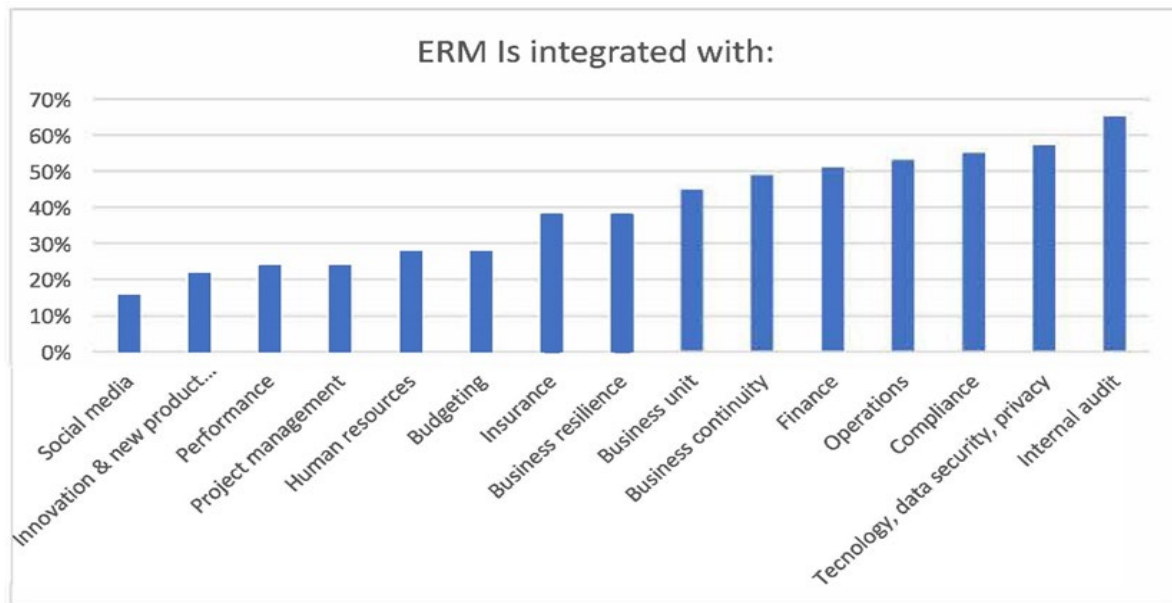


- LIPA states that it does not incorporate the concept of risk appetite into the ERM Program. LIPA makes this statement yet has developed reporting thresholds for testing KRIs.<sup>277</sup>

**27. LIPA’s and PSEG LI’s ERM programs are not yet integrated with other operations areas. The ERM group developed a “road map” plan with a series of initiatives to begin integrating risk management selected business processes and other activities over next two years.**

- ERM leaders from nonprofit, for profit, and from around the world gathered at the Center for Excellence in ERM at the St. John’s University 2019 Fall ERM Summit to discuss ERM integration approaches, and how to embed ERM into the organization. A survey described in St. John’s University’s 2020 white paper, provides the following:
  - There were five areas where about 50 (or higher) percent of leaders agreed that ERM was integrated as shown in **Exhibit III-34**. Internal audit led the way, followed by the area of technology, data security, and privacy. Compliance, operations, and finance rounded out the top five areas where ERM is integrated.

**Exhibit III-34  
2019 St. John’s University Functional Areas Integrated with ERM**



Source: “Embedding ERM into the Organization” White Paper Series, St. John’s University, Tobin College of Business Center for Excellence in ERM, Dr. Paul L. Walker, Copyright 2020.

Areas with the least amount of ERM integration included project management, performance, and innovation and new product development – each area showing up at just over 20 percent integration.

- According to LIPA and PSEG LI, the three most significant areas where risks are integrated with operations are Internal Audit, LIPA metrics, and the capital

<sup>277</sup> DR 903, 2, 4, 30 and 56.

planning process through the inclusion of ERM information in the project justification documents (PJD).<sup>278</sup>

- The LIPA ERM group reports to the Director of Internal Audit in a recent re-organization. The PSEG LI ERM group reports to the Managing Director/VP of Business Services.<sup>279</sup>
- LIPA and PSEG LI ERM teams share departmental risk profiles with Internal Audit.<sup>280</sup> According to LIPA, meetings are held between ERM and IA to share concerns, information, and discuss risks to be covered in each audit once the IA work plan is developed.<sup>281</sup> Going forward teams are exploring additional ways to use one another’s data.
- NorthStar compared LIPA/PSEG LI high-priority risks as presented to the F&A Committee in September 2022 with LIPA and PSEG LI audit plans for 2023 as shown in **Exhibit III-35**.

**Exhibit III-35  
LIPA/PSEG LI High-priority Risks in 2022 and Audit Plans for 2023.**

Risk Name	Risk Exposure LIPA	Risk Exposure PSEG LI	Audit Name	Auditing Entity
Major Storm	N/A	High	Storm Compliance – Asset Tracking & Drills Storm Compliance - Invoice	PSEG LI LIPA
Physical Security Attack	N/A	High	Physical Security	PSEG LI
Outdated Primary Transmission Control Center	N/A	Medium	Electric System Operation Center	PSEG LI
Safety	N/A	Medium	<b>No Audit Planned in 2023</b>	
Loss of Multiple Tie-Lines	N/A	Medium	<b>No Audit Planned in 2023</b>	
Cyber Event	Medium	Medium	<b>No Audit Planned in 2023</b>	
Breach of PII	N/A	Medium	Customer Data Protection	PSEG LI
Reputation	High	Low	Customer Protections Program Social Media Outreach and Communications	PSEG LI
Changing Customers/Stakeholder Expectations	Medium	Medium	EE Service Provider Contracts Power Supply Charge	PSEG LI
Supply Chain	N/A	Medium	Fixed Asset Inventory and Goods Received	LIPA
Insufficient Rates/Untimely Rates Relief	High	N/A	<b>No Audit Planned in 2023</b>	
Regulatory/Legislative	Medium	Medium	Deferred Payment Agreements Deferred Payment Agreements	PSEG LI LIPA
Rate Design	High	High	<b>No Audit Planned in 2023</b>	

<sup>278</sup> DR 46.

<sup>279</sup> DRs 1206 and 3. For more information, see section on Current and Future Organization Structure in this Chapter.

<sup>280</sup> DR 46.

<sup>281</sup> DR 46.

Source: DRs 1012 Supplement 2, 1072 Supplement 4 and 381.

- LIPA and PSEG LI Internal Audit groups' 2023 audit plans contain over 35 audits, only 13 address high-priority risks – less than half of planned audits. As shown in **Exhibit III-35**, LIPA and PSEG LI Internal Audit teams indicate plans to audit the same topic - Deferred Payment Agreements.<sup>282</sup>
- PSEG LI's Internal Audit group performed an audit of the company's record management practices in October 2021.<sup>283</sup> Internal Audit opinion was "Major Improvement Required". This designation is defined as:

"A high residual risk exists in a major scope or risk area. The controls evaluated are unlikely to provide reasonable assurance that risks are being managed and objectives met."
- PSEG LI ERM did not include Record Management as a risk in its 2022 department profiles.
- With the development of the 2022 and 2023 OSA metrics, the LIPA and PSEG LI risk profiles were aligned with the metrics.<sup>284</sup> PSEG LI 2022 risk profiles include OSA metrics where appropriate (e.g., Safety, Talent Management, Major Storm – Customer Expectations, etc.).<sup>285</sup> The May 2023 ERMC meeting included presentation showing the alignment of LIPA/PSEG LI high-priority risks with OSA metrics.<sup>286</sup> The September 27, 2023 F&A meeting also presented the alignment of LIPA/PSEG LI high-priority risks and OSA metrics.
- Further development, analysis, integration, and maturity of the ERM program and related tools such as the KRI dashboard pilot, and risk mitigation effectiveness pilot should improve management decision making, OSA metric development, and achievement of goals and objectives. Underlying process issues remain for work management, asset management, supply chain, and other critical functions.<sup>287</sup>
- LIPA stated that its T&D Oversight and ERM Teams identified the benefit of including risk analysis in the PJDs.<sup>288</sup> This initiative was mentioned in an April 2020 ERMC meeting and the ERM team stated that it was making progress.<sup>289</sup> LIPA claims that the LIPA/PSEG LI ERM teams had numerous conversations with the capital planning groups over the past few years to align existing projects with risks. It was not until 2022 that the PJD forms were required to indicate whether a project addresses an

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<sup>282</sup> DR 381.

<sup>283</sup> DR 29 Attachment 65.

<sup>284</sup> DR 46.

<sup>285</sup> DR 43 Attachments 2 to 12.

<sup>286</sup> DR 903 Supplement 60.

<sup>287</sup> See Chapter IX – Transmission and Distribution, Chapter XI – Work Management, and Chapter XII – Outside Services.

<sup>288</sup> DR 906.

<sup>289</sup> DR 903 Supplement 33.

enterprise risk, and if not - why it does not, for every capital project submitted for LIPA review.<sup>290</sup>

- NorthStar reviewed approximately 20 sanctioned capital project PJDs.<sup>291</sup> PSEG LI does not provide any risk analysis, let alone consistently indicate whether a project addresses an enterprise risk or not. When PSEG LI does identify a risk in a PJD, the statements are not especially meaningful. Examples of statements are as follows:
  - PJD 2362 will help to mitigate Electric Ops Risk, by adding the specified battery set at the Greenlawn substation.
  - PJD 1327 will help to mitigate the Electric Ops Risk - Aging & Declining Health of Substation Equipment, by replacing/upgrading the specified aging underground transmission equipment which is located in various substations across the LIPA system.
  - This project will help to partially mitigate the Electric Ops Risk – “Major Storm”, by addressing potential long duration outages caused by transmission conductors slapping together.
- Qualitative risk statements in PJD documents do not demonstrate integration of enterprise risk into the capital project planning process.
- PSEG LI PJDs do not provide any method to monitor or track the degree to which the sanctioned capital project would mitigate the identified risk.
- ERM concepts are not referenced in PSEG LI/LIPA capital project governance committee charters as a criterion for project sanctioning.<sup>292</sup>
- LIPA/PSEG LI ERM risk impacts (i.e., Financial, Reliability, Reputation, Operational, Regulatory, Legal, and Compliance, Environmental, Health, and Safety) are not aligned to, nor do ERM risk impacts include the weighting factors used in the scoring/optimization framework of the system used to facilitate capital project prioritization.<sup>293</sup>
- In 2017, the COSO revised its Enterprise Risk Management – Integrated Framework published in 2004 in recognition that the complexity of risk has changed. The updated 2017 document, Enterprise Risk Management – Integrating Strategy and Performance, highlights the point that risk and strategy are intertwined to drive performance.
- LIPA submitted the LIPA-PSEG LI Five-Year Strategic Roadmap (Strategic Plan) to the Board of Trustees on February 15, 2023.<sup>294</sup> The LIPA ERM stated that risk was considered in the development of these roadmaps. The Strategic Plan document lists a number of LIPA, PSEG LI, other utilities as well as third-party consultants who

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<sup>290</sup> DR 46 and 906.

<sup>291</sup> DRs 46 Supplement 1, 1403 Attachments 2 to 17, and 1404 Attachments 1 to 3.

<sup>292</sup> DR 376.

<sup>293</sup> DRs 376, 622, 623, 624, and 838. See Chapter X – Program and Project Management.

<sup>294</sup> DR 907.

participated in the effort. LIPA and PSEG LI ERM teams/individuals are not noted as participants in the development of the Strategic Plan.<sup>295</sup> NorthStar requested work products associated with the LIPA ERM team developed as part of the Strategic Roadmaps. The ERM Team did not create specific work products for the development of the Five-Year Strategic Roadmaps. However, LIPA stated that subject matter experts leveraged and considered risk in the development of each roadmap by reviewing the information contained in existing risk profiles and associated reports. The team also consulted the pre-existing ERM documents to review the possibility of gaps in the Strategic Plan for completeness.<sup>296</sup>

- The LIPA ERM procedure manual describes a process for evaluating emerging risks for strategic planning purposes. The Emerging Risk Repository is supposed to be updated at a minimum bi-annually and shared with the Vice President of Strategy and considered as an input into the Strategic Planning Process.<sup>297</sup> As stated earlier, LIPA does not update its Emerging Risk Repository. The Emerging Risk Repository was not noted as an input in the development of Five-Year Strategic Roadmaps.
- LIPA stated that its approach for integrating risk into the Strategic Planning function is still evolving. A Vice President of Strategy and Performance was hired in 2022 and still needs a dedicated staff to better support business needs. However, the Vice President and Senior Program Manager departed four months after the Strategic Plan was presented to the Board.<sup>298</sup>
- LIPA/PSEG LI ERM teams stated that they have identified areas of opportunity for better integrating with the strategic planning function in addition to further developing the identification and management of emerging risks.<sup>299</sup> The ERM team presented a plan for updating the emerging risk process at the December 20, 2022 ERMC meeting.<sup>300</sup> Almost nine months later, at the September 8, 2023 LIPA ERMC meeting, the emerging risks process was again discussed.<sup>301</sup> NorthStar requested information on how LIPA plans to update the emerging risk process. LIPA ERM team stated that this process is a work in progress, and does not have any materials to share at this time.<sup>302</sup> LIPA states that its process for the identification and discussion of emerging risks is a focus area over the next three years that will be refined and further developed.<sup>303</sup>

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<sup>295</sup> LIPA- PSEG LI Five-Year Strategic Road Map (2023-2027).

<sup>296</sup> DR 1563.

<sup>297</sup> DR 241 Supplement 1.

<sup>298</sup> DR 1058. Also, see Strategic Planning section of this Chapter.

<sup>299</sup> DR 785.

<sup>300</sup> DR 903 Supplement 58.

<sup>301</sup> DR 1410 Supplement 1.

<sup>302</sup> DR 1415.

<sup>303</sup> DR 907.

- The LIPA ERM Team developed an ERM Strategic Roadmap 2023-2025 to address recommendations from the 2022 ERM Maturity Assessment. The ERM Roadmap lists 25 activities for completion in 2023.<sup>304</sup>
- NorthStar requested a status update for activities scheduled to be completed in 2023 and supporting work products.<sup>305</sup> A review of the status of the ERM Strategic Roadmap initiatives for 2023 found that LIPA does not typically develop work products in support of the activities listed.<sup>306</sup> In certain cases, progress on an activity is characterized as “discussions”, “plans to” do something, or “provide feedback”. Other activities, such as benchmarking are already noted in the ERM procedure document as a supporting activity of ERM program administration.<sup>307</sup> Examples are provided in **Exhibit III-36**.

**Exhibit III-36**  
**Current Actions and Reported Progress for Activities in the**  
**2023 to 2025 ERM Strategic Roadmap.**

Initiative	Action	2023 Progress
Embed Enterprise Risk Management into Business Processes	Improve the alignment of enterprise risks with metrics by developing a process, timeline, and template that is consistently applied across all departments	LIPA did not provide process, timeline or a template.  May 2023 ERMC meeting slide deck shows ERM risks and OSA metrics. <sup>308</sup>
	Evaluate how ERM can improve risk reporting with Internal Audit information	LIPA states that it has aligned risks with internal audit and references ERMC meeting in May 2023. Comparison of the ERMC meeting material and LIPA 2023 audit plan found two audits. <sup>309</sup> No work product demonstrating an evaluation was performed.
Incorporate ERM into Strategic Planning	Identify and assess risks to the strategic plan	No work products as of October 2023. LIPA says this is a Q4 2023 focus and discussions are underway. VP of Strategy and Performance Management left in Q2 2023 and position is vacant.
	Include a section on risk analysis in the development of each strategic roadmap	
	Align risks with strategic initiatives	
Enhance Enterprise-wide Risk Management Skills	Facilitate training (101) on the basics of the enterprise risk assessment process to designated employees	See NorthStar’s earlier comments on training materials.
	Facilitate training (201) on how to use ERM risk analysis	Under development in Q4 2023.

<sup>304</sup> DR 907 Supplement 1.

<sup>305</sup> DR 1567.

<sup>306</sup> DR 1567.

<sup>307</sup> DR 241 Supplement 1.

<sup>308</sup> DR 903 Supplement 60.

<sup>309</sup> DRs 381 and 903 Supplement 60.

Initiative	Action	2023 Progress
	meaningfully in day-to-day management	
	Use benchmarking with other companies to identify areas to improve skillsets and capabilities	LIPA ERM engages in benchmarking as noted in its current procedure document. <sup>310</sup> This is not a new activity.
Engage in Benchmarking	Continuous benchmarking efforts	Same as above. LIPA ERM engages in benchmarking as noted in its current procedure document.
	Institute a peer-to-peer benchmarking program with LPPC	
	Organize quarterly benchmarking discussions	
	Attend ERM conferences	
	Take the Gartner ERM Maturity Assessment noting improvements and further identifying areas of opportunity to increase the value of the ERM Program	
Improve the Management of Emerging Risk	Refine emerging risk list and socialize with the ERMC for approval	Enhanced process is underway, and report planned for dissemination in December 2023. Emerging risks and emerging risk repository is already noted in the ERM Procedure Manual. <sup>311</sup>
	Develop a deep dive on one significant emerging risk to the ERMC	

Source: DR 1567

**28. PSEG LI’s schedule to update risks and mitigations is reasonable and aligns with budget and audit planning processes. PSEG LI’s out of cycle updates to risk profiles should improve as ERM monitoring tools mature and the integration of ERM into business processes becomes more prevalent. Management decision-making resulting from these initiatives could inform budget and audit planning.**

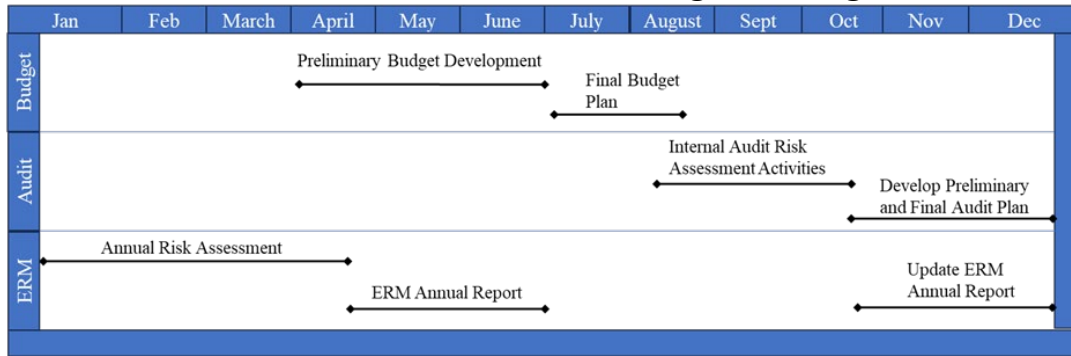
- **Exhibit III-37** shows the schedule for the PSEG LI annual risk assessment and update, audit planning, and budget development processes.

<sup>310</sup> DRs 44, 241 Supplement 1, 242, and 1415.

<sup>311</sup> DR 241 Supplement 1.



**Exhibit III-37  
Timeline of PSEG LI ERM, Audit, and Budget Planning Activities**



Source: DRs 43, 27 Attachment 3, 250, 698 Attachment 1, 902 Attachment 10.

- PSEG LI’s annual risk assessment process timeline is from January to mid-April. The assessment process begins with risk discussions held with each PSEG LI department to develop/update a register of significant department risks, along with mitigation responses. The LIPA ERM team participates in these review discussions with SMEs in each department.<sup>312</sup>
- The PSEG LI ERM team develops an ERM Annual Report after the annual risk assessment process is complete. The Annual Report is provided to and discussed with the LIPA ERM team and senior management at LIPA.<sup>313</sup>
- Starting in 2022, the PSEG LI ERM team began a process to create an update to the ERM Annual Report and submit to LIPA each December. The ERM Annual Report update includes the progress made on mitigation actions, changes in existing Tier 1 and 2 risks, any new risk issues, and KRIs.<sup>314</sup>
- PSEG LI ERM will periodically reach out to the Risk Managers and Risk Owners to request information on any changes or new risks for their department profiles in between the next department assessment cycle.<sup>315</sup> See Conclusion 25 for more information on Risk Mitigation Tracker, risk mitigation effectiveness, and KRIs. Also, see Conclusion 31 on escalation process.
- LIPA states that throughout the course of the year, PSEG LI develops deep dive analysis on selected Tier 1 and 2 risks and presents the information to LIPA management.<sup>316</sup> The analysis includes drivers and consequences of the risk in addition to mitigation actions. NorthStar requested all deep dive analysis. LIPA provided 10 deep dive analyses. Most were conducted in 2017 and 2020. Only two were provided for 2022. LIPA states that when risk events do occur, PSEG LI performs limited root

<sup>312</sup> DR 250.

<sup>313</sup> DR 43.

<sup>314</sup> DR 1564.

<sup>315</sup> DR 853

<sup>316</sup> DR 250.

cause analysis to understand what happened and develop effective mitigation actions.<sup>317</sup>

**29. The LIPA ERM Team approach to gather potential risk issues and mitigations from employees outside the annual risk assessment process is largely through indirect, passive channels. The LIPA ERM Team does not have a formal process for notifying LIPA senior management and the Board of Trustees of critical risk events.**

- NorthStar requested information on how LIPA performs updates to its department risk profiles and enterprise risks during the year that is outside of the annual risk assessment process. LIPA relies upon tools such as NAVAX, monthly survey to CEO, Employee Handbook, Suggestion box, etc.<sup>318</sup> Many of these tools are for reporting issues of ethics and compliance. None of these channels are noted in the ERM Procedure Manual as a method of evaluating risks or any reporting received by the LIPA ERM Team.<sup>319</sup> Also, LIPA ERM is not noted as being informed of issues in the LIPA Ethics and Complaints policy or Code of Conduct.<sup>320</sup>
- ERMC meetings are held on a roughly quarterly basis and provide a forum for discussion of any new risk issues that may arise outside the annual risk assessment process. Risks are also discussed within each board policy memo update, where applicable, and any changes communicated to the Board of Trustees.<sup>321</sup>
- LIPA stated that if a significant issue were to arise outside of the scheduled board presentations and communications, the ERM Team would escalate the issue to the CEO, senior management, and the Board of Trustees.<sup>322</sup> This process is not reflected in the ERM Procedure Manual.<sup>323</sup>

**30. LIPA/PSEG LI ERM program's diagnostic maturity evaluations are of little use to improve the ERM program. Biennial assessments are based on a diagnostic survey method requiring multiple respondents. Only one LIPA individual is listed as participating in the diagnostic.**

- The Board Policy on ERM and the ERM Procedures document requires biennial LIPA/PSEG LI program maturity assessments. LIPA/PSEG LI's ERM maturity assessments are conducted through a third-party diagnostic survey.<sup>324</sup> The results are used to assess strengths and areas for improvement. Each maturity assessment reviews four Functional Objectives (Align, Risk, Strategy and Performance; Ensure Risk

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<sup>317</sup> DR 903 Supplement 60.

<sup>318</sup> DR 909.

<sup>319</sup> DR 241 Supplement 1.

<sup>320</sup> DR 174 Supplement 1 and 206 Supplement 1.

<sup>321</sup> DR 1614.

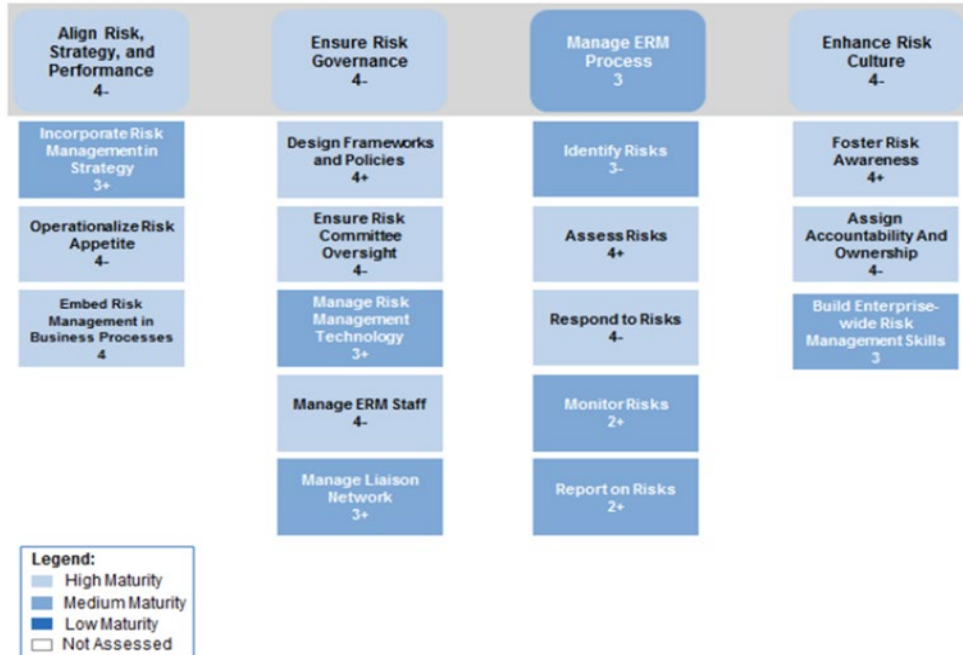
<sup>322</sup> DR 1614, 241 Supplement 1, 174 Supplement 1.

<sup>323</sup> DR 241 Supplement 1.

<sup>324</sup> DR 243 and 785.

Governance; Manage ERM Process; and Enhance Risk Culture) and 16 functional activities as shown in **Exhibit III-38**.<sup>325</sup>

### Exhibit III-38 ERM Maturity Model



Source: DR 243 Supplement 1

- The assessment methodology disaggregates the five-level maturity model for a given activity into 5 to 15 discrete statements that describe sub-activities. Those sub-activities are each associated with a maturity level, one to five, of the given activity.
- To assess maturity, respondents are presented with a series of statements that represent component sub-activities of a particular functional activity. Respondents are asked to check all statements that represent currently performed activities.
- According to the firm conducting the diagnostic, this approach offers two important advantages.
  - First it provides a better assessment of maturity, as each individual sub-activity must be judged by a majority of respondents to be present and effective to contribute to the overall maturity score for an activity.<sup>326</sup>
  - Second, it allows for more precise identification of which components of that level of maturity are already present and which specific next steps the organization should take to achieve a particular higher level of maturity for a given activity.<sup>327</sup>

<sup>325</sup> In 2022 the survey had five Functional Objectives and 21 Functional Activities.

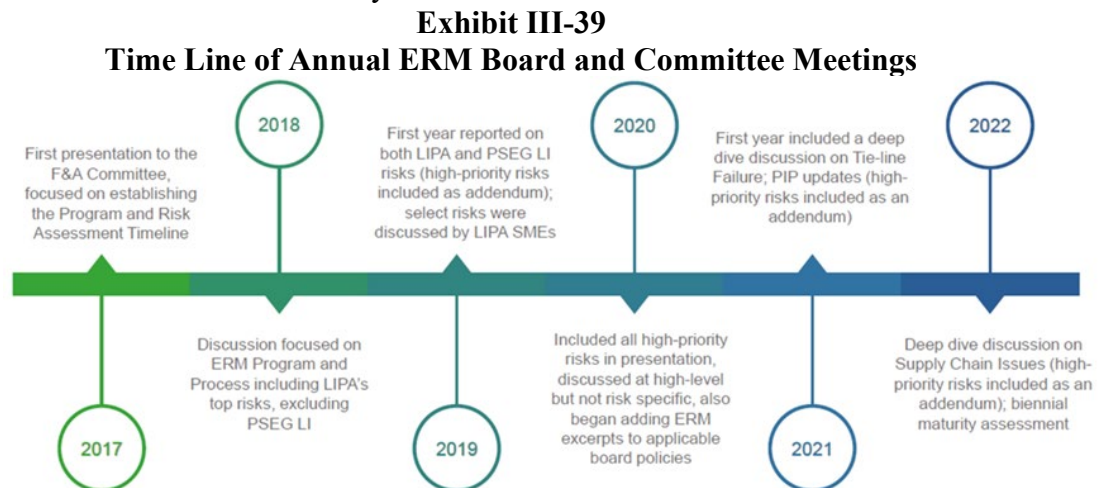
<sup>326</sup> Emphasis added.

<sup>327</sup> DR 243 Supplements 1 through 4.

- NorthStar’s review of LIPA/PSEG LI ERM diagnostic maturity assessments found the following:
  - Only one participant was named in each report.<sup>328</sup> It does not appear there were multiple respondents involved in any of the annual/biennial diagnostic maturity assessments.
  - The Functional Objectives and Functional Activities did not align to the COSO framework for 2018, 2019, and 2020.
  - Diagnostic assessment is inconsistent in what is included in the review. For example, 2018 and 2019 diagnostics included “Operationalize Risk Appetite”, but this activity was left out in 2020.<sup>329</sup>
  - While the 2018, 2019, and 2020 Maturity Assessment surveys are industry agnostic, there are many components of the model that were best suited to evaluate companies in the financial sector. In 2022, the LIPA ERM Maturity Assessment compared enterprise risk management practices to 32 other companies in the Energy & Utilities industry.<sup>330</sup>
- The LIPA/PSEG LI ERM Program has not been audited by LIPA, PSEG LI or another third-party.<sup>331</sup>

**31. LIPA’s efforts to inform the Board of risks and mitigations are limited. LIPA ERM plans to increase F&A Committee meetings in 2024 to increase risk awareness.**

- LIPA’s ERM team makes an annual presentation to the Board/F&A Committee as part of the Board review of LIPA’s compliance with the ERM policy (**Exhibit III-39**). These are the only ERM specific presentations given to the Board/F&A Committee. Presentations to the Board/F&A Committee typically include a summary overview of the high-priority risk categories, or a deep dive of one risk, and steps taken to comply with the Board’s ERM Policy.



<sup>328</sup> DR 243 Supplements 1 through 4

<sup>329</sup> DR 243 Supplement 3.

<sup>330</sup> DR 903 Supplement 25.

<sup>331</sup> DRs 29 and 381.

Source: F&A Committee Meeting September 27, 2023.

- The annual presentations to the Board or the F&A Committee do not specifically identify all LIPA and PSEG LI enterprise risks. The LIPA ERM Team does include a discussion of risk in certain Board Policy Memos. As stated by LIPA, not all board policy memos will have an ERM paragraph, but the ERM Team does review the memos each year to determine if one should be added.<sup>332</sup> **Exhibit III-40** provides a list of the presentations.

**Exhibit III-40  
ERM Board Presentations.**

Year	Board/Committee	Date and Topics	Comments
2019	Board of Trustee	September 25, 2019 ERM Process and Program Progress, ERM Risk Profile, DPS Audit Recommendations, Maturity Assessment, Insurance Update	Does not include a full list of LIPA and PSEG LI enterprise risks. Updates on EEI benchmark, ERM maturity and financial risk.
2020	Board of Trustee – Special Meeting	December 16, 2020 Risk Summary, Board Policy Compliance and Program Recommendations	Does not include a full list of LIPA and PSEG LI enterprise risks. Revised ERM policy addresses PSEG LI transparency issue.
2021	Finance & Audit	November 17, 2021 – Loss of Multiple Tie Lines, ERM Board Policy Compliance, Next Steps, Resolution	Does not include a full list of enterprise risks. Only risk discussed was Multiple Tie Line failures.
2022	Finance & Audit	September 28, 2022 – Discussion on Supply Chain Disruption, ERM Board Policy Compliance	Does not include a full list of LIPA and PSEG LI enterprise risks. High level, abridged deep dive on Supply Chain risk.
2023	Finance & Audit	September 27, 2023 – ERM Process, Risk Summary, and ERM Policy Review and Approval.	Does not include the full list of LIPA and PSEG LI enterprise risks. Discussion of 15 LIPA and PSEG LI “high-priority” risks.

Source: DR 43 Supplement 2, Board and F&A Committee Meeting Webcasts and Materials.

- Over the past three years, LIPA selects a risk topic and provides an abridged version of a deep-dive risk analysis to the Board during annual ERM meetings. Outside of annual ERM meetings with the Board or its Committees, NorthStar requested all deep dive analysis performed and provided to the Board of Trustees or a Board Committee regarding ERM program and specific ERM issues.
  - As previously discussed, the only other LIPA ERM program interaction with the Board or its Committees outside of regular meetings was the July 2020 ERM workshop.<sup>333</sup>
  - This is curious as it was decided by the ERMC in July 2019 that the ERM Team would facilitate twice annual workshops to the Board that will focus on education

<sup>332</sup> DR 1070

<sup>333</sup> DRs 247, 1069, and 1078 Attachment 5.

regarding the ERM program and provide a deeper insight on selected enterprise risks.<sup>334</sup>

- LIPA stated that a date has not been finalized for the next ERM workshop for the Board and there has not been any formal ERM training provided to the Board to date in 2023.<sup>335</sup>
- PSEG LI developed an escalation process so that if a high-risk event or condition is identified by LIPA, PSEG LI, or PSEG personnel the event or condition may immediately trigger a risk review or other risk analysis and would be elevated to both LIPA and PSEG LI management.<sup>336</sup> The escalation process was used twice since its inception in April 2021. First, for Time-of-Day Rates where an undated bow-tie analysis was completed to facilitate a discussion between LIPA and PSEG LI management.<sup>337</sup> Second, was for the Call Center risk where no bow-tie analysis was completed.<sup>338</sup> The Call Center risk was added to the risk profile utilizing the escalation protocol. The Board of Trustees is not identified as being notified of high-risk events in the escalation process.
- LIPA stated that there is a plan to present the ERM program to the F&A Committee on a quarterly basis. One presentation will focus on a discussion of the annual combined LIPA and PSEG LI high-priority risks (as is current practice). The other three presentations will focus primarily on risks that are not covered in other Board reports and presentations during the year.<sup>339</sup>

## Strategic Planning

LIPA's mission has not significantly changed since the prior audit. Its purpose is to serve its customers and the community by providing clean, reliable, and affordable energy for its customers on Long Island and the Rockaways.<sup>340</sup> LIPA's vision is to be its customers' trusted energy partner. As described by LIPA, to achieve its vision, LIPA will:<sup>341</sup>

- Actively engage with its customers and the communities LIPA serves,
- Respond to its customers' needs and exceed their expectations,
- Be a recognized innovator in its industry to better serve its customers, and
- Be known as a steward of its environment and community.

Strategic Planning refers to the processes by which plans are made to identify, evaluate, and respond to changes in LIPA's technological, political, social, and regulatory environment in order to maximize the benefit from or mitigate the negative impacts on LIPA's Purpose and

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<sup>334</sup> DR 903 Supplement 23.

<sup>335</sup> DR 1078.

<sup>336</sup> DRs 215 Attachment 3, 247, and 902 Attachment 11.

<sup>337</sup> DRs 784 Attachment 10 and 1568.

<sup>338</sup> DR 1568.

<sup>339</sup> DR 1421 and F&A Committee meeting on September 27, 2023.

<sup>340</sup> Purpose and Vision Board Policy, amended November 17, 2021, Board Resolution #1683

(<https://www.lipower.org/wp-content/uploads/2023/04/Board-Policies-3-2023.pdf>).

<sup>341</sup> Purpose and Vision Board Policy, amended November 17, 2021, Board Resolution #1683

(<https://www.lipower.org/wp-content/uploads/2023/04/Board-Policies-3-2023.pdf>).



Vision. As described in the LIPA’s Policy on Strategic Planning and Performance Management:<sup>342</sup>

LIPA’s vision for strategic planning and performance management is to achieve the strategic objectives established by the Board in its policies and to provide transparency and accountability to the Board and customers for the realization of the Board’s strategic objectives and the funds budgeted each year.

LIPA will achieve its vision by directing the Chief Executive Officer to undertake: (i) effective methods of translating the Board’s strategic policy objectives into multi-year plans, annual work plans, performance metrics, budgets, and recommendations<sup>1</sup> for the Board’s review and approval, and (ii) a transparent system of performance reporting to the Board and public relative to the policies, plans, metrics, budgets, and recommendations adopted by the Board.

The Board expects LIPA’s CEO to implement a strategic planning process consisting of several complementary elements that articulate LIPA’s strategy at different levels of granularity and across different time horizons. These elements collectively need to demonstrate a coherent strategy, ensuring alignment among the Board-defined Purpose, Vision, and Policies, long term plans, 5-year strategic roadmaps, the annual work plan, compensated metrics, and the budget.<sup>343</sup>

The LIPA Board maintains policies on clean energy and power supply, customer experience, T&D operations, customer value and affordability, information technology and cybersecurity, fiscal sustainability, economic development and community engagement, and safety.<sup>344</sup> LIPA provides annual reports to the Board on progress toward each of the policy objectives.<sup>345</sup> LIPA does not ask the Board to approve whether targets are achieved.<sup>346</sup>

With the Second A&R OSA, LIPA added Strategic Planning as a new PSEG LI scope function under Business Services.<sup>347</sup> PSEG LI will be responsible for developing, on a triennial basis, five-year roadmaps for each of the major scope functions that evaluates the current state, articulates an end state vision, and identifies the projects necessary to close gaps in accordance with LIPA and the LIPA Board’s vision and strategic directions.

LIPA defines a “roadmap” as “a document or documents developed by the Service Provider, on a triennial basis for each of the scope functions, that evaluates the current state,

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<sup>342</sup> DR 32, Board Policy – Strategic Planning and Performance Management, #1777, amended February 15, 2023.

<sup>343</sup> DR 32 Supplement 1.

<sup>344</sup> Board Policies 12-2022 (Board-Policies-12-2022.pdf (lipower.org) -

<sup>345</sup> Board policy implementation reports (<https://www.lipower.org/wp-content/uploads/2022/12/Implementation-Reports-12-2022.pdf>).

<sup>346</sup> Board policy implementation reports and LIPA Fact Verification.

<sup>347</sup> DR 31



articulates an end state vision, and identify the projects necessary to close the gap for the future 5-year period.”<sup>348</sup>

**32. Two prior management audits have addressed strategic planning highlighting progress.**

- The 2013 audit recommended the development (internally or with contractor assistance) a strategic plan to address the totality of the provision of electric service to Long Island, based on a comprehensive assessment of, for example, the needs and risks associated with the service territory, its customers, fiduciary obligations, and market impacts and uncertainties. The strategic plan should include identification of strategies to achieve the goals of the plan and measurement of progress. With the plan in place, prioritization and evaluation of on-going and proposed new programs and initiatives, capital projects and other major decisions should be considered and evaluated in the framework of their support for the long-term plan.<sup>349</sup>
- LIPA stated that in 2016, a more formal approach to strategic planning was adopted which was consistent with standard practices. LIPA staff prepared the Operations and Oversight Plan for 2017-2019. This plan identified significant new initiatives to be undertaken directly by the LIPA staff, as distinguished from PSEG LI over the next three years. In essence, it was LIPA’s business plan and implementation was ongoing.
- The 2018 audit noted that LIPA had established processes to monitor progress toward its long-term strategic goals.<sup>350</sup>

**33. Since the prior management audit, LIPA has relinquished the role of strategic planning by assigning the function to PSEG LI. LIPA then retained a consultant to develop the strategic plan.**

- LIPA mission and values have not changed appreciably over the prior five years. The LIPA Board Policy sets strategic direction. LIPA's Mission Statement was updated in 2021 to reflect a new Purpose and Vision Statement.<sup>351</sup>
- Overall, the strategic planning effort has not delivered on many expectations.
  - LIPA became frustrated with PSEG LI, as leadership wouldn’t engage on strategic planning.

“LIPA has tried in the past, most recently in the summer of 2019, to collaborate with PSEG Long Island on strategic planning initiatives, but those efforts were largely unsuccessful.”<sup>352</sup>

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<sup>348</sup> DR 32 Supplement 1.

<sup>349</sup> Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, June 14, 2018.

<sup>350</sup> Board Policy on #1683, amended November 17, 2021

<sup>351</sup> Fact Verification

<sup>352</sup> Consideration of the Adoption of Recommendations Relating to Strategic Planning, BOT - April 28, 2021.

- LIPA requested that the Board adopt a resolution and approve recommendations including strategic planning.<sup>353</sup> LIPA recommended that PSEG LI implement the following:
  - Five-year roadmaps for the transmission and distribution (“T&D”), information technology (“IT”), and customer service functions
  - In April 2022, LIPA Staff recommended that PSEG LI commence the development of five-year roadmaps for its remaining seven key functions (i.e., power supply, clean energy programs, business services, human resources, procurement, external affairs and communications, and legal) to be completed by March 31, 2023.
  - Thereafter, the five-year departmental roadmaps should be updated on a biennial cycle.
- The Board’s adoption of LIPA’s recommendations in April 2021, and subsequently the Second A&R OSA in December 2021, made PSEG LI responsible for strategic planning.<sup>354</sup>
  - PSEG LI was to provide a Strategic Planning PIP by May 2021 and present to the Board in June 2021. This did not happen.<sup>355</sup> In the August 2021 Board meeting, LIPA noted that numerous meetings had been held between LIPA and PSEG LI, and that a kick-off meeting with LIPA and PSEG LI senior teams to review each side’s preliminary findings regarding long-term strategic priorities in would be held in October. Meetings of senior teams would continue until March 31, 2022 – the due date for 5-year roadmaps for T&D, Customer Service, and IT.<sup>356</sup>
  - The plan was to develop three “Five Year Roadmaps” by March 2022 (T&D, IT and Customer), then seven more by March 2023.
  - The PIP and Five-Year T&D, IT and Customer Roadmaps were not produced.

**34. There are not separate planning processes and only one strategic plan is intended to address LIPA’s mission, vision, purpose and the long-term goals of the State of New York.**

- LIPA’s vision for strategic planning and performance management is to achieve the strategic objectives established by the Board in its policies and to provide transparency and accountability to the Board and customers for the realization of the Board’s strategic objectives and the funds budgeted each year.<sup>357</sup>
- LIPA will achieve its vision by directing the Chief Executive Officer to undertake:

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<sup>353</sup> Consideration of the Adoption of Recommendations Relating to Strategic Planning, BOT - April 28, 2021.

<sup>354</sup> Second Amended and Restated OSA Between LIPA and PSEG-LI Dated December, 2021 – Section 4.2 (A) (5) and Fact Verification

<sup>355</sup> <https://www.lipower.org/about-us/board-of-trustees/meetings/> June 23, 2021

<sup>356</sup> Implementation of Board Recommendations on Strategic Planning, August 11, 2021.

<sup>357</sup> Board Policy – Strategic Planning and Performance Management, #1777, amended February 15, 2023.

- Effective methods of translating the Board’s strategic policy objectives into multi-year plans, annual work plans, performance metrics, budgets, and recommendations for the Board’s review and approval, and
  - A transparent system of performance reporting to the Board and public relative to the policies, plans, metrics, budgets, and recommendations adopted by the Board.
- LIPA’s Chief Executive Officer, in consultation with its service provider(s), will on a triennial basis develop five-year roadmaps for each key business area to advance the Board’s strategic objectives. The Long-Range Plans will evaluate the current state of the business area, articulate an end-state vision to be achieved within five years, and identify the projects necessary to close the gap. Each roadmap will include:
    - Prioritized list of projects with associated business rationale and benefits
    - Schedule for and sequencing of projects
    - Dependency on or interaction with projects initiated by other business areas
    - Budget requirements for project implementation and operations
  - The timelines for the submission to the Board of the initial long-range plans for each business area were:
    - Transmission and distribution (T&D), information technology, customer experience, finance, and performance management no later than March 31, 2023.
    - Business services and power supply and clean energy programs no later than March 31, 2024.
  - LIPA’s consultant presented the LIPA-PSEG LI 5-Year Strategic Roadmap (2023 to 2027) to the Board on February 15, 2023.<sup>358</sup> The roadmap process covered strategic planning objectives, approach, internal and external perspectives. Five functional areas characterized as critical business pillars included T&D, Customer Experience, Information Technology and Cybersecurity, Finance, and Performance Management.

**35. The 2023 Five-Year Roadmap provides extensive coverage of improvement initiatives in the five functional areas and does map key initiatives to Board Policies. However, due to missing strategic elements in the roadmaps, gaps remain.**

- The 2023 strategic roadmap is largely a presentation of “key initiatives” presently underway and falls short of “the provision of electric service to Long Island, based on a comprehensive assessment of, for example, the needs and risks associated with the service territory, its customers, fiduciary obligations, and market impacts and uncertainties. The strategic plan should include identification of strategies to achieve the goals of the plan and measurement of progress.”
- The strategic roadmap does not address the impact of CLCPA or other State and regulatory goals.

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<sup>358</sup> <https://www.lipower.org/about-us/board-of-trustees/meetings/> and Fact Verification

- The 2023 strategic roadmap does not incorporate an assessment of energy resources. It was noted that LIPA’s Integrated Resource Plan (IRP) and future planning initiatives will address other important aspects of the business.
- LIPA and PSEG LI launched an IRP in June 2021 to study supply- and demand-side resources for electric power for Long Island and the Rockaways. The IRP will ultimately result in an action plan that will identify the key activities and investments that LIPA will need to make over the next eight years, including planning for the expiration of major power purchase contracts and retiring fossil-fueled generation, integrating substantial amounts of renewable energy, and identifying the impacts of and supporting beneficial electrification. The IRP development process is shown in **Exhibit III-41**.

**Exhibit III-41  
2022 IRP Development Schedule**



Source: Oversight and Clean Energy Committee Meeting, June 23, 2021.

- The IRP draft became available in the second quarter of 2023 and public comment was scheduled to follow. However, the final IRP was re-scheduled for late 2023 and was not available for review during the audit.<sup>359</sup> According to LIPA the final IRP release was delayed due to, among other issues, the final IRP being enhanced to capture significant elements of LIPA’s strategy to meet the State’s clean energy goals through 2030.<sup>360</sup>
- LIPA’s final IRP was released in late 2023 and can be found on LIPA’s web site.<sup>361</sup> Public comments are scheduled for February, 2024.
- While it was noted that the IRP would establish the pathway to a carbon-free electric grid by 2040 and will evaluate opportunities and complete roadmaps for certain business service areas, such as human resources, legal, communications, procurement, external affairs, and other support functions, these subjects are not included in the

<sup>359</sup> 2022 Performance Metrics, November 15, 2021 and Year-End Report on PSEG LI’s 2022 Performance Metrics, May 15, 2023.

<sup>360</sup> DR 1289.

<sup>361</sup> <https://www.lipower.org/irp/>

strategic roadmap. Plans for business services, power supply, and clean energy programs are due to the Board in 2024.<sup>362</sup>

- LIPA has a separate 2023 work plan document.<sup>363</sup> The LIPA work plan includes LIPA-only items (e.g., Time-of-Day rate design, cyber security, complete the IRP and FEMA collections), PSEG LI-only items (e.g., performance metrics and management recommendations adopted by the Board), combined items (e.g., IT system separation), and many are not part of the Five-Year Roadmap.
- Cost/Benefit Analyses are not addressed in work plans or roadmaps.
- Strategic plans are generally understood to be long-term. The 2023 Five-Year Roadmaps are at best short- medium-term. Most of the initiatives covered in the Roadmaps are currently in-flight, and few extend past 2025. LIPA's and PSEG LI's strategic plans are reflected in shorter-term operational plans and are executed upon.
- The strategic plan does not appear to address the LIPA business environment, technological, political, social and regulatory environment. For example, CLCPA is not addressed, investment in disadvantaged communities, and elements of distributed generation are not apparent.

**36. LIPA and PSEG LI have many formal meeting channels for policy, operations, and budget development and monitoring. LIPA and PSEG LI do not have a formal meeting to discuss OSA performance metrics or progress.**

- LIPA and PSEG LI conduct over 20 routine meetings with PSEG LI and other participants on topics including, but not limited to policy development, operations, budget development and monitoring.<sup>364</sup>
- One of LIPA's key responsibilities is oversight of PSEG LI and the associated OSA scorecard metrics. LIPA Policy CEO-POL-005, Oversight of Service Providers defines oversight, its purpose, and establishes the "Oversight Framework" for LIPA's oversight activities. The Policy states that LIPA's oversight will generally involve monitoring, and reviewing activities, including information requests, standing meetings, projects, and audits.<sup>365</sup>
  - LIPA and PSEG LI do not meet formally to discuss progress on OSA scorecard metrics. Rather, LIPA subject matter experts and PSEG LI set meetings on an as needed basis. LIPA states that discussing every metric in monthly meetings is no

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<sup>362</sup> Fact Verification

<sup>363</sup> Discussion of 2022 Projects and Accomplishments and 2023 Work Plan, <https://www.lipower.org/about-us/board-of-trustees/meetings/> February 15, 2023.

<sup>364</sup>DRs 22, 376, 451, 652, 872, 1303, and 1329. LIPA participation in various NYISO, NPCC, ISO, PJM, committees and subcommittees has been based on the relevance of topics covered and expected value propositions. Working groups may arise over the course of a year and LIPA evaluates participation on a case-by-case basis depending on the value proposition and applicability to LIPA.

<sup>365</sup> DR 22 Supplement 6.

longer an effective or productive means of reviewing the detailed status of each metric.<sup>366</sup>

### **37. PSEG LI and LIPA are not consistently collaborative in their relationship.**

- PSEG LI and LIPA lack of collaboration on strategic planning initiatives led to a change in the Board’s policy on strategic planning requiring PSEG LI to develop 5-Year Roadmaps. The Board Meeting minutes from April 2021 state:

“LIPA has tried in the past, most recently in the summer of 2019, to collaborate with PSEG Long Island on strategic planning initiatives, but those efforts were largely unsuccessful. Although PSEG Long Island leaders participated in several meetings with LIPA to discuss strategic planning issues, those meetings were ultimately not as productive as they could have been because of lack of support by PSEG Long Island leadership.”<sup>367</sup>

- PSEG LI does not provide LIPA with capital project prioritization information during the budget development process. LIPA does not receive SOS platform output for capital project prioritization scoring. Without this information it is unclear how LIPA can determine capital project alignment with strategic objectives.<sup>368</sup>
- PSEG LI and LIPA had disagreements regarding an RFP for the System Separation project.<sup>369</sup> Lack of collaboration between PSEG LI and LIPA led a second RFP and project delay in identifying a vendor for system separation and integration services.<sup>370</sup>
- PSEG LI and LIPA disagreements led to a consulting report with, at best, incomplete analysis on the PSEG LI IT organization’s process maturity levels. As stated in a letter to PSEG LI from LIPA in May 2023:

“Between March 24 and April 26, there were multiple communications between LIPA and PSEG Long Island about the requested follow-up sessions, and PSEG Long Island staff were seemingly attempting to schedule the sessions until PSEG Long Island made the decision to refuse to make its employees available. Notably, PSEG Long Island’s refusal to make its employees available was inconsistent with LIPA’s rights under the Second Amended and Restated Operations Services Agreement Section 4.4 (A)(16) to “consult with representatives of the Service Provider... as may be reasonably necessary or appropriate to perform LIPA’s oversight responsibilities...”

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<sup>366</sup> DRs 652, 652 Supplement, and 1303.

<sup>367</sup> April 28, 2021 LIPA Board Meeting minutes. <https://www.lipower.org/wp-content/uploads/2021/05/Approved-Minutes-April-28-2021-Board-Mtg.pdf>

<sup>368</sup> See Chapter X – Program and Project Management.

<sup>369</sup> 2023 LIPA OSA Tracking/Metric IT-07. Email dated May 3, 2023 Subject 5/2 RFP Recommendation Meeting Follow up.

<sup>370</sup> DRs 501 Attachment 1 and 1212 Attachment 1. For more information, see Chapter XV – Information Technology and Cyber Security.

- The project to initiate the Integrated Resource Plan began in June 2021 and was expected to be completed in Q3 2022.<sup>371</sup> A summary of the final IRP study was finally presented to the LIPA Board on November 15, 2023.<sup>372</sup> Over a year later.
- As stated earlier in this chapter, PSEG LI has been less than forthcoming with LIPA during ERM risk assessment discussions.

## OPEBs

Because this analysis covers two different organizations for two different groups of employees, the Findings and Conclusions are presented in two sections, LIPA and PSEG LI.

### **38. LIPA does not manage the pension trust funds and therefore does not have any policies and procedures related to the management of pension funds. Pension trust funds for LIPA employees are managed by the New York State Retirement System or by the Voluntary Defined Contribution Program (VDCP).**

- Both the Retirement System and Voluntary Defined Contribution Program are professionally managed and are administered by the Office of the State of New York Comptroller. The Comptroller of the State of New York serves as the trustee and is the administrative head of the Retirement System. These funds provide benefits for thousands of current and former employees of the State of New York as well as other state entities.

### **39. Pension funds associated with LIPA employees are managed in the Retirement System in the same manner as funds for all other New York State, local or agency employees who are participants in the Retirement System. Funds in the VDCP are held in investments selected by the employee from the set offered by TIAA CREF.**

- Funds associated with LIPA employees are determined as an allocation of the entire, undivided retirement assets.

### **40. OPEB funds are invested conservatively, as is appropriate with the pay-as-you-go strategy employed by LIPA.**

- OPEB funds are not held in a trust.
- Assets set aside for OPEB liabilities are invested as shown in **Exhibit III-42**.

<sup>371</sup> Oversight and Clean Energy Committee meeting, June 23, 2021. <https://www.lipower.org/wp-content/uploads/2021/06/LIPAs-2022-IRP-June-23-BOT.pdf>

<sup>372</sup> LIPA Board of Trustee Meeting, November 15, 2023. [https://www.lipower.org/wp-content/uploads/2023/11/LIPA\\_2023IRP\\_DigitalVersion-1.pdf](https://www.lipower.org/wp-content/uploads/2023/11/LIPA_2023IRP_DigitalVersion-1.pdf)



**Exhibit III-42**  
**Statement of OPEB Assets at Market Value**  
**(Millions of Dollars)**

Description	2022		2021	
	Amount	Percent	Amount	Percent
Mutual Funds-Equities	\$344	66%	\$384	66%
Mutual Funds-Fixed Income	\$178	34%	\$197	34%
<b>Total</b>	<b>\$523</b>	<b>100%</b>	<b>\$581</b>	<b>100%</b>

Source: Note 13 to Long Island Power Authority Financial Statements December 31, 2022

- As shown in Exhibit III-42, the relative amount of equity is 66 percent which is similar to the investments held by the SERVCO Pension Trust on advice from its Investment Consultant. These funds declined 10 percent from 2021 to 2022 which is comparable to performance of the Dow Jones Industrial Average.

**41. LIPA has not used fund managers for its OPEB funds. Funds are invested in public, professionally managed investments.**

**42. LIPA created a legally separate Section 115 Trust (OPEB Trust) to fund its eligible employee and retiree OPEB obligation.**

- Based on the funding analysis of an actuarial study, LIPA, in 2017, transferred approximately \$19 million from the OPEB Account to the OPEB Trust.
- Additionally, LIPA funded approximately \$0.82 million and \$0.69 million in 2022 and 2021, respectively, to the OPEB Trust.
- As of December 31, 2022 and 2021, the OPEB Trust totaled approximately \$25 million and \$30 million, respectively, which was approximately 104.3 percent for 2022 and 130.1 percent for 2021 of its net OPEB liability.
- The OPEB Trust is restricted to funding LIPA’s employee and retiree OPEB obligations.<sup>373</sup>

**43. Pension funds contributed on behalf of PSEG LI employees are managed and invested separately from PSEG employees by the PSEG ServCo Pension & Investment Committee (ServCo PIC). The ServCo PIC is advised by the Investment Consultant Willis Towers Watson.<sup>374</sup>**

- The ServCo PIC consists of the same members as the PSEG PIC, the CFO, Treasurer and head of HR. In addition, two representatives of LIPA management participate by calling in to ServCo PIC meetings. They do not have a vote on the committee.<sup>375</sup>

<sup>373</sup> Footnote 13 to LIPA 2022 Financial Statements

<sup>374</sup> DR 819.

<sup>375</sup> IR 147.

- For ServCo employees, fund managers are selected, and terminated, by the ServCo Pension & Investment Committee (ServCo PIC) on advice from the Investment Consultant.
- Fund manager surveillance is provided by the Investment Consultant (Willis Towers Watson) and trust investment staff. Performance is reviewed by the ServCo PIC on a quarterly basis and during ServCo PIC meetings and during the year as necessary.

## **D. RECOMMENDATIONS**

1. The LIPA Board of Trustees should utilize independent, third-party resources to provide “on-call” utility strategy and operations advisory services in review of Board meeting information packets and in advance of Board meetings when needed, as common among investor-owned utility Boards.
2. PSEG LI must provide LIPA with access to detailed information regarding concerns, investigations, findings, and resolutions/remediation actions taken.
3. PSEG LI must follow its own record management procedures as stated in Practice 105-1 and 105-1-2. Annual attestations from executive management of each PSEG LI business unit should be completed by the December due date and PSEG LI RMG should perform an evaluation of the program for PSEG LI management and the LIPA’s review.
4. Conduct an audit the PSEG LI and LIPA records management programs including Property Records, and the implementation of the ERDMS project. Once the audit is complete, work with the New York State Archive to develop a record inventory and record retention schedule.
5. Prioritize implementation of LIPA’s ERDMS so that PSEG LI can use the platform as anticipated in the Second A&R OSA.
6. Conduct a comprehensive organization structure analysis of LIPA as well as a skill and capabilities analysis conducted once clarity is given on the future of LIPA by the NY legislature, OSA contract is extended, or a new Service Provider is contracted. Recommendations from this study should be fully implemented in a timely fashion.
7. Review skill and capabilities gaps of employees at LIPA and PSEG LI and use results to develop meaningful training and development programs. Increase investment in training and development to at least 2018 levels.
8. Implement the LIPA DE&I program with program metrics to report progress to the Board.
9. Consistently track and report PSEG LI’s key performance indicators for Management Diversity (Women and PoC), Union Diversity, and, commensurate with survey cadence, Employee Engagement to PSEG LI management and LIPA.
10. Conduct an audit of PSEG LI compliance with the OSA including, but not limited to Section 10.8.

11. Partner with New York State universities for IT and Cybersecurity programs and develop internships for these functional areas.
12. Continue the development of LIPA and PSEG LI ERM Programs with the following considerations.
  - Formally charge “Organizational risk culture and risk awareness” as the responsibility of the LIPA and PSEG LI executive management and LIPA and PSEG LI ERM teams to manage, improve, and report to the LIPA Board.
    - The LIPA and PSEG ERM teams must analyze “organizational risk culture and risk awareness” and the Board’s ERM policy, #1808, amended September 27, 2023, and recommend changes to the policy to promote management and employee accountability.
    - Develop a comprehensive program to improve “organizational risk culture and awareness” at LIPA and PSEG LI. The program must include metrics to baseline and report progress in risk culture.
    - “Organizational risk culture and awareness” must be evaluated during the 2024 risk assessment process for each LIPA and PSEG LI department.
    - LIPA/PSEG LI ERM teams must investigate incentives and accountability programs used by organizations outside the utility industry to improve risk culture and awareness.
  - Require risk analysis such as a “bow-tie” analysis for each risk included in department risk profiles and update annually as necessary.
  - Investigate quantitative methods, such as the cost/benefit analysis, of risk mitigation strategies, to determine their effectiveness.
  - LIPA and PSEG LI ERM teams need to revise the current ERM Strategic Roadmap to include budget, work products to be delivered, named resources, and defined schedule with sequenced milestones within each year going forward. Report progress at quarterly ERM updates with the governance committees and the Board’s F&A Committee. The ERM Program Roadmap should include capital project planning as a business process to integrate ERM (e.g., Project Scope documents and other inputs to the SOS platform, SOS scoring modules, and URB governance processes).
  - The LIPA ERM team must follow its own ERM procedure manual for emerging risks and emerging risk repository, KRIs, and the Risk Mitigation Dashboard.
  - Identify and use an alternative approach for the biennial maturity assessment of the LIPA/PSEG LI ERM Program.
  - Revise the risk escalation process to include notification of the LIPA Board of Trustees in the event of a risk event.
  - Track and report ERM training attendance as well as conduct post-training survey for continuous improvement to LIPA and PSEG LI executive management.

## IV. BUDGET AND FINANCIAL REPORTING

This chapter focuses on LIPA and PSEG LI's development and reporting of the Operating and Capital budgets.

### A. BACKGROUND

#### Budgeting

LIPA and PSEG LI maintain a formal operating and capital budget development, review and approval process designed to achieve LIPA's mission as well as longer and shorter-term operating and financial objectives. They follow a system of strategic resource allocation processes and measure individual and organizational performance using ongoing comparisons of actual results to approved operating and capital plans. LIPA and PSEG LI's budget is released to the public for comment prior to Board of Trustees approval in December. Furthermore, the Finance and Audit Committee of the Board of Trustees performs a review of the budget vs. actuals, which is presented periodically in a format available to the public.<sup>1</sup> In 2022 LIPA began the process of implementing Hyperion - a software solution for centralized planning, budgeting, and financial forecasting.

The LIPA and PSEG LI operating and capital budgets were developed from the ground up, whereby LIPA's internal departments and PSEG LI develop expenditure plans. PSEG LI's responsibilities in the budgeting process are outlined within the Second A&R OSA,<sup>2</sup> including:

- Preparing and monthly monitoring of budgets necessary for both capital and operating expenses for the services provided under the Agreement;
- Analyzing monthly and year-to-date budget to actual variances, and explanations thereof and formulating financial projections based on the variance analyses;
- Analyzing revenue and expenditure projections for the annual or multi-year period beyond the period of actual results; and
- Preparing and delivering sales, revenues and costs budget input data for the annual budgeting processes, year-end forecasts, possible rate filings, and LIPA's eight-year financial plans and other long-range financial planning processes.

Generally, there are two sources for budget information: department components and non-department components. Department components are compiled with director level input from the various departments (**Exhibit IV-1**). Non-department components of the budget (i.e., revenues, power supply costs, property-based PILOTs (payments in lieu of taxes), depreciation and amortization expense, etc.) are developed based on estimates and assumptions from other sources. The responsibility for non-department budgeting is show below:

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<sup>1</sup> DR 157.

<sup>2</sup> DR 5.

**Exhibit IV-1  
Non-Department Budgets**

<b>Budget Item</b>	<b>Responsible Organization</b>
Budget Consolidation	PSEG LI
Annual DPS Rates and Budget Package	Joint
Revenue Requirements	PSEG LI
Sales and Revenue Forecasts	PSEG LI
Power Supply Charge	PSEG LI
PSEG LI Managed Expenses	PSEG LI
Utility Depreciation	PSEG LI
Taxes and PILOTs	PSEG LI
Tariff Leaves	Joint
OSA Management Fee	Joint
LIPA Operating Expenses	LIPA
LIPA Depreciation and Acquisition Adjustment	LIPA
Other Income and Deductions	Joint
Grant Income	LIPA
Interest Expense	LIPA
Debt Service and Coverage	LIPA
LIPA Capital	LIPA

Source: DR 157.

In 2020, LIPA evaluated budget development process improvements and began the implementation of Director Budget Briefing Books to improve the budgeting process. The primary motivation for this project was to enhance the documentation and underlying assumptions in PSEG LI’s Director level budget process. The project was intended to improve the visibility and accuracy of the annual budget process. This was done to better understand how financial resources are allocated and deployed. Furthermore, it was designed to enhance the ability of the senior leaders of PSEG LI to make more informed business decisions on how to allocate resources to achieve the highest level of benefit to customers and LIPA to exercise its oversight authority. Lastly, the process was designed to improve documentation and allow for a review of the work plan for the upcoming year and its correlation to the budget resources.<sup>3</sup>

The Director Budget Briefing books include the specific underlying budget assumptions and calculations that derive the total budget for each respective area. The specific information that should be included in each Director Budget Briefing book is the following<sup>4</sup>:

- A description of budget assumptions at the VP/Business Area/Cost Center levels.
- Budget details by VP Level/Business Area/Cost Center/Programmatic Function, including:
  - Headcount levels and hiring plans (Union & management and straight time resources – “MAST”)

<sup>3</sup> DR 157.

<sup>4</sup> DR 157.

- Straight time and overtime labor costs
  - Fringe costs
  - Contractual services costs (delineate contract by vendor/function)
  - Materials costs
  - Lease and rent costs
  - Other non-labor costs
  - Affiliate costs
- PSEG LI work plan by Business Area and Cost Center.
  - PSEG LI expected outputs/accomplishments by Business Area/Cost Center.

In 2022 LIPA began the process of implementing Hyperion. Hyperion is an Oracle software solution offering centralized planning, budgeting, and forecasting solutions that integrates financial and operational planning processes to improve business predictability. The primary objectives of Hyperion are<sup>5</sup>:

- Improve efficiency by reducing manual processes:
  - Actuals from financial system uploaded to templates automatically.
  - Preliminary Budget pre-seeded using historical actuals to provide baseline for bottom-up budgeting.
  - Aggregations of data automated in planning.
- Improve efficiency by implementing enhanced business processes:
  - Centralized control forms.
  - Standard budget process.
  - Standard calculations and controls across organization.
  - Robust support of “what-if” analyses.
- Improve budget analysis and capabilities:
  - Shift from collecting/collating data to more data analysis.
  - Allow for enhanced future forecasting.

The Hyperion implementation is a multi-year project. The deliverables and timeline of the pilot are outlined in **Exhibit IV-2** below:

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<sup>5</sup> DR 521.

## Exhibit IV-2 Hyperion Deliverables & Timeline

Project Governance	Analysis	Design & Development	Testing & Training	Deploy & Operate
<ul style="list-style-type: none"> <li>▪ Project Plan</li> <li>▪ Communication Plan</li> <li>▪ Testing Plan</li> <li>▪ Cutover Plan</li> <li>▪ Status Reports</li> <li>▪ Milestone / Delivery Completion Report</li> <li>▪ Post go-live starts</li> <li>▪ Due by 5/26/22</li> </ul>	<ul style="list-style-type: none"> <li>▪ Product Overview</li> <li>▪ Solution Blueprint Document (SBD)</li> <li>▪ GAP Recommendations</li> <li>▪ Updated RTM</li> <li>▪ Due by 1/10/23</li> </ul>	<ul style="list-style-type: none"> <li>▪ Configuration</li> <li>▪ Functional Design &amp; Technical Design Documents (Reports, Interfaces, Customizations)</li> <li>▪ Dashboards, Reports, Interfaces, Customizations</li> <li>▪ Data Migration Templates</li> <li>▪ Core Team Training</li> <li>▪ Due by 3/24/23</li> </ul>	<ul style="list-style-type: none"> <li>▪ Train-the-Trainer</li> <li>▪ System Administration Training</li> <li>▪ UAT Test Scripts</li> <li>▪ Environment ready for UAT</li> <li>▪ Due by 4/21/23</li> </ul>	<ul style="list-style-type: none"> <li>▪ Go-Live Checklists</li> <li>▪ Environment ready for Production</li> <li>▪ Due by 4/28/23</li> </ul>

Source: DR 524.

### Financial Reporting

In 2020 LIPA implemented a new accounting system, Microsoft Dynamics. Previously LIPA had used Epicor for the accounting system. This implementation included redesigning the chart of accounts to provide consistency between the LIPA and PSEG LI chart of accounts. This new system reduces or eliminates many of the manual processes previously required to produce consolidated financial information. Other objectives of implementing Microsoft Dynamics included: streamlining existing workflow processes, providing greater oversight of the OSA, replacing the Epicor system and various feeder systems, creating a standard procurement functionality, and optimizing user security roles for segregation of duties. Integrated into the new systems is automated SAP data from PSEG LI, JP Morgan data for credit card expenses, and Accudata for payroll data.<sup>6</sup> Microsoft Dynamics is only used and accessible by LIPA. PSEG LI's finance and accounting system is SAP.

## B. WORK TASKS

### Capital and O&M Budgeting

- Assess LIPA's role in the budgeting and project prioritization process relative to PSEG LI.
- Evaluate the respective roles and involvement of the Board of Trustees and executive and senior management in the budgeting process and determine if they are appropriate.
- Determine whether the Board of Trustees gets involved in the capital and O&M budget processes at the right time and to the appropriate extent.
- Determine if the Board of Trustees sees and has access to sufficient detail.
- Determine if the Board of Trustees responsibilities are documented and adhered to.

<sup>6</sup> DR 525.



- Determine if the Board of Trustees and executive and senior management are properly involved in the development of budgeting guidelines and management execution (e.g., investment priorities and allocations, periodic budget reviews and approvals) that are in the interest of NYS ratepayers.
- Assess whether the construction/capital priority setting process is balanced and appropriate. Evaluate LIPA’s methodology for prioritizing and determining which capital projects it approves.
- Determine if organizational responsibilities for planning priorities and budgeting allocations are appropriate.
- Determine if capital and O&M budgets effectively balance safety and reliability. Determine if repair versus replace decisions affect infrastructure/capital expenditures positively over the long-term.
- Determine if cost-effective efficiency improvements are deferred due to lack of capital.
- Determine whether appropriate capital budgeting policies and procedures exist, are clearly documented and understood, and are adhered to. (See also Program and Project Management.) Procedures should address:
  - Project authorization and appropriation
  - Increases/decreases to authorization/appropriation amounts
  - Validation in advance of appropriation
  - Funding controls
  - Capital budget status reporting.
- Review and assess LIPA’s budgeting processes.
  - Evaluate LIPA’s use of budgeting guidelines, practices and procedures, including “zero-based” and other alternative methods.
  - Review capital and O&M budgeting systems.
  - Evaluate the timing of the budget development.
  - Review guidance given to the various organizational units involved in developing the budget.
  - Determine if bottom-up and top-down processes for developing the budgets for capital/construction classifications and categories are appropriate.
  - Determine how capital and O&M budgets are integrated.
  - Determine how incremental O&M associated with new construction is factored into the budgeting process.
  - Evaluate whether decisions are made at appropriate levels.
- Assess the annual process for reviewing and determining whether total planned capital and O&M expenditures are adequate.
- Determine if allowed revenues/rates and financing opportunities or constraints adversely affect budget levels and priorities.
- Determine if relationships among planned/budgeted expenditures and actual expenditures are appropriate.
- Determine if expenditures are managed and controlled.
  - Review methodologies used to control and manage overall capital expenditures in the near-term and long-term.
  - Assess the effectiveness of cost control systems and processes from both a top-down and bottom-up perspective.

- Determine if there are sufficient controls in place to ensure that increases and decreases to the construction budget/expenditures are justified and appropriately approved.
- Determine whether reports available to managers are appropriate to assist them in achieving budget targets.

### **Budget Control**

- Review how capital and O&M plans and budgets are developed through estimating and historical analysis and then convert to specific programs and project schedules.
- Examine methodology for tracking costs, work units and work quality for specific programs and projects.
- Determine if variances between original project budgets and actual capital expenditures and work units are justified.
- Review cost control methods and procedures, including reporting and accountability.

### **The Adequacy and Effectiveness of Systems used in Reporting Financial Information**

- Assess the current financial reporting systems used by LIPA and PSEG LI.
- Determine if there were any changes to the financial reporting system used by LIPA since the last management audit.
- Assess the flow of information into the general ledger and analyze the quality and consistency of source data.
- Review manual reporting processes, such as manually performed journal entries and off-line spreadsheets completing calculations, for automation of system reporting and elimination of duplication of effort and non-value-added activities.
- Review the accuracy of the data reported by systems for significant adjustments or corrections.
- Assess the effectiveness and efficiency of the chart of accounts structure designed to capture data and adherence to the FERC CoA.
- Review the internal controls around financial systems and audit trails.
- Evaluate the effectiveness of the interconnection of the new LIPA Enterprise Resource Planning (ERP) system, accounts payable, general ledger, procurement, and human resource modules, to the PSEG LI SAP system, implemented to enhance productivity and quality of reporting.

## **C. FINDINGS AND CONCLUSIONS**

### **1. LIPA's budgeting process has appropriate internal controls, oversight and opportunity for the Board of Trustee, ratepayer, and other stakeholder involvement.**

- In accordance with the Second A&R OSA, LIPA maintains oversight responsibility for the consolidated operating and capital budgets, while PSEG LI is responsible for the development and implementation of the programs which underlie the budgets as well as a majority of the expenditure forecasts required to fund those programs.<sup>7</sup>

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<sup>7</sup> DR 161.

- PSEG LI is responsible for the development of budgets, variance tracking, and year-end projections related to their obligation of managing the day-to-day operations of the transmission & distribution (T&D) system.<sup>8</sup>
- LIPA is responsible for developing its internal administrative and debt service budgets and overseeing PSEG LI's process and budget development. LIPA is responsible for final budget submission and providing the public and its Board of Trustees (Trustees) information related to the proposed budget.<sup>9</sup>
- The budget development, review and approval process begins in April, approximately seven months in advance of the start of the budget year. The adoption of the proposed budgets by the Trustees is done at its December meeting. Cost centers develop proposed spending programs that support their objectives and are aligned with the achievement of LIPA's corporate mission and Board Policies.<sup>10</sup> The budget is developed and presented on a consolidated entity basis that includes PSEG LI and LIPA. An example of the budget process timeline is detailed in **Exhibit IV-3**:

**Exhibit IV-3  
Budget Process Timeline**

General Budget Activity	Estimated Timeline
Preliminary Budget Discussions with LIPA & PSEG LI Including Creating a Budget Development Schedule in accordance with the Second A&R OSA	April
PSEG LI Development of Operating and Capital Budget Proposal and Supporting Details	April - July
LIPA Chief Executive Officer (CEO) Budget Memo with instructions to LIPA Staff	July
Joint LIPA and PSEG LI Senior Leadership Team Budget Kick-off Meeting	July
LIPA develops PSEG LI Metrics for incorporation into Budget	June - August
PSEG LI Submission of Operating Budget Proposal to LIPA	July
PSEG LI submission of Capital Project Justification Description form to LIPA for review and approval	July - August
Review of LIPA Departmental Budget Proposals and PSEG LI Proposed Operating Budget	August - September
Submission of LIPA Budget Templates to PSEG LI	September
Submission of Preliminary PSEG LI Capital Budget to LIPA	September
LIPA Approval of PSEG LI Proposed Operating and Capital Budgets	September
PSEG LI Submission of Consolidated Proposed Budget to LIPA	October
LIPA & PSEG LI Review Consolidated Budget	October
LIPA and PSEG LI Brief DPS on Proposed Budget	October- November

<sup>8</sup> DR 161.

<sup>9</sup> DR 161.

<sup>10</sup> DR 161.

LIPA issue the Budget Review Notice	November
Proposed Budget and Multi Year Plan Presented to Board of Trustees	November
Public Comment and Hearing Sessions	November
Board of Trustees Review and Approval of Consolidated Budget	Mid-December

Source: DR 161.

- The budgeting process occurs over several months and has several milestones throughout the process. Furthermore, the budget process includes specific procedures with oversight and internal controls built into the process. These specific milestones related to oversight and internal control are detailed below:<sup>11</sup>
  - Budget Process Initiation – The Director of Budget provides guidelines to the CEO to aide in the issuance of the budget memo to LIPA’s senior management team and department heads, and PSEG LI COO and senior budget staff communicating the budget initiatives, guidelines, strategies, and recommended budget development schedule.
  - Budget Preparation - Senior management evaluates the proposed spending plan within the context of its alignment to LIPA’s mission, objectives, Board Policies and Strategic Plans. LIPA’s internal budget is approved by the CEO.
  - Budget Proposal - LIPA Budget and Communications teams organize and host the public hearing and track any comments received by the public for consideration in the final budget. LIPA’s Trustees participate in budget workshops/briefings and consider revisions to the budget based on issues raised at public hearings and other relevant factors.
  - Budget Finalization –
    - The Chief Executive Officer certifies, to the best of his/her knowledge, that the budget information and financial projections contained in the proposed budget are based on reasonable assumption and methods of estimation and that the requirements of 2 NYCRR Part 203 have been satisfied.
    - A Board resolution is drafted with a Budget Memo summarizing key components of the budget, to be presented at the December Board meeting, recommending the adoption of the budget.
    - The F&A Committee reviews the proposed budget and recommends adoption of the budget intact or with modification to the Board of Trustees.
  - Budget Monitoring –
    - The monthly budget is entered into the LIPA accounting and financial system (Microsoft Dynamics) and the monthly, actual results of operations are monitored against approved budget levels.
    - The Manager of Finance from the Budget Team coordinates the compilation of the variance analysis for the F&A Committee presentation.
    - The Budget Team also presents to the Budget and Rates Committee monthly detailed budget status report and variances explanations.

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<sup>11</sup> DR 161.

- On-going Budget/Procurement Monitoring - If services were not budgeted, the approval process also requires senior management review and approval to ensure funding is available.
- As described above, the budgeting timeline and procedures provide for ample oversight and internal controls over the annual budgets.

**2. LIPA’s Budget Briefing Books are a significant improvement over the prior budgeting process.**

- Prior to the implementation of the Budget Briefing Books, the budgets were largely driven by headcount assumptions. Past budgets did not focus as much on non-payroll expenditures, and as a result LIPA would see large variances throughout the year.
- The Budget Briefing Book process was designed to build budgets from the bottom-up rather than relying heavily on headcount assumptions. The purpose of the Director Budget Briefing Book’s objective is to facilitate informed strategic decision making for the budget year.
- As a starting point for the Budget Briefing Books, LIPA and PSEG LI prepared necessary documents for a sample set of Director areas based on 2021’s budget to establish the process and form that satisfy both PSEG LI and LIPA needs. The process was expanded in 2022 to have Director Budget Briefing books completed and available for each area that support the overall budget plan for 2022 with all required information and documentation completed.<sup>12</sup>
- The project workplan for the Budget Briefing Books was thorough and outlined incremental steps to design, train, and review material to ensure it was meeting the project objectives. This workplan was successfully executed and resulted in a successful implementation. The workplan included<sup>13</sup>:
  - Designing a prototype of 2021 Director Budget Briefing Books for LIPA review.
  - Educating and training a sample of PSEG LI Business Units on Director Budget Briefing books for 2021 Budget Completion.
  - Completing a sample set of 2021 Director Budget Briefing books for internal PSEG LI review.
  - Submit a sample set of 2021 Director Budget Briefing books to LIPA.
  - Joint PSEG LI and LIPA discussions on overall budget strategy and funding target. Discussions included: escalation rates, targeted savings, and priorities and initiatives.
  - Designing prototypes of 2022 Director Budget Briefing Books and overall excel based consolidation model for LIPA review.
  - Educating and training PSEG LI business units on Director Budget Briefing Books for 2022 Budget Completion.

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<sup>12</sup> DR 161.

<sup>13</sup> DR 161.

- Complete 2022 Director Budget Briefing Books for internal PSEG LI review.
- The implementation plan also identified potential risk to the Budget Briefing Book process. The risks identified had mitigation plans to help facilitate a successful implementation. These risks included<sup>14</sup>:
  - Utilizing an Excel based model - There is a risk in utilizing an excel based model that it cannot replicate the intricacies of the SAP assessment/fringe process between the capital and operating budgets. There is a risk that the assumptions calculated via the excel based model may vary significantly from what is produced from the SAP Planning module. This would potentially lead to significant adjustments late in the process, which could be counterproductive to the improvements LIPA and PSEG LI are trying to accomplish.
  - Accelerated Schedule - Budget acceleration presents a risk of utilizing outdated assumptions or data in the budget. There is a tradeoff in starting and completing the process early, which may mean the assumptions being used, could be outdated and emerging issues may not be incorporated. This can lead to potential last-minute changes and complications with the final approval processes.
- These risks should be further mitigated with the implementation of Hyperion (see conclusion 7).

**3. The O&M budgeting process has improved by providing transparency through the Budget Briefing Book process.**

- The Budget Briefing Book and Budget Reallocation Documentation projects have increased transparency, accuracy and accountability in the budgeting process.
- The Budget Briefing Books have provided benefits to LIPA including the ability to build more detailed budgets based on entity needs, rather than just headcount. Furthermore, the Budget Briefing Books has allowed LIPA to better evaluate budget to actual variances and perform analyses. Additional benefits of the Budget Briefing Book process include:<sup>15</sup>
  - One concise document to provide answers to questions about what is included in budget funding.
  - The ability to clearly site risks of not obtaining funding and explaining what work/deliverables cannot be accomplished.
  - One consolidated process for all O&M (and headcount) funding requests or targeted savings.
  - A consistent format to aid in budget to actual variance explanations.
- The Budget Briefing Book process has provided enhanced controls and oversight over budgeting and the disbursement of funds. The prior process was less formal and could

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<sup>14</sup> DR 161.

<sup>15</sup> DR 161.

- result in ad hoc funding. If followed correctly, the Budget Briefing Book process requires all funding to follow the same process.<sup>16</sup>
- Any request and/or changes in O&M funding levels or headcount for all areas must go through the Budget Briefing Book Process.
  - Any outside conversations with LIPA or any other parties that are not incorporated into the Budget Briefing Book templates do not have funding.
- Under Section 5.2(B)(4) of the Second A&R OSA, PSEG LI has the flexibility to reallocate O&M budget funds throughout the year. This flexibility, while not subject to approval by LIPA, is subject to prior consultation with LIPA. LIPA developed a project implementation plan for the budget reallocation process. The motivation for this project was to enhance the documentation related to PSEG LI's business decision-making process to reallocate O&M budget funds between organizations. This project designed to better understanding of how emerging business needs and issues impact the allocation of financial resources throughout the year.<sup>17</sup>
  - The purpose of the Budget Reallocation project was to create an official documentation process to notify LIPA of the reallocation of O&M budget funds. The documentation for budget reallocations should now include the following information:<sup>18</sup>
    - The reason the department requires increased funding.
    - The reason the original budget did not anticipate the issue.
    - Impact to the department's decreased spending.
    - Duration of the issue threshold levels.
    - The threshold levels are outlined below:
      - 2021 - Actual spending and or forecasted year-end results that causes a year-end aggregate variance to budget at the Vice President level of the lesser of \$5.0 million or 5% of the annual budget.
      - 2022 - Actual spending and or forecasted year-end results that causes a year-end aggregate variance to budget at the Director level equal to or greater than 10% of the annual budget and greater than \$500K
      - 2023, 2024 and 2025 - Actual spending and or forecasted year-end results that causes a year-end aggregate variance to budget at the Director level equal to 5% of the annual budget, and greater than \$500K.
  - The budget reallocation documentation process has created enhanced accountability and oversight over the budgeting process.
  - Approved budgets compared to actual results for 2018 to 2023 are included in **Exhibit IV-4** below:

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<sup>16</sup> DR 161.

<sup>17</sup> DR 161.

<sup>18</sup> DR 161.



**Exhibit IV-4**  
**Approved O&M Budget vs Actual**  
**2018 – 2019**

(Amounts in thousands)	2018			2019		
	Approved	Actual	% Variance	Approved	Actual	% Variance
<b>Operating and Managed Expenses</b>						
PSEG LI Operating and Managed Expenses	648,259	684,115	5.53%	668,975	694,390	3.80%
PILOTs - Property-Based Taxes	289,280	287,262	7.37%	292,861	291,787	-0.37%
PILOTs - Revenue-Based Taxes	33,127	35,568	-0.70%	34,321	34,681	1.05%
LIPA Operating Expenses	77,012	75,203	-2.35%	83,619	71,294	-14.74%
<b>Total Operating and Managed Expenses</b>	<b>\$1,047,678</b>	<b>\$1,082,148</b>	<b>3.29%</b>	<b>\$1,079,776</b>	<b>\$1,092,152</b>	<b>1.15%</b>
<b>Debt Service</b>						
UDSA Debt Service	324,728	\$324,728	0.00%	\$327,140	\$327,140	0.00%
LIPA Debt Service	\$192,978	197,678	2.44%	216,803	225,569	4.04%
Coverage	194,340	233,570	20.19%	218,305	239,867	9.88%
<b>Total Debt Service</b>	<b>\$712,046</b>	<b>\$755,976</b>	<b>6.17%</b>	<b>\$762,248</b>	<b>\$792,576</b>	<b>3.98%</b>
<b>Power Supply Charge</b>						
Power Supply Charge	1,876,980	1,885,600	0.46%	1,793,456	1,799,907	0.36%
<b>Total Operating</b>	<b>\$3,636,704</b>	<b>\$3,723,724</b>	<b>2.39%</b>	<b>\$3,635,480</b>	<b>\$3,684,635</b>	<b>1.35%</b>

Source: LIPA [2018](#) & [2019](#) Budgets – Revenue Requirements Section

**2020 – 2021**

(Amounts in thousands)	2020			2021		
	Approved	Actual	% Variance	Approved	Actual	% Variance
<b>Operating and Managed Expenses</b>						
PSEG LI Operating and Managed Expenses	705,523	1,023,536 <sup>19</sup>	45.07%	743,661	794,025	6.77%
PILOTs - Property-Based Taxes	298,472	295,534	-0.98%	302,802	298,066	-1.56%
PILOTs - Revenue-Based Taxes	35,351	37,504	6.09%	36,694	38,745	5.59%
LIPA Operating Expenses	87,956	79,404	-9.72%	90,475	79,801	-11.80%
<b>Total Operating and Managed Expenses</b>	<b>\$1,127,302</b>	<b>\$1,435,978</b>	<b>27.38%</b>	<b>\$1,173,632</b>	<b>\$1,210,637</b>	<b>3.15%</b>
<b>Debt Service</b>						
UDSA Debt Service	319,030	319,029	0.00%	367,388	367,388	0.00%
LIPA Debt Service	265,763	255,145	-4.00%	238,280	231,631	-2.79%
Coverage	237,244	269,616	13.65%	217,910	263,782	21.05%
<b>Total Debt Service</b>	<b>\$822,037</b>	<b>\$843,790</b>	<b>2.65%</b>	<b>\$823,578</b>	<b>\$862,801</b>	<b>4.76%</b>
<b>Power Supply Charge</b>						
Power Supply Charge	1,845,571	1,813,110	-1.76%	1,776,149	2,023,238	13.91%
<b>Total Operating</b>	<b>\$3,794,910</b>	<b>\$4,092,878</b>	<b>7.85%</b>	<b>\$3,773,359</b>	<b>\$4,096,676</b>	<b>8.57%</b>

<sup>19</sup> As noted in the LIPA 2022 Approved and 2023 Projected Budgets - Storm Restoration cost for 2020 is the full amount of \$389.3 million and LIPA anticipates a FEMA grant for Tropical Storm Isaias of \$231.6 million

Source: LIPA [2020](#) & [2021](#) Budgets – Revenue Requirements Section

### 2022 – 2023

(Amounts in thousands)	2022			2023
	Approved	Projected	% Variance	Approved
<b>Operating and Managed Expenses</b>				
PSEG LI Operating and Managed Expenses	791,635	743,934	-6.03%	795,348
PILOTs - Property-Based Taxes	303,929	300,009	-1.29%	304,750
PILOTs - Revenue-Based Taxes	40,549	43,510	7.30%	40,756
LIPA Operating Expenses	91,874	86,835	-5.48%	104,163
<b>Total Operating and Managed Expenses</b>	<b>\$1,227,987</b>	<b>\$1,174,288</b>	<b>-4.37%</b>	<b>\$1,245,017</b>
<b>Debt Service</b>				
UDSA Debt Service	357,548	350,905	-1.86%	449,199
LIPA Debt Service	235,344	240,281	2.10%	218,245
Coverage	257,104	287,654	11.88%	249,221
<b>Total Debt Service</b>	<b>\$849,996</b>	<b>\$878,840</b>	<b>3.39%</b>	<b>\$916,665</b>
<b>Power Supply Charge</b>				
Power Supply Charge	1,879,216	2,312,061	23.03%	2,072,186
<b>Total Operating</b>	<b>\$3,957,199</b>	<b>\$4,365,189</b>	<b>10.31%</b>	<b>\$4,233,868</b>

Source: LIPA [2022](#) & [2023](#) Budgets – Revenue Requirements Section

- LIPA purchases electricity, natural gas, and fuel oil daily to meet customers’ needs. LIPA’s power supply expenses are paid by LIPA customers, at cost, through a Power Supply Charge. The Power Supply Charge is projected utilizing a generation economic dispatch model that considers, among other values, the availability and efficiency of generating resources, energy and fuel prices, and environmental regulatory requirements.<sup>20</sup> The 2022 approved Power Supply Charge budget was significantly different than the actual Power Supply Charge (23.03 percent). The Budget Briefing Book and Budget Reallocation processes were largely designed to better estimate and monitor controllable costs. The Power Supply Charge is primarily driven by market energy and commodity costs, which are largely out of LIPA’s control. When normalizing for the Power Supply Charge, the total approved budget versus actual difference in 2022 was only 0.63 percent.

**4. The capital budgeting and project prioritization process has substantial variability and requires continued improvement. This is due to imprecise estimating, overhead assessments, and significant risk and contingency included in the budgeting process.**

- Starting in 2021 LIPA pursued a process improvement project to improve the capital project and budget review approval process. The primary motivation for this project was to formally document existing practices as well as expand and strengthen the current capital project and budget review and approval process. This initiative was

<sup>20</sup> LIPA 2023 Budget – Power Supply Charge Section. <https://www.flipsnack.com/lipower/lipa-s-2023-proposed-budget/full-view.html>

intended to help enhance documentation and transparency supporting the capital project and budget review and approval process. The following documents supporting this process are provided on a monthly or recurring basis:<sup>21</sup>

- Documents Reviewed and Approved by the PSEG LI Utility Review Board (URB), comprised of PSEG LI employees, including:
  - Capital projects must obtain PSEG LI URB approval before any funding is expended.
  - URB documents are uploaded to a LIPA SharePoint site after each URB meeting.
  - Mid-year Line of Business (LOB) report-outs to the URB covering projects and status on scope, schedule, and cost.
- Capital Budget Plan vs. Actual Variance Explanations at the budget category level.
- Projected Year-End (PYE) Forecasts by Project.
- Project description for any new project that receives charges (in support of Bond Report used by LIPA to evaluate tax-exempt financing qualified property)
- Furthermore, the Transmission and Distribution business units, which constitutes approximately 85 percent of the total PSEG LI Capital Budget, provides the following additional support:
  - Detailed PYE variance explanations by project.
  - Responses to any LIPA question regarding submitted PYE variance explanations.
  - Project Justification Descriptions (PJD) for any new emerging projects.
- PSEG LI finance, in collaboration with LIPA, works with the various PSEG LI business units to develop the next year's budget cycle capital budget.<sup>22</sup>
- For T&D, the Investment Delivery Assurance (IDA) group works with the various areas of T&D during the May-September timeframe to identify all the investments that are necessary to maintain and strengthen the grid system. For non-T&D business units, assigned point persons work with the respective Managers to review their project needs for the future years and complete the necessary templates detailing the resulting capital projects.<sup>23</sup>
- After a preliminary portfolio review process, a final proposed portfolio is reviewed by line of business management and again obtains VP level approval prior to the final submittal to Finance. Finance reviews the final consolidated capital portfolio for reasonableness and refinement, and submits a final capital budget portfolio to LIPA in August/September timeframe, together with finalized PJDs.<sup>24</sup>

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<sup>21</sup> DR 22.

<sup>22</sup> DR 160.

<sup>23</sup> DR 160.

<sup>24</sup> DR 160.

- LIPA submits the proposed budget to its Board of Trustees in December of each year for final approval. Once approved, it is entered into SAP.<sup>25</sup>
- Approved budgets compared to actual results for 2018 to 2023 are included in **Exhibit IV-5** below:

**Exhibit IV-5**  
**Approved Capital Budget vs Actual**  
**2018 – 2019**

(Amounts in thousands)	2018			2019		
	Approved	Actual	% Variance	Approved	Actual	% Variance
<b>Transmission and Distribution</b>						
Regulatory Driven	8,130	7,421	-8.72%	25,489	29,739	16.67%
Load Growth	188,668	131,330	-30.39%	262,030	174,527	-33.39%
Reliability	191,845	184,418	-3.87%	190,518	190,232	-0.15%
Economic, Salvage, Tools, Equipment & Other	34,569	33,358	-3.50%	48,866	52,184	6.79%
<b>Total T&amp;D Projects</b>	<b>\$423,212</b>	<b>\$356,527</b>	<b>-15.76%</b>	<b>\$526,903</b>	<b>\$446,682</b>	<b>-15.23%</b>
<b>Other PSEG LI Capital Expenditures</b>						
Information Technology	36,728	40,439	10.10%	35,236	34,569	-1.89%
Customer Operations	11,394	29,299	157.14%	11,394	17,709	55.42%
Other General Plant	9,196	2,811	-69.43%	8,944	4,639	-48.13%
Fleet	8,526	10,098	18.44%	5,495	6,413	16.71%
Utility 2.0	12,975	-	-100.00%	65,085	59,548	-8.51%
Budget Amendment to Carry Over Projects	(56,120)	-	-100.00%	(52,307)		-100.00%
<b>Total PSEG LI Excluding FEMA</b>	<b>\$22,699</b>	<b>\$82,647</b>	<b>264.10%</b>	<b>\$73,847</b>	<b>\$122,878</b>	<b>66.40%</b>
<b>FEMA</b>						
FEMA Storm Hardening	190,273	151,384	-20.44%	153,609	116,363	-24.25%
Storm Capitalization	-	-	N/A	3,501	4,109	17.37%
<b>Total PSEG LI Capital</b>	<b>\$190,273</b>	<b>\$151,384</b>	<b>-20.44%</b>	<b>\$157,110</b>	<b>\$120,472</b>	<b>-23.32%</b>
<b>Other</b>						
Nine Mile Point 2	15,858	17,956	13.23%	19,461	23,254	19.49%
LIPA - Other	7,547	344	-95.44%	5,700	1,482	-74.00%
Allowance for Funds Used During Construction	7,874	5,874	-25.40%	-	-	N/A
Capitalized Management Fee	30,632	25,806	-15.75%	28,926	31,549	9.07%
<b>Total Capital Expenditures</b>	<b>\$698,095</b>	<b>\$640,538</b>	<b>-8.24%</b>	<b>\$811,947</b>	<b>\$746,317</b>	<b>-8.08%</b>

Source: LIPA [2018](#) & [2019](#) Budgets – Capital Expenditures Section

<sup>25</sup> DR 160.

**2020 – 2021**

(Amounts in thousands)	2020			2021		
	Approved	Actual	% Variance	Approved	Actual	% Variance
<b>Transmission and Distribution</b>						
Regulatory Driven	101,435	56,408	-44.39%	6,000	0	-100%
Load Growth	225,520	215,648	-4.38%	214,349	180,545	-15.77%
Reliability	163,186	170,361	4.40%	196,212	208,837	6.43%
Storm Hardening	37,000	54,097	46.21%	50,817	63,559	25.07%
Economic, Salvage, Tools, Equipment & Other	39,464	50,692	28.45%	54,973	37,738	-31.35%
<b>Total T&amp;D Projects</b>	<b>\$566,605</b>	<b>\$547,206</b>	<b>-3.42%</b>	<b>\$522,351</b>	<b>\$490,679</b>	<b>-6.06%</b>
<b>Other PSEG LI Capital Expenditures</b>						
Information Technology	42,883	31,353	-26.89%	49,647	\$58,246	17.32%
Customer Operations	22,181	25,225	13.72%	17,282	\$12,690	-26.57%
Other General Plant	13,027	3,792	-70.89%	11,517	\$4,159	-63.89%
Fleet	8,875	8,708	-1.88%	9,719	\$612	-93.70%
Utility 2.0	76,537	70,674	-7.66%	95,739	\$64,515	-32.61%
Budget Amendment to Carry Over Projects	(27,668)	-	-100.00%	(\$22,907)	-	-100.00%
<b>Total PSEG LI Excluding FEMA</b>	<b>\$135,835</b>	<b>\$139,752</b>	<b>2.88%</b>	<b>\$160,997</b>	<b>\$140,222</b>	<b>-12.90%</b>
<b>FEMA</b>						
FEMA Storm Hardening	58,665	44,842	-23.56%	43,597	39,845	-8.61%
Storm Capitalization	5,934	21,503	262.37%	4,468	1,948	-56.40%
<b>Total PSEG LI Capital</b>	<b>\$64,599</b>	<b>\$66,345</b>	<b>2.70%</b>	<b>\$48,065</b>	<b>\$41,793</b>	<b>-13.05%</b>
<b>Other</b>						
Nine Mile Point 2	15,760	14,066	-10.75%	6,910	4,992	-27.76%
Property Acquisition and Development	-	-	N/A	12,000	-	-100.00%
LIPA - Other	6,650	2,751	-58.63%	6,500	1,898	-70.80%
Capital OPEB Adjustment	(17,715)	(17,715)	0.00%	(19,711)	-	-100.00%
Capitalized Management Fee	30,290	30,055	-0.78%	31,007	33,506	8.06%
<b>Total Capital Expenditures</b>	<b>\$802,024</b>	<b>\$782,460</b>	<b>-2.44%</b>	<b>\$768,119</b>	<b>\$713,090</b>	<b>-7.16%</b>

Source: LIPA [2020](#) & [2021](#) Budgets – Capital Expenditures Section

2022 – 2023

(Amounts in thousands)	2022			2023
	Approved	Projected	% Variance	Approved
<b>Transmission and Distribution</b>				
Load Growth	178,268	145,694	-18.27%	173,016
Reliability	252,069	275,367	9.24%	302,598
Storm Hardening	70,000	71,949	2.78%	83,000
Economic, Salvage, Tools, Equipment & Other	60,229	55,432	-7.96%	70,356
<b>Total T&amp;D Projects</b>	<b>\$560,566</b>	<b>\$548,442</b>	<b>-2.16%</b>	<b>\$628,970</b>
<b>Other PSEG LI Capital Expenditures</b>				
Information Technology	81,701	53,841	-34.10%	91,334
Customer Operations	10,683	8,851	-17.15%	10,336
Other General Plant	3,072	2,336	-23.96%	28,505
Fleet	15,974	9,475	-40.68%	23,556
Utility 2.0	40,013	27,441	-31.42%	17,838
Budget Amendments for Emergent Projects	38,792	-	-100.00%	-
Budget Amendment to Carry Over Projects	(75,535)	-	-100.00%	-
Pending Project Authorization	(4,900)	-	-100.00%	(42,843)
<b>Total PSEG LI Excluding FEMA</b>	<b>\$109,800</b>	<b>\$101,944</b>	<b>-7.15%</b>	<b>\$128,726</b>
<b>FEMA</b>				
FEMA Storm Hardening	2,690	6,038	124.46%	-
FEMA Pre-Grant Engineering	-	1,826	N/A	7,620
Storm Capitalization	4,755	1,986	-58.23%	3,479
<b>Total PSEG LI Capital</b>	<b>\$7,445</b>	<b>\$9,850</b>	<b>32.30%</b>	<b>\$11,099</b>
<b>Other</b>				
Nine Mile Point 2	27,267	28,153	3.25%	5,960
Property Acquisition and Development	11,000	-	-100.00%	5,000
LIPA - Other	11,850	6,500	-45.15%	9,900
Pending Project Authorization	4,900	-	-100.00%	42,842
Capital OPEB Adjustment	(15,290)	(15,290)	0.00%	-
Capitalized Management Fee	28,496	31,607	10.92%	29,529
<b>Total Capital Expenditures</b>	<b>\$746,034</b>	<b>\$711,206</b>	<b>-4.67%</b>	<b>\$862,026</b>

Source: LIPA [2022](#) & [2023](#) Budgets – Capital Expenditures Section

- As shown in the above tables, there are significant differences between the overall capital budget and the actuals for each of the last five years. Furthermore, regarding project prioritization, there is even greater variation by category and project from budgeted amounts to actuals. Process improvement projects to improve the capital project and budget review approval process have not been fully realized and may be ineffective.

**5. Overhead assessments lack clarity. The budgeting process lacks the ability to demonstrate that overhead assessments are properly allocated based on valid cost causation principles. This impacts customer rates and debt balances.**

- Delivering electric service to customers generally requires a utility to have support operations that provide assistance to multiple departments, projects, and activities. These types of support operations are generally defined as “indirect” costs. LIPA and PSEG LI utilize “assessments” to assign indirect costs to activities across the business which those indirect costs support. LIPA and PSEG LI estimate the total indirect costs to be allocated and the total direct costs. Through this process they establish rates which are set in SAP to allocate indirect costs based on direct cost activities throughout the year. As a general principal of utility accounting, these indirect costs should be allocated to activities based on cost-causation principles. Cost causation means that costs should be borne by those activities which cause the utility to incur the expense.
- NorthStar review of the assessment process noted the following:
  - PSEG LI does not seem to have a sufficient understanding of costs contained in the assessment cost pool. NorthStar requested cost element detail for the assessment cost pools to understand what costs are included in the overhead assessment charges.<sup>26</sup>
  - The method used to report on assessment costs makes oversight difficult. Assessments are reported to LIPA at a VP (or business unit) level.<sup>27</sup> NorthStar was told there is no easy way for PSEG LI to identify and summarize assessment costs by on the nature of the costs (rent, outside services, etc.). It is unclear how LIPA can oversee the assessment process and costs without insight into the underlying costs that make up the assessment pools.
- As a result, PSEG LI allocate substantially more to capital activities than O&M activities despite the direct spending between capital and O&M being roughly equal over recent years. PSEG LI was not able to adequately explain why capital activities would draw substantially more overhead assessments than similar O&M activities. As demonstrated in **Exhibit IV-6**, in 2022 O&M and Capital spending was roughly comparable however capital activities drew substantial more of the overhead assessment costs compared to O&M activities.

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<sup>26</sup> DR 742.

<sup>27</sup> DR 1039.



**Exhibit IV-6  
Overhead Assessments**

<b>LIPA 2022 Annual Report (Amounts in thousands)</b>	<b>2022 Spend</b>	<b>Relative % of Spend</b>	<b>2022 Assessments</b>	<b>2022 % Assessment</b>
Operations and Maintenance	719,626	51%	51,720	30%
Capital Expenditures	679,500	49%	120,147	70%

Source: 2022 Spend from 2022 Annual Report; 2022 Assessments from DR 1039.

Note: the 2022 Spend amounts are intended to demonstrate the proportional spend of Capital and O&M, these amounts do not represent the precise base used in allocation calculations.

- Capital project estimating cannot be effective as a result of the assessment process.
- The assessment process results in substantial costs added to capital projects with little insight as to the nature of those costs, and how these indirect assessments support the capital projects. Furthermore, this capitalization impacts rates and debt.

**6. LIPA capitalizes a portion of the PSEG LI management fee, and has increased significantly over time.**

- The management fee allocation is based on the actual distribution of total company labor between operating and capital related activities. The data used in the calculation of the Capitalized Management fee include<sup>28</sup>:
  - The approved budget for management fee expense.
  - Final management fee expense.
  - The company labor allocation report prepared by Regulatory Requirement. This report is on a one-month lag.
- Effective in 2018, a new methodology based on the PSEG LI company labor allocation was adopted for determination of the Capitalized Management Fee (as described above). LIPA stated the new method more accurately allocates this cost because it will be based on the actual distribution of PSEG LI total company labor between operating and capital related activities.<sup>29</sup>
- Since the change in methodology the percentage of LIPA’s management fee capitalized has increased from 13 percent in 2017 to 45 percent in 2021 as shown in **Exhibit IV-7**:

<sup>28</sup> DR 1038

<sup>29</sup> LIPA 2018 Budget. [https://www.lipower.org/wp-content/uploads/2018/01/LIPA\\_2018Budget-1-18-web-approved.pdf](https://www.lipower.org/wp-content/uploads/2018/01/LIPA_2018Budget-1-18-web-approved.pdf)

**Exhibit IV-7  
Capitalized Management Fee**

LIPA 2022 Annual Report (Amounts in thousands)	2017	2018	2019	2020	2021	2022 Projected	2023 Budgeted
Management Fee	72,565	74,102	75,276	76,920	74,890	73,750	76,850
Capitalized Management Fee	9,748	25,806	31,549	30,055	33,506	31,607	29,529
% of Management Fee Capitalized	13%	35%	42%	39%	45%	43%	38%

Source: LIPA [2018](#), [2019](#), [2020](#), [2021](#), [2022](#) & [2023](#) Budgets – Operating Expenses Section

**7. The Hyperion budgeting system, if implemented correctly, will reduce manual processes and improve detail and accuracy.**

- As noted in the background section (above) the implementation of Hyperion had milestones through 2023. Hyperion is used to support the budgeting process which takes place over the entire calendar year. As such, NorthStar is not able to fully evaluate the success of the implementation or the ongoing effectiveness of the system as it was not in place for a full budgeting cycle during this management audit. Therefore, NorthStar’s conclusion is based on planning material reviewed.<sup>30</sup> This conclusion is not based on an evaluation of the operational effectiveness of the system.

**8. Microsoft Dynamics is a significant improvement over the prior accounting system.**

- The implementation of Microsoft Dynamics has provided several improvements, including:<sup>31</sup>
  - Invoice automation – the ability to capture, store, attach, and validate invoice data accurately without any manual intervention.
  - PO-Docusign Automation – the ability to electronically sign PO PDF documents without downloading, printing, scanning, and sending to the approver.
  - Employee automation – the ability to analyze incoming employee information via email request and create employee records in the human resource module.
  - Enhanced accounting and accounts payable processes – the ability to use templates for uploads, automated depreciation calculations, etc.
  - Automated workflow approved for procurement, accounting payable and general accounting.
  - Automated workflow approvals related to business travel and employee development courses.
  - Automated approvals for employee business expense reimbursement.
  - Improved financial reporting with drilldown capabilities to the general journal.

<sup>30</sup> DRs 521, 523, 524.

<sup>31</sup> DR 525.

## D. RECOMMENDATIONS

1. Implement standards and methods to reduce the large variances between budget and actuals for capital projects resulting from: imprecise estimating, overhead assessments without clear cost causation, and significant risk and contingency included in the budgeting process. Include the following enhancements to capital budgeting:
  - Apply the same standards and methods (or comparable standards and methods) used in the budget briefing book process to capital budgeting.
  - Use the Hyperion structure and functionality to improve the capital budgeting process.
2. Implement processes to measure, analyze, and correct overhead assessments based on valid costs causation principles and clearly demonstrate LIPA/PSEG LI review of how costs were allocated appropriately, including:
  - Request periodic or annual listing of work orders. Obtain and review costing sheets for a selection of those work orders and analyze whether the overhead assessments assigned to the work orders are appropriate.
  - Develop summary overhead reporting with underlying overhead charges and allocation rates.
  - Perform analytics to understand large fluctuations in assessment rates or amounts.

## V. DEBT MANAGEMENT

Utilities are capital-intensive entities that require significant investment in plant and equipment to maintain efficient and reliable service for customers. LIPA's 2022 Audited Financial Statements show that LIPA's utility plant totals \$10.5 billion and long-term debt at December 31, 2022 was \$9.2 billion including Utility Debt Securitization Authority (UDSA) debt of \$3.9 billion.

### A. BACKGROUND

LIPA is responsible for managing the debt issuance process and providing capital for the funding of the utility capital program. Numerous parties are involved in the overall process and the Authority has Debt Management Policies and Procedures that serve as a guide for debt issuance.

LIPA personnel with responsibilities for debt management include:

- Chief Financial Officer (CFO) – The CFO is responsible for funding the capital needs of the Authority. LIPA's annual budget includes amounts required to be funded by either short- or long-term financing. Working in concert with other authority personnel, including most closely with the Director of Finance and Treasury, along with LIPAs outside financial advisor, the CFO evaluates various options for the Authority and develops a financing approach that provides the most efficient and cost-effective method consistent with prudent risk management. This is then shared with the Chief Executive Officer (CEO).<sup>1</sup> After CEO concurrence, the financing plan is presented to the Finance and Audit Committee of the Board of Trustees, and with their consent, to the full Board of Trustees.<sup>2</sup>
- Director of Finance and Treasury – The Director of Finance and Treasury is responsible for evaluating the financing plan within the existing capital structure. Working with the Authority's financial advisor, the Director tests different approaches and shows the CFO what the impact on LIPA's capital structure and what the potential debt service costs will be, and how that fits into the Authority's budget. For budget planning, the Director of Finance and Treasury works with the Budget Director and VP controller. In addition, once the financing plan is adopted, the director works with the CFO and the financing team to assemble the information that will be required either for a public offering, a short-term financing, or a draw on the Authority's revolving line of credit. The Director of Finance and Treasury also works with the CFO in assembling information for the rating agencies and investors, as well as participating in all working group meetings with the underwriters and financial advisors.<sup>3</sup>

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<sup>1</sup> The CFO and CEO role was held by the same individual for the majority of the period NorthStar was engaged for this audit.

<sup>2</sup> DR 113

<sup>3</sup> DR 113

- General Counsel or Designee – Internally, the finance department has certain documents reviewed by the General Counsel of the Authority to ensure compliance with statute, Board policy and guidelines, as well as certain State required approvals. The Authority also utilizes outside Bond Counsel.<sup>4</sup>
- Manager of Treasury Operations – The Manager of Treasury Operations manages bank accounts where funds from bond sales are placed to fund construction of capital projects, pay the costs of issuance and fund any other required expenditures.<sup>5</sup>
- Chief Executive Officer - Financing plans are reviewed by the CEO.<sup>6</sup> The CFO presents the plan to the CEO and upon his approval it goes to the F&A Committee first, and then the full Board.<sup>7</sup>
- Board of Trustees – The Board is required to approve any action item related to the Authority. Typically, debt or other finance related matters are approved by the Finance & Audit (F&A) Committee and then signed off by the full Board.<sup>8</sup>

LIPA’s outside advisors and consultants provide support to its debt management process:

- Public Authorities Control Board (PACB) - The PACB comprises representatives of the Governor’s Office and both houses of the State Legislature, the Assembly and the Senate. The State’s Budget Division serves as the staff of the PACB. It is the mission of the PACB to make sure that debt issued by LIPA is reasonable and does not result in excessive debt. Each LIPA transaction must be approved by PACB before LIPA proceeds with the issuance.<sup>9</sup>
- Office of the State Comptroller (OSC) - Debt issuance by LIPA requires the approval of the Office of Debt Management. The OSC office is responsible for making sure that the Authority can demonstrate that they achieved the most cost-effective pricing available in the market on the day of the financing. They also examine all the relevant fees to determine reasonableness and consistency in the marketplace in New York State.<sup>10</sup>
- Underwriters - The senior manager chosen to provide the underwriting services on a particular transaction will work with LIPA to structure the transaction, assist in the rating agency presentations, develop a marketing plan, work with the Authority to draft and develop an investor presentation and ultimately price the bonds or notes and place them with investors. After the transaction is priced, they will also provide all of the

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<sup>4</sup> DR 113

<sup>5</sup> DR 113

<sup>6</sup> The CFO and CEO role was held by the same individual for the entire period NorthStar was engaged for this audit.

<sup>7</sup> DR 113

<sup>8</sup> DR 113

<sup>9</sup> DR 113

<sup>10</sup> DR 113

required cash flow analysis for all of the necessary approvals from the OSC and counsel.<sup>11</sup>

- Financial Advisor - PFM Financial Advisors LLC is LIPA's Financial Advisor and is responsible for evaluating various financing plans presented by the various investment banks. LIPA also works with Mohanty Gargiulio, its swap advisor, to provide insight on the valuation of the Authority's swaps and to monitor the swaps for market opportunities that may reduce the Authority's potential risk.<sup>12</sup>
- Bond Counsel - As outlined in the Debt Management Plan, bond counsel is responsible for making sure the Authority is compliant with LIPA's bond resolutions, the Board authorization and the various State requirements for debt issuance.<sup>13</sup>
- Disclosure Counsel - LIPA has a disclosure counsel who ensures LIPA's continued compliance with the respective Authority changes and Board authorizations for those changes, and makes the required disclosures related to any offering of the Authority. Disclosures are required by regulatory entities such as the SEC and the Municipal Securities Rulemaking Board.<sup>14</sup>
- Rating Agencies - LIPA and the underwriting team provide relevant data to the rating agencies to secure a rating for the prospective bond offering. Rating agencies also provide ongoing credit surveillance of the Authority's financial condition and performance, as well as its compliance with various covenants and other financial metrics.<sup>15</sup>

### **LIPA's Financial Policy**

In 2015, the LIPA Board of Trustees requested that PFM Financial Advisors (PFM) provide a report containing financial policy recommendations that would reduce LIPA's debt over time to prudent industry levels, ensure consistent access to the capital markets on reasonable terms, and lower the long-term cost of electricity for LIPA's customers. The 2015 Report's recommendations were adopted by the LIPA Board of Trustees.

The LIPA Board of Trustees required that PFM undertake a review of the Policy in 2020. PFM prepared a Financial Policy Report for the Board dated November 18, 2020.<sup>16</sup> In this report PFM found that as a result of the Board's 2015 Policy, LIPA has received four credit rating upgrades since 2013 and achieved the stated Policy goal of mid-A ratings in 2019. The rating agencies cited the following key factors for such upgrades:

- Improved Coverage Ratios
- De-Leveraged Debt-to-Asset Ratio

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<sup>11</sup> DR 113

<sup>12</sup> DR 113

<sup>13</sup> DR 113

<sup>14</sup> DR 113

<sup>15</sup> DR 113

<sup>16</sup> Financial Policy Report for the Board, Prepared by PFM Financial Advisors, November 18, 2020  
<https://www.lipower.org/wp-content/uploads/2021/03/2020-Financial-Policy-Report.pdf>

- Adequate Liquidity
- Robust Cost Recovery Mechanisms

PFM recommended that LIPA continue its present course with a few Policy modifications. These recommended policy modifications are included in the LIPA Fiscal Sustainability Policy adopted by the LIPA Board on September 28, 2022.<sup>17</sup> This fiscal sustainability Policy includes, among other items:

- Reducing LIPA’s debt-to-asset ratio to 70 percent or less by 2030
- Decreasing LIPA’s leverage resulting in a decrease of the costs of capital by achieving high credit ratings and costs of capital
- Maximizing grants and low-cost funding sources
- Minimizing costs through securitization of debt and tax-exempt financing
- Pre-funding long-term liabilities on an actuarially sound basis including: (1) pension costs, (2) Other Post-Employment Benefits (OPEBs); and (3) the Nuclear Decommissioning Trust Fund
- Maintaining fixed-obligation coverage ratios of no less than 1.4x on LIPA-issued debt and lease payments; and 1.2x on the combination of LIPA-issued debt, UDSA-issued debt, and lease payments
- Minimizing LIPA’s need for coverage while maintaining fiscal sustainability by budgeting reasonable amounts and using reconciliation mechanisms for hard-to-predict costs categories (e.g., storms)

## **Utility Debt Securitization Authority (UDSA)**

The UDSA was created by Part B of Chapter 173, Laws of New York, 2013 (as amended by Chapter 58 of the Laws of New York, 2015, and then by Chapter 369 of the Laws of New York, 2021, the “Securitization Law”), allowing for the retirement of certain outstanding indebtedness of the Long Island Power Authority (LIPA) through the issuance of securitized restructuring bonds (Restructuring Bonds) by the UDSA.

The Securitization Law permitted LIPA's Board of Trustees (Board) to adopt financing orders pursuant to which the UDSA issued Restructuring Bonds in an amount not to exceed \$4.5 billion. LIPA’s Board adopted Financing Order No. 1 on October 3, 2013, Financing Orders No. 2, No. 3, and No. 4 on June 26, 2015, and Financing Order No. 5 on September 29, 2017, each authorizing the UDSA to issue Restructuring Bonds. Each financing order authorized Restructuring Bonds secured by a separate restructuring charge created pursuant to that financing.

On August 2, 2021, changes to the Securitization Law were authorized to permit the issuance of additional securitized bonds for refinancing LIPA and UDSA bonds, and to fund LIPA transmission and distribution system resiliency investments. Funding from UDSA bonds provides a lower cost to customers than issuing LIPA bonds for the same purpose. With these

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<sup>17</sup> DR 116



legislative changes the UDSA may issue an initial par amount of up to \$8.0 billion of securitized bonds (inclusive of the bonds already issued).

On May 18, 2022, LIPA’s Board adopted additional Financing Orders No. 6, No. 7, No. 8, and No. 9. On August 2, 2022, the UDSA’s Board of Trustees approved the issuance of Series 2022 bonds in an amount not to exceed \$1.3 billion pursuant to Financing Order No. 6. On September 29, 2022, UDSA issued \$54 million Series 2022 Taxable Restructuring Bonds, \$787 million Series 2022 Tax-Exempt Restructuring Bonds, and \$95 million Series 2022 Tax-Exempt Green Bonds. The proceeds of these Restructuring Bonds, plus \$91 million of premium received, refunded \$852 million of LIPA and UDSA debt and funded \$100 million of LIPA resiliency investments. UDSA refinancings have saved LIPA customers \$534 million of net present value debt savings since 2013.<sup>18</sup>

On March 28, 2023, the UDSA’s Board of Trustees approved the issuance of Series 2023 bonds in an amount not to exceed \$2 billion pursuant to Financing Order No. 7. UDSA priced \$833 million Series 2023 Restructuring Bonds on November 8, 2023. Series 2023 Bonds will refund the remaining 2013 UDSA Restructuring Bonds as of December 15, 2023, producing an additional \$45 million in net present value savings.<sup>19</sup>

A schedule of LIPA and UDSA outstanding debt as of December 31, 2022 is provided in **Exhibit V-1**.

**Exhibit V-1  
LIPA Outstanding Debt**

(Amounts in thousands)	Beginning balance	Accretion/ additions	Maturities	Repaid/ Refunding	Ending Balance
<b>LIPA Debt</b>					
<b>General revenue bonds/notes:</b>					
Series1998A	\$74,388	\$3,770	\$12,970	\$12,199	\$52,989
Series2000A	243,916	13,141	36,390	19,145	201,522
Series2003C	36,645	-	-	-	36,645
Series2010B	162,605	-	-	-	162,605
Series2012A	40,995	-	-	40,995	-
Series2012B	175,750	-	11,880	163,870	-
Series2014A	413,070	-	-	-	413,070
Series2014B	67,155	-	-	-	67,155
Series2014C FRN	150,000	-	-	108,760	41,240
Series2015B	107,855	-	-	2,635	105,220
Series2015C FRN	149,000	-	-	-	149,000

<sup>18</sup> Utility Debt Securitization Authority Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021

<https://www.lipower.org/wp-content/uploads/2023/03/UDSA-YE-FS-2022-PARIS-filing.pdf>

<sup>19</sup> LIPA September 30, 2023 Quarterly Statement

<https://www.lipower.org/wp-content/uploads/2024/01/LIPA-Q3-2023-unaudited-financial-statements-Q3.pdf>

(Amounts in thousands)	Beginning balance	Accretion/ additions	Maturities	Repaid/ Refunding	Ending Balance
Series2016B	362,740	-	5,640	-	357,100
Series2017	336,880	-	-	7,060	329,820
Series2018	428,000	-	-	2,900	425,100
Series2019A	210,675	-	-	2,500	208,175
Series2019B	284,250	-	-	-	284,250
Series2020A	235,475	-	-	2,500	232,975
Series2020B	250,000	-	-	-	250,000
Series2020C	91,615	-	-	-	91,615
Series2021	250,000	-	-	-	250,000
Series2021A	355,755	-	2,855	2,910	349,990
Series2021B	175,000	-	-	-	175,000
Series2021C	194,390	-	-	-	194,390
Series2022A	-	130,360	-	-	130,360
Series2022B	-	100,000	-	-	100,000
Series2022C	-	150,000	-	-	150,000
<b>Subtotal</b>	<b>\$4,796,159</b>	<b>\$397,271</b>	<b>\$69,735</b>	<b>\$365,474</b>	<b>\$4,758,221</b>
<b>Direct placement notes:</b>					
Series2015A1 FRN	51,000	-	-	-	51,000
Series2015A2 FRN	149,000	-	-	-	149,000
<b>Subtotal</b>	<b>\$200,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>\$200,000</b>
<b>USDA restructuring bonds:</b>					
Series2013T	114,641	-	41,981	-	72,660
Series2013TE	1,374,390	-	-	659,290	715,100
Series2015	989,095	-	21,385	-	967,710
Series2016A	636,770	-	-	-	636,770
Series2016B	244,675	-	90,980	-	153,695
Series2017	343,785	-	23,165	-	320,620
Series2022T	-	53,585	-	-	53,585
Series2022TE-1	-	787,290	-	-	787,290
Series2022TE-2	-	94,780	-	-	94,780
<b>Subtotal</b>	<b>\$3,703,356</b>	<b>\$935,655</b>	<b>\$177,511</b>	<b>\$659,290</b>	<b>\$3,802,210</b>
<b>Total</b>					
<b>Subtotal - All Bonds</b>	<b>\$8,699,515</b>	<b>\$1,332,926</b>	<b>\$247,246</b>	<b>\$1,024,764</b>	<b>\$8,760,431</b>
Plus: Net premium	688,546	122,356	75,518	36,890	698,494
<b>Total Long-Term Debt</b>	<b>\$9,388,061</b>				<b>\$9,458,925</b>

Source: [LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021](#)

## B. WORK TASKS

### Application of Industry Standards to Manage Debt

- Review LIPA’s resource plan, budgets, cash flow projections and associated financing strategy.
- Review five-year projections of funding requirements, and LIPA’s consideration of various sources of available funding.
- Review minutes of applicable Finance and Audit Committee and Board of Trustees meetings.
- Review and evaluate the Authority’s debt management plans and consideration of alternative debt management scenarios, including:
  - Debt retirement plans
  - Evaluations of alternative debt management scenarios
  - Refinancing, refunding/restructuring analyses
- Review benchmarking studies used by LIPA to evaluate the costs of debt and revenue requirements.
- Review the process for selecting a Financial Advisor.
- Evaluate the selection process for underwriters.
  - Review RFP used to select the current pool of underwriters (Senior Managers, Co-Managers and Selling Group).
  - Assess the roles and responsibilities of the Board of Trustees, the Finance Committee, the CFO, LIPA’s Financial Advisor and other individuals/entities in the underwriter selection process.
  - Review list of underwriters to which the solicitation was sent.
  - Review selection/evaluation criteria and scoring.
  - Evaluate the process and criteria by which the CFO selects the Senior Lead Underwriter (book running manager) for each individual transaction.
- Assess the extent to which the debt management plan has been incorporated in the overall strategic plan and the annual capital and O&M budget.
- Assess whether the debt management plan is reasonable in light of the near- and long-term capital needs established by the system plan and impact on ratepayers.
- Review LIPA’s process for monitoring the debt market, its outstanding debt portfolio, interest rates and other financial factors relative to the LIPA’s management of its debt costs.
- Determine whether LIPA monitors changes and has appropriately evaluated alternative debt management scenarios given changes in operations, priorities, market conditions and the availability of new financial products.

## Receipt of Necessary Approval for Debt Management

- Review applicable requirements of the Long Island Power Authority Act and the Public Authorities Law, and the Office of State Comptroller’s “Debt Issuance Approval Policy Statement and Guidelines.”
- Review debt issuance proposals and analyses developed by LIPA including consideration of alternative structures and pricing.
- Evaluate information provided to the Finance and Audit Committee of the Board of Trustees by LIPA staff and financial advisors.
- Evaluate the effectiveness of the Authority’s follow up actions in response to meetings with credit rating agencies and to credit rating agencies’ reports relative to its debt management practices.
- Review and assess the completeness of information provided to the Board of Trustees requesting authorization of recent debt issuances, including, for example:
  - Debt issuance proposals.
  - Documentation from the Finance and Audit Committee’s review of and recommendations for the Authority’s debt issuance proposals.
  - Minutes or webcast of Board of Trustees meetings authorizing recent bond issuances.
  - Applicable resolutions.
- Review information provided to the Public Authorities Control Board (PCAB), the Office of State Comptroller and other applicable regulatory agencies seeking approval for recent bond issuances, and LIPA response to associated comments.
  - Memo to the PCAB summarizing the requested authorization.
  - Use of the proceeds, structure, and other details of the proposed issuance.
  - Draft PCAB resolution.
  - Resolution adopted by the Board of Trustees authorizing the proposed debt issuance.
  - Any revisions to proposed debt offering.
- Review ongoing compliance documentation (e.g., continuing disclosure certificates, IRS regulations).

## Audit of Debt Management Practices

- Evaluate the debt management audit process.
  - Review and evaluate the Authority’s policy for the internal audit of its debt management.
  - Review the current audit plan.
  - Evaluate the scope and timing of internal and external audits.
  - Review and evaluate LIPA’s documentation of debt management internal audits.
  - Review results of any internal or external audits of LIPA’s debt management policies and activities and the associated management response.

- Assess actions taken by LIPA in response to audit findings and recommendations.
- Evaluate LIPA’s documentation of follow up actions in response to its internal audit organization reviews.
- Review recent agency credit rating reports and reasons for any changes in LIPA’s credit ratings.
- Evaluate the effectiveness of LIPA’s communication with debt rating agencies and management of its relationship and credit rating.
  - Organizational roles and responsibilities.
  - Communications plan and content.
  - Participation in credit rating agency meetings/calls.
  - Review of draft rating agency reports.
  - Process for review of information to be provided to the rating agencies.
  - Processes for timely and appropriate agency response.
- Assess LIPA’s response to rating agency feedback.

**Effectiveness of the Authority’s Debt Management Strategies Relative to Meeting the Authority’s Debt Obligations**

- Review and assess LIPA’s Debt Management Policy and strategy and adherence to said policy.
- Review and evaluate LIPA’s applicable risk management policies and procedures, including its policy regarding the use of debt derivative products (including interest rate swaps).
- Evaluate the Authority’s policy concerning its interest rate swap policies and procedures.
- Evaluate the LIPA’s response to feedback from credit rating agencies.
- Review documentation from LIPA’s meetings with and from audits/studies conducted by its regulatory bodies regarding debt management and/or proposed debt offerings.
- Review other applicable regulatory agency analyses.
- Determine the extent of LIPA’s response to agency concerns or recommendations.

**Treasury Operations and Fixed Obligation Coverage Ratio**

- Review LIPA’s treasury management policies and any changes to the policies over time, including arrangements made with UDSA.
- Determine whether cash reserve thresholds are reasonable to achieve its fixed obligation coverage ratio targets.
  - Review the process by which LIPA sets cash reserve levels, include accounts dedicated to PSEG LI’s working capital needs.
  - Review current and projected operating, capital and special reserve requirements.
  - Evaluate assumptions used in establishing targets/reserve requirements.
  - Assess appropriateness of LIPA’s consideration of potential risks and variability of expenses/revenues.
  - Assess justification for current cash reserve targets.

- Review any benchmarking performed by LIPA to determine how its treasury management policies compare to its peers.
- Review LIPA analyses regarding the effect of its treasury operations on revenue requirements, rates, bond ratings and bond issuances.
- Assess LIPA’s processes for reviewing, managing and adjusting cash reserves.
- Determine how treasury management policies are factored into LIPA’s financial plans and revenue requirements.

### **Compliance and Management of Debt Covenant Requirements**

- Obtain details of bond issuances and covenants.
- Assess organizational accountability and assignment of responsibilities.
- Review existing policies, procedures, processes and controls for ensuring compliance with debt covenants and assess their adequacy.
  - Funds acquired are being used as approved.
  - Insurance coverage and reserve accounts requirements are maintained as required by bond covenants.
  - Proceeds invested as required to avoid arbitrage interest requirements, where applicable.
  - Principal and interest payments made as required.
  - Debt service requirements are met.
- Review process for managing debt covenant defaults. Review any defaults and efforts taken to cure defaults.
- Review and evaluate the effectiveness of the Board’s monitoring and reporting process for the Authority’s debt covenant compliance.

## **C. FINDINGS AND CONCLUSIONS**

### **1. LIPA’s financial and debt management policies are sufficient to meet their fixed obligations.**

- The November 18, 2020 PFM Financial Policy Report for the Board of Trustees recommended increasing the LIPA-Only coverage target from 1.35x to 1.40x, noting that the higher target can be achieved with modest rate impacts due to significant potential refinancing savings on LIPA and UDSA debt.<sup>20</sup> The 2022 fiscal sustainability policy adopted these recommendations stating that LIPA will maintain fixed-obligation coverage ratios of no less than 1.4x on LIPA-issued debt and lease payments; and 1.2x on the combination of LIPA-issued debt, UDSA-issued debt, and lease payments.<sup>21</sup>
  - The 2022 annual report discloses these changes stating: LIPA’s Board policy on fiscal sustainability provided minimum fixed obligation coverage ratios to be

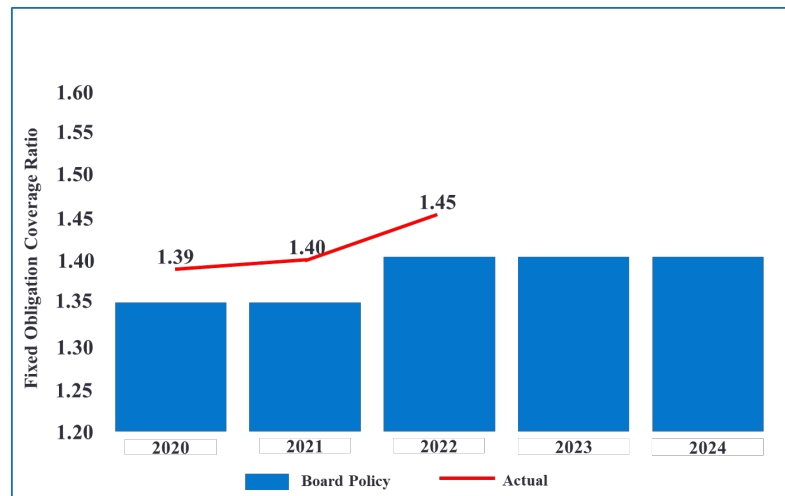
<sup>20</sup> Financial Policy Report for the Board, Prepared by PFM Financial Advisors, November 18, 2020  
<https://www.lipower.org/wp-content/uploads/2021/03/2020-Financial-Policy-Report.pdf>

<sup>21</sup> DR 116

incorporated into revenue requirements when setting rates annually.<sup>22</sup> As shown in **Exhibit V-2** below, the LIPA budget was approved by the Board to achieve fixed obligation coverage targets on LIPA-issued debt and lease payments of a minimum of 1.40x for 2022 and 1.35x for 2021 and 2020.

- For 2022, 2021, and 2020, LIPA exceeded its targets by achieving fixed obligation ratios of 1.45x for 2022, 1.40x for 2021, and 1.39x for 2020.<sup>23</sup>

**Exhibit V-2.  
Fixed Obligation Coverage (excluding UDSA debt)**



Source: [LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021](#)

- The 2023 approved and 2024 projected budgets incorporate and meet the stated fixed obligation coverage ratios. The projected coverage ratios on LIPA obligations for 2023 and 2024 are both 1.40x, which is consistent with the board policy target coverage ratios on LIPA obligations of 1.40x. The projected coverage ratios on LIPA and UDSA obligations for 2023 and 2024 are both 1.25x, which is greater than the board policy target coverage ratios on LIPA and UDSA obligations of 1.20x.<sup>24</sup>
- A detailed calculation of the fixed obligation coverage ratio is disclosed in the footnotes to the financial statements providing transparency to the method and nuances of the calculation.<sup>25</sup>
- LIPA makes use of a fixed obligation coverage ratio to determine revenue requirements.<sup>26</sup> Incorporating fixed obligation coverage into the revenue requirement

<sup>22</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>23</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>24</sup> 2023 Annual Budget. <https://www.flipsnack.com/lipower/lipa-s-2023-proposed-budget/full-view.html>

<sup>25</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

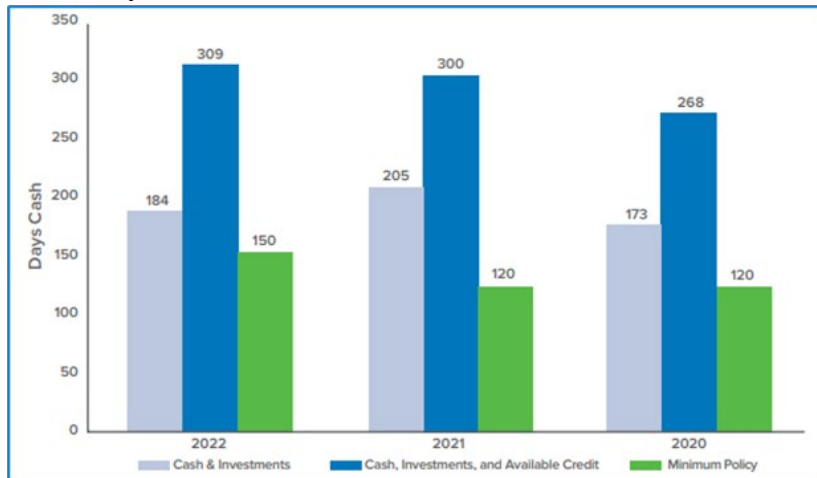
<sup>26</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021



provides additional comfort that the fixed obligation coverage will be met in a given year. Furthermore, PFM, Fitch, and Standard and Poor’s cited the revenue decoupling mechanism as providing revenue stability,<sup>27</sup> which provides additional stability to fixed obligation coverage.

- LIPA maintains adequate liquidity to meet fixed obligations. LIPA’s board policy on fiscal sustainability includes a requirement to maintain a minimum month-end balance of at least \$100 million in the operating fund and \$150 million in the rate stabilization fund. Furthermore, the policy states that LIPA should maintain cash on hand and available credit sufficient to fund 150 days of operating expenses whereas prior to 2022, the overall requirement was 120 days.<sup>28</sup>
- The 2022 annual report states LIPA maintained more than the minimum requirements for all years presented (2020 to 2022) as shown in **Exhibit V-3**.

**Exhibit V-3.  
Days of Cash, Investments and Available Credit**



Source: [LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021](#)

**2. LIPA has complied with debt issuance requirements and has complete and thorough documentation related to the review and approval process.**

- The issuance of LIPA debt requires three approvals<sup>29</sup>:

<https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>27</sup> Financial Policy Report for the Board, Prepared by PFM Financial Advisors, November 18, 2020

<https://www.lipower.org/wp-content/uploads/2021/03/2020-Financial-Policy-Report.pdf>

<sup>28</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021

<https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>29</sup> LIPA Debt Management Policy (as amended August 2018)

<https://www.lipower.org/wp-content/uploads/2018/08/LONG-ISLAND-POWER-AUTHORITY-debt-policy.pdf>

- LIPA Board of Trustees - All issuance of debt by the Authority requires the authorization of the Authority’s Board. The Authority’s management will bring a recommendation to adopt a resolution to the Board for their consideration. In general, a supplement resolution to either the Authority’s General Bond Resolution or Subordinated Bond Resolution will be recommended and will describe the proposed debt and its purposes. In addition, any necessary implementing agreements will be authorized.
  - Public Authorities Control Board (PACB) - Once the Trustees have adopted a resolution authorizing the issuance of debt, the Authority is required by the Long Island Power Authority Act and other provisions of the Public Authorities Law to obtain the approval of the New York State PACB.
  - Office of State Comptroller (OSC) - Public Authorities Law, Section 1020-k(4) requires the Authority obtain the approval of the OSC before issuing debt. When considering whether to approve a debt issuance, OSC will review the terms and conditions of the sale, including all costs of issuance paid or to be paid directly or indirectly by the issuer.
- The issuance of UDSA debt requires approvals and an appeals process<sup>30</sup>:
    - Board of Trustees - The Authority shall schedule and hold one or more public statement hearings on any new proposed restructuring cost financing order (“Financing Order”). After the conclusion of such hearings and its review of any comments received, the Authority shall finalize the Financing Order for submission to and approval by the Authority’s Trustees.
    - Public Authorities Control Board (PACB) - The Financing Order shall be submitted to the PACB. The PACB submission should include a memo to the PACB summarizing the requested authorization including the use of the proceeds, the anticipated structure of the transaction, and other relevant details. If the PACB fails to take action (approve or disapprove such Financing Order) within 30 days of the PACB’s receipt of the request to approve the Financing Order, the PACB shall be deemed to have approved the Financing Order.
    - Appeals - The Financing Order becomes a final rate order once it has been approved by the LIPA Board and approved (or deemed approved) by the PACB. Upon becoming a final rate order, there is a 30-day appeals period during which time the public may file a lawsuit to challenge the validity of the final rate order. After receiving notice from the Authority that the 30-day period for any challenges has expired, UDSA may enter into an agreement (a “Bond Purchase Agreement”) with one or more underwriters to sell the restructuring bonds.
  - NorthStar analyzed documentation of the review and approval process for selected bond issuances and found adequate support for the requisite approval.<sup>31</sup>

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<sup>30</sup> UDSA Debt Management Policy (as amended on September 2017)

<https://www.lipower.org/wp-content/uploads/2016/11/Final20LIPAdetmgmt-UDSA20Sept2020171.pdf>

<sup>31</sup> DR 124

- Issuance documentation is also reviewed by experienced bond counsel for accuracy and completeness.

**3. LIPA’s financial presentations do not concisely reference the financial data points for stakeholders to recalculate the debt-to-asset ratio. Providing the information will allow stakeholders to evaluate if LIPA’s long-term affordability is consistent with LIPA’s Financial Policy objectives.**

- As noted by LIPA, rating agencies use differing debt-to-asset ratio calculations and may adjust for unusual factors, timing differences, or market conditions.<sup>32</sup> The American Public Power Association notes that the debt-to-asset ratio may be influenced by a utility’s financial policies.<sup>33</sup> Said another way, there is diversity among how utilities calculate debt-to-asset ratios, and there is no definitive right or wrong method. However, it is important to provide adequate disclosure so users can understand which obligations and assets are included or excluded from the calculation. LIPA’s targeted 70 percent debt-to-asset ratio by 2030 is intended to address long term affordability by paying down debt. Therefore, the debt-to-asset ratio is an important metric to stakeholders beyond just the rating agencies. As such, it is important to understand the calculation in a way that will allow stakeholder to evaluate if the spirit of the policy is being met.
- LIPA is paying down debt as compared to assets. LIPA’s assets are growing at a faster percentage than their debt balance (**Exhibit V-4**). If this trend continues it will result in continuous improvement of the debt-to-asset ratio.

**Exhibit V-4  
Total Debt and Total Plant Assets**

(Amounts in thousands)	2019	2020	2021	2022	% Change 2019 - 2022
<b>Debt</b>					
Short-term debt	\$292,000	\$417,000	\$422,000	\$131,000	
Current maturities of long-term debt	101,860	78,610	69,735	30,115	
Current maturities of UDSA debt	126,057	179,419	177,511	264,660	
Long-term debt, net	4,207,551	4,694,767	5,301,796	5,291,235	
Long-term UDSA debt, net	4,286,774	4,061,650	3,839,019	3,872,915	
<b>Total Debt</b>	<b>\$9,014,242</b>	<b>\$9,431,446</b>	<b>\$9,810,061</b>	<b>\$9,589,925</b>	<b>6.39%</b>
<b>Plant Assets</b>					
Utility Plant	\$8,480,568	\$9,122,598	\$9,882,520	\$10,448,931	
Office equipment, furniture & other	3,572	6,323	8,221	10,866	
Accumulated depreciation	(2,184,994)	(2,340,303)	(2,472,548)	(2,605,230)	
Construction work in progress	712,503	716,083	495,841	446,638	
Retirement work in progress	10,081	17,331	30,024	33,334	
<b>Total Plant Assets</b>	<b>\$7,021,730</b>	<b>\$7,522,032</b>	<b>\$7,944,058</b>	<b>\$8,334,539</b>	<b>18.70%</b>

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020](#) and [2019](#)

Note: The above table excludes capital lease assets and capital lease liabilities

- Although LIPA has been paying down debt relative to their net capital assets, it has not been at the scale originally planned for within the fiscal sustainability policy. For the

<sup>32</sup> DR 1118

<sup>33</sup> American Public Power Association – Financial Operating Ratios Report 2019

last three consecutive years LIPA has exceeded their 64 percent target of new debt as a percentage of capital spending.

- LIPA’s debt and access to credit markets policy has a stated objective of generating sufficient cash flow from revenues to maintain the issuance of new debt as a percentage of capital spending at 64 percent or less as measured on a three-year rolling average. However, LIPA and the Board allowed this percentage to exceed 64 percent target on a forward-looking three-year rolling average in 2021 and 2022 as LIPA responds to the effects of the COVID-19 pandemic and Tropical Storm Isaias.<sup>34</sup>
- LIPA’s 2020 approved budget stated that the percent of capital funded from debt will be above LIPA’s target of 64 percent in 2020 and in 2021. This is due to the timing of two large projects – Western Nassau Transmission and Smart Meters projects.<sup>35</sup>
- LIPA’s calculation of the debt-to-asset ratio excludes short-term debt.
  - LIPA’s 2023 annual budget states that LIPA expects to fund its capital investments utilizing a combination of grants, short and long-term debt financing and pay-as-you-go funding from revenue.<sup>36</sup>
  - LIPA may fund capital assets within the year from short-term debt; however, it refinances those short-term borrowings with long-term tax-exempt bonds. LIPA does not include short-term debt balances in the debt-to-asset ratio and should disclose that. Short-term debt balances are provided in **Exhibit V-5**.

**Exhibit V-5  
Short-term Debt**

(Amounts in thousands)	2019	2020	2021	2022
Short-term debt	\$292,000	\$417,000	\$422,000	\$131,000

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020](#) and [2019](#)

- Short-term debt was included in the debt-to-asset ratio in 2019.<sup>37</sup>
- LIPA’s calculation of the debt-to-asset ratio excludes premiums on debt.
  - The American Public Power Association (“APPA”) provides guidance on how to calculate the debt-to-asset ratio for public power utilities. According to the APPA guidance long-term debt used in debt-to-asset ratios includes bonds, **any unamortized premiums** on long-term debt and any unamortized discount on long

<sup>34</sup> DR 116

<sup>35</sup> LIPA 2020 Budget

[https://www.lipower.org/wp-content/uploads/2020/01/LIPA\\_2020Budget-1-8-20-WEB.pdf](https://www.lipower.org/wp-content/uploads/2020/01/LIPA_2020Budget-1-8-20-WEB.pdf)

<sup>36</sup> LIPA 2023 Annual Budget

<https://www.flipsnack.com/lipower/lipa-s-2023-proposed-budget/full-view.html>

<sup>37</sup> DR 843

term debt. The guidance does disclaim that the ratio may be influenced by a utility’s financial policies.<sup>38</sup>

- The Liabilities and Deferred Inflows of Resources footnote included in the LIPA 2022 Annual Report states: long-term debt, net of current maturities, increased \$23 million as LIPA issued Electric System General Revenue Bonds, Series 2022 totaling \$380 million plus premium of \$31 million, to fund capital improvements and refinance debt.<sup>39</sup> This footnote disclosure suggests that the premium on debt issuances is a liability used to fund capital expenditures. The unamortized premium on debt balance is significant and the inclusion of unamortized premium on debt in the calculation would raise the ratio of debt-to-assets. The net premium on debt is provided in **Exhibit V-6**.

**Exhibit V-6  
Net Premium on Debt**

(Amounts in thousands)	2019	2020	2021	2022
Net Premium	\$667,114	\$668,958	\$688,546	\$698,494

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020](#) and [2019](#)

- LIPA’s calculation of the debt-to-asset ratio includes capital assets funded by grants.
  - Included in LIPA’s annual report is a footnote on regulatory credits – grants. This disclosure states:

“LIPA has received grants for storm restoration and storm hardening. LIPA’s Board authorized the deferral of grant income as a regulatory credit. This regulatory credit will be amortized over the same time period as the depreciation expense on the associated capital assets for storm hardening.”<sup>40</sup>

- By recording grants as regulatory credits, this offsets capital assets within utility plant. Essentially, the grant funded assets offset on LIPA’s balance sheet so that there is a roughly net zero impact for any given reporting period.
- The utility plant balance used in the debt-to-asset ratio does not adjust for the assets funded through grants. As such, the assets contained within the debt-to-asset ratio includes capital investments not funded by LIPA and therefore not funded by LIPA debt.
- The amount of grants included in regulatory credits for 2019 to 2022 is shown in **Exhibit V-7**.

<sup>38</sup> American Public Power Association – Financial Operating Ratios Report 2019

<sup>39</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>40</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

**Exhibit V-7.**  
**Regulatory Credits – Grants**

(Amounts in thousands)	2019	2020	2021	2022
Regulatory Credits - Grants	\$482,710	\$470,312	\$626,460	\$608,788

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020 and 2019](#)

- Including both short-term debt and unamortized premiums in the debt component of the ratio and offsetting capital assets funded by grants in the asset component of the ratio would present significantly different results as shown in **Exhibit V-8**.

**Exhibit V-8**  
**Debt-to-Asset Ratio (adjusted using amounts described above)**

(Amounts in thousands)	2019	2020	2021	2022
Debt-to-asset ratio as reported	98.0%	94.1%	91.1%	89.4%
Debt-to-asset ratio with short-term debt, unamortized premium, and grant offset	108.2%	107.7%	105.7%	101.4%

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020 and 2019](#)

- As noted above, there is diversity in how debt-to-asset ratios are calculated. LIPA should reference data points for its debt-to-asset ratio to provide stakeholders additional transparency so they can fully evaluate the inputs to the ratio to determine if LIPA is meeting its fiscal sustainability policy.

**4. The benefits of UDSA financing were exhausted in 2017. LIPA has sought changes to provide for future savings through UDSA financings.**

- As noted in the 2022 Annual Report:
 

“Reform Act created the Securitization Law, which established the UDSA to permit the issuance of restructuring bonds to allow LIPA to retire a portion of its outstanding indebtedness in order to provide debt service savings to LIPA’s customers as measured on a net present value basis. The Securitization Law allowed for a total issuance of up to \$4.5 billion of UDSA restructuring bonds. In 2017, all such authorization was exhausted.”<sup>41</sup>
- As demonstrated in **Exhibit V-9**, the exhaustion of UDSA authorization resulted in a decrease in UDSA financing from 2019 to 2022, and an increase in LIPA financing over the same period. This results in more costly debt service for ratepayers.

<sup>41</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021 <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

**Exhibit V-9  
UDSA vs. LIPA Debt**

(Amounts in thousands)	2019	2020	2021	2022	% Change 2019 - 2022
<b>LIPA Bonds</b>					
Current maturities of long-term debt	101,860	78,610	69,735	30,115	
Long-term debt, net	4,207,551	4,694,767	5,301,796	5,291,235	
<b>Total LIPA Debt</b>	<b>\$4,309,411</b>	<b>\$4,773,377</b>	<b>\$5,371,531</b>	<b>\$5,321,350</b>	<b>23.48%</b>
<b>UDSA Bonds</b>					
Current maturities of UDSA debt	126,057	179,419	177,511	264,660	
Long-term UDSA debt, net	4,286,774	4,061,650	3,839,019	3,872,915	
<b>Total UDSA Debt</b>	<b>\$4,412,831</b>	<b>\$4,241,069</b>	<b>\$4,016,530</b>	<b>\$4,137,575</b>	<b>-6.24%</b>

Source: LIPA Financial Statements December 31, [2022](#), [2021](#), [2020](#) and [2019](#)

- In 2020 LIPA sought a change to permit the UDSA to issue additional securitized bonds for refinancing. The legislation authorizing the change was signed into law on August 2, 2021, and allows the UDSA to issue an initial par up to \$8.0 billion of securitized bonds.<sup>42</sup>
- This UDSA authorization should provide additional savings to ratepayers in future years.

**5. LIPA effectively manages its debt costs using information on interest rates and other financial factors it obtains from its underwriters. LIPA has a sound process to select underwriters.**

- Underwriters are an important part of LIPA’s debt issuance team.
  - LIPA uses an open, competitive process to identify and select a pool of underwriters. Every few years through the competitive procurement process, LIPA selects a pool of underwriters. During this process, the procurement department, with assistance from the Director of Finance and Treasury or CFO and LIPA’s Financial Advisor, prepares a Request for Proposals (RFP). LIPA evaluates proposals and selects the most qualified firms.<sup>43</sup>
  - Based on the outcome of the procurement process, LIPA selects a pool of underwriters.
  - The senior manager for each individual transaction will be selected on a transaction-by-transaction basis from the approved pool of senior managers based on a number of factors.<sup>44</sup>
- NorthStar reviewed the underwriter selection criteria and found them to be appropriate. LIPA considers the experience and marketing/distribution capabilities of the

<sup>42</sup> LIPA Basic Financial Statements and Required Supplementary Information December 31, 2022 and 2021  
<https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2022-YE-Financial-Statement-website.pdf>

<sup>43</sup> DR 118

<sup>44</sup> DR 118



underwriters with public power financings as well as their success in obtaining appropriate price/interest rates for the bonds sold.<sup>45</sup>

- LIPA receives regular weekly market reports from various investment banks that provide the necessary indices and municipal market rates to keep abreast of changes in interest rates and the markets. In addition, LIPA’s financial advisors provide daily interest rate reports and periodic market reports. The financial advisors also provide any relevant market data, upon request. The financial advisors also maintain information regarding LIPA and UDSA debt and provide any analysis as requested.<sup>46</sup>

**6. Having the same individual as the CFO and CEO for an extended period of time creates issues around segregation of duties based on LIPA’s debt management policies.**

- LIPA’s debt management process places responsibility with the CFO for funding the capital plan of the Authority. The CFO evaluates various options for the Authority and develops a financing approach that provides the most efficient and cost-effective method consistent with prudent risk management. This is then shared with the CEO. After CEO concurrence, the financing plan is presented to the Finance and Audit Committee of the Board of Trustees, and with their consent, to the full Board of Trustees.
- LIPA’s CFO and CEO was the same individual for an extended period leading up to, and during the majority of NorthStar’s audit period. The debt management practices requiring concurrence from the CEO creates a segregation of duties conflict. Although LIPA’s Board was requested to approve a resolution appointing a new CFO in December 2023, LIPA should have modified controls to address this issue.<sup>47</sup> Should a similar conflict arise in the future impacting segregation of duties, LIPA should modify controls to address the specific circumstances.

## **D. RECOMMENDATIONS**

1. Provide disclosures detailing the methodology of the debt-to-asset ratio. Describe obligations not included in debt and grant funded projects included in assets. Reconcile amounts to the financial statements so various stakeholders, beyond rating agencies, can perform a more informed evaluation of fiscal sustainability.

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<sup>45</sup> DR 119

<sup>46</sup> DR 120

<sup>47</sup> For more information, see Chapter III –Governance.

## VI. LOAD FORECASTING

This chapter presents NorthStar’s evaluation of PSEG LI’s Load Forecasting organization, processes, models, and results.

### A. BACKGROUND

In its simplest form, load forecasting determines the projected load and system planning develops the solutions to load requirements to maintain reliability at a reasonable cost. Aging infrastructure, resource conservation, energy efficiency programs, increase the need for up-to-date, accurate and dynamic system planning.

A utility’s load forecast is the driving force behind its supply procurement and system planning efforts, and is an important factor in analyses of regulatory, financing, and other strategic planning options. As such, the load forecast affects reliability and the price of supply and operations. LIPA and PSEG LI must ensure that the load forecasting processes identify and address changing energy and capacity needs, system effects, and market conditions in a timely and accurate manner.

Historical weather and weather patterns determine the main elements of supply procurement forecasts for the electric peak-hour forecast. Other factors for developing accurate load forecasts include incorporating energy efficiency savings, distributed energy resources (DERs), and customer use trends. The effectiveness of the load forecasting function can be measured by comparing forecasts with weather normalized requirements. The integration of information and the commonality of assumptions are critical to weather and economic scenario development and ultimately lead to probabilistic modeling of worst-case conditions.

Load forecasts have become a more complicated work product than they were historically. Forecasting has evolved from a simple line graph to econometrically defined models with post-model adjustments to account for changing technologies and policy initiatives. Further complicating the forecasting process is the need for forecasts on geographical levels that must be consistent with system level forecasts. In addition to changes in modeling, technology has impacted customer usage with larger scale installation of roof-top solar and the proliferation of light emitting diode (LED) technologies in everything from televisions to indoor lighting.

LIPA’s energy and demand slightly decreased between 2018 and 2022. As shown in **Exhibit VI-1**, system sales decreased 2.0 percent while peak demand decreased 3.5 percent over the past five years.

**Exhibit VI-1**  
**Weather-Normalized LIPA Electric Sales**

Year	Total Sales (GWh)	Normalized Sales (GWh)	System Peak (MW)	Normalized Peak (MW)
2018	19,610	19,115	5,281	5,220
2019	18,801	18,789	5,322	5,207
2020	18,580	18,623	5,275	5,103
2021	18,798	18,712	5,067	5,176
2022	18,742	18,709	5,104	5,037
<b>Percent Change in Sales and Peak Demand</b>				
2018 to 2022		-2.1%		-3.5%
2019 to 2020		-0.9%		-2.0%

Source: DR 150 and DR 763 Attachment 1

**Exhibit VI-2** provides sales by sector – residential and commercial. LIPA experienced a 2.8 percent increase in residential sales and a 6.3percent decrease in Commercial/Industrial Sales over the past five years. Most notable it that residential sales increased 9.4 percent in 2020 from 2019 while Commercial/Industrial Sales realized a 9.2 percent decrease. These changes appear to reflect the COVID-19 Epidemic and the impact of employees working from home.<sup>1</sup>

**Exhibit VI-2**  
**Residential and Commercial/Industrial Sales**

Year	Residential		Commercial/Industrial	
	Actual (GWh)	Normalized (GWh)	Actual (GWh)	Normalized (GWh)
2018	9,539	9,101	9,515	9,459
2019	9,076	9,022	9,250	9,239
2020	9,568	9,593	8,522	8,539
2021	9,535	9,473	8,782	8,758
2022	9,391	9,360	8,863	8,861
<b>Percent Change in Sales</b>				
2018-2022		2.8%		-6.3%
2019-2020		6.3%		-7.6%

Source: DR 150 Attachment 1 and DR 763 Attachment 1

**Exhibit VI-3** provides the trend in energy use per customer. LIPA has experienced a consistent increase in number of residential customers but the use per customer only increased in 2020 during the epidemic. Similarly, the use per customer in the commercial/industrial sector dropped.

<sup>1</sup> DR 150 Attachment 1 and DR 763 Attachment 1

**Exhibit VI-3  
Weather-Normalized Customer Sales**

Year	Residential Customers	Annual Sales per Residential Customer (kWh)	Commercial Customers	Annual Sales per Commercial Customer (kWh)
2018	1,011,527	8,997	115,455	81,928
2019	1,015,708	8,882	115,915	79,705
2020	1,020,864	9,397	116,042	73,585
2021	1,024,507	9,246	117,435	74,577
2022	1,026,632	9,117	119,328	74,258
<b>Variance</b>				
	2018-2022	1.3%		-9.4%
	2019-2020	5.8%		-7.7%

Source: DR 150 Attachment 1, DR 762 Attachment 1, and DR 763 Attachment 1

## B. WORK TASKS

DPS requested 29 work tasks in the Load Forecasting area. NorthStar re-organized these tasks into five areas:

- Organization
- Process and Planning
- Models
- Results
- Feed-In Tariffs

### Organization

- Assess the organization structure and staffing of forecasting activities.
- Evaluate the organization and staffing of forecasting functions. (Moved from Chapter VIII - System Planning)
- Determine whether management processes ensure that all planning is based upon a set of common assumptions relating to demographics, economic conditions, financial capability and other factors which significantly affect the load forecast. (See also Chapter VIII – System Planning)
- Determine whether LIPA proactively participates in the NYISO and other regional forecasting activities in the development of the Authority’s FERC transmission filings.

### Process and Planning

- Verify that adequate SCADA data exists to perform both a top-down and bottom-up forecast and resolution.
- Determine if PSEG LI employs current technology and modern methods for data gathering in the development of its load forecasts.
- Assess PSEG LI’s use of AMI technology to collect and manage load data. (Moved from System Planning C.1.1)
- Evaluate how PSEG LI is using the data received via AMI metering to improve its forecasting efforts. Also, to the extent that AMI is expected to result in operational and

rate design improvements which result in the smoothing of peak load, evaluate how those impacts will be incorporated in to the methodology via changes to either the econometric forecasting model specifications or via out of model adjustments. (Moved from C1.4, AMI)

- Assess the process used to collect disaggregated load data, and PSEG LI's ability to maintain this data's integrity and security. (Moved from System Planning C.1.1)
- Review the types and sources of weather data used in each of the forecasts and review the reasonableness of the weather normalization procedure used for those forecasts.
- Review and evaluate LIPA load research data.
- Review sensitivity or impact analyses performed on the load forecasts.
- Determine the adequacy of demographic assessments, appliance saturation studies, customer surveys, and elasticity of demand studies and similar information used in the development of load forecasts.

## Models

- Review PSEG LI's segmentation of the service territory and how forecasts are developed.
- Review the process for top-down and bottom-up forecasting.
- Evaluate if the time horizon on the forecasting process is sufficient for optimal planning purposes.
- Determine the adequacy of the input data used and consider whether the forecasting methodology, including the econometric forecasting models and out of model adjustments, provide adequate capability to assess the effects of potential loss of load to alternative energy providers, conservation, price sensitivity, regional-specific factors, and other variables across a broad range of possibilities.
- Evaluate how total system-wide and substation-specific load forecasting are incorporated into the process.
- Review post-model adjustments for appropriate assumptions and supporting data.
- Review how DER penetration is considered in electric forecasting.
- Evaluate how CLCPA initiatives such as wind and solar, wider deployment of DER including micro grids, roof-top solar and other on-site power supplies, EV, beneficial electrification and storage are incorporated into the planning process. (Moved from System Planning C.1.1)
- Determine the extent to which DER assets are recognized as part of the planning process by PSEG LI. (Moved from System Planning C.1.1)
- Determine how demand side management (demand response), energy efficiency and other conservation initiatives are considered in the forecasting process.
- Assess how policy goals such as the build out of electric vehicle infrastructure and beneficial electrification are factored into the load forecasting process.
- Examine the impact of demand management (demand response, distributed generation, etc.), energy efficiency, and migration of retail customers to competitive suppliers in the assessment of system infrastructure adequacy and their role in the procurement process. (Moved from System Planning C.1.1)
- Assess the overall forecasting platform for types of models, data development, and application of models.

- Determine how LIPA accounts for the effects of retail access in their forecasting methodologies.

## **Results**

- Compare actual sales and load data with forecasts for selected years.
- Review and evaluate the measures and methods that PSEG LI has used for improving the accuracy of short-term and long-term load and sales forecasting.
- Evaluate the performance of the models, inputs, key drivers and assumptions PSEG LI uses to forecast local and system-wide load requirements. Evaluate changes to the electric load forecasting processes since the previous management audit.
- Examine and evaluate how PSEG LI determines the acceptable margin of errors in short-term and long-term load and sales forecasting.
- Review and evaluate the accuracy of annual sales forecasting and its impact on current rates and rates in subsequent years by affecting riders like the revenue decoupling mechanism.
- Assess the manner in which load forecasting affects various strategic initiatives or provides substantial risk to LIPA.

## **Feed-In Tariffs**

- Determine if the Feed-In Tariffs (FIT) have been managed effectively and whether FIT targets have been achieved. If the targets have not been achieved, then evaluate the reasons why. (Moved from C.9 CLCPA)
- Assess how clean energy programs have been aligned to achieve the goals of the CLCPA, e.g., Statewide 70 percent renewables by 2030, Statewide 40 percent reduction in greenhouse gas emissions by 2030, 6,000 MW of energy storage, 185 TBtu of on-site energy savings, etc. (Moved to Chapter VII – System Planning)

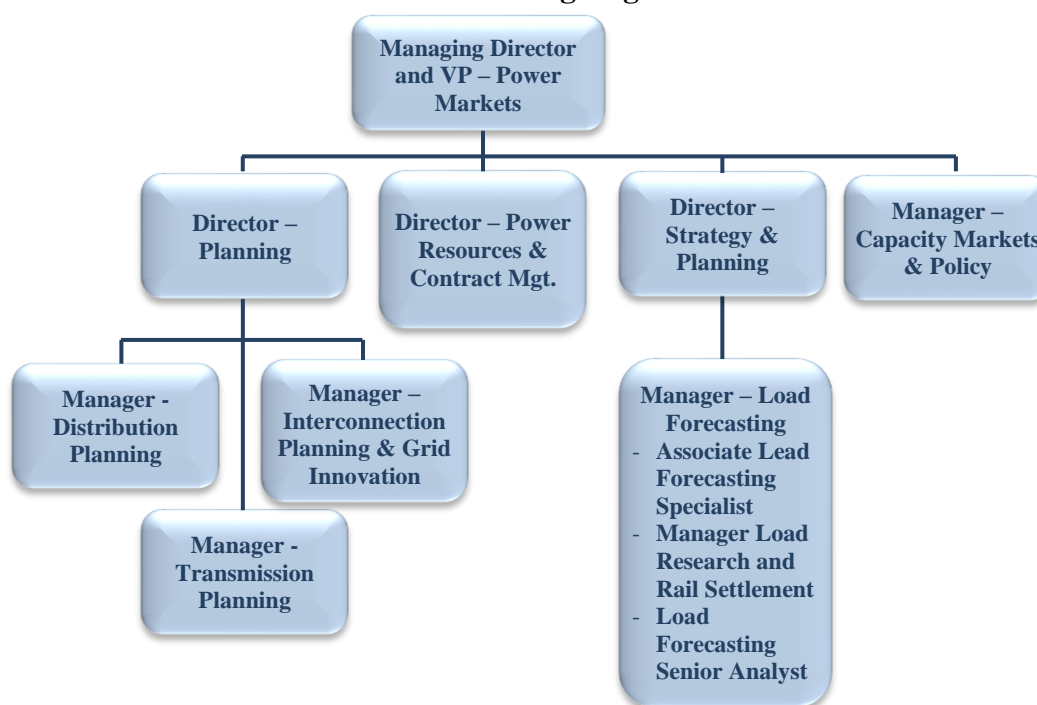
## C. FINDINGS AND CONCLUSIONS

### Organization

**1. PSEG LI's Load Forecasting Organization is well structured, well-staffed, and its location in the Power Markets Organization is reasonable.**

- **Exhibit VI-4** provides the Power Markets and Load Forecasting Organizations.

**Exhibit VI-4  
PSEG LI Planning Organizations**



Source: DR 3 Pages 136, 141, and 145

- The Manager of Load Forecasting has forty years of experience in the energy industry and advanced academic training.
- Support staff has numerous years of combined experience and advanced academic training.<sup>2</sup>

**2. PSEG LI develops one Load Forecast for all planning activities.**

- There are multiple contributing organizations to the PSEG LI Load Forecast. Including:

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<sup>2</sup> LinkedIn.Com



- New York Power Authority (NYPA) – Forecast of energy provided to government entities in LIPA’s service territory.
  - Long Island Railroad and Metropolitan Transit Agency – Forecast of public transit in LIPA’s service territory.
  - Brookhaven National Lab – Receives power from NYPA and self generates.
  - PSEG LI Customer Service Energy Efficiency Group– Post-model adjustments for Energy Efficiency (EE), Electric Vehicle (EV) Charging, Beneficial Electrification (BE) and Customer Sited Rooftop Solar (PVs).
- PSEG LI’s Load Forecasting Group has overall responsibility to prepare the energy forecasts for LIPA’s full service and retail access customers. NorthStar’s review of the various planning functions throughout PSEG LI supports that the Load Forecasting work product is the single forecast used by PSEG LI.<sup>3</sup>
- 3. PSEG-LI exhibits a strong leadership role in the coordination among market participants, the New York Utilities, and the New York Independent System Operator (NYISO).**
- Coordination between the market participants, the New York Utilities, and the NYISO occurs in the Load Forecasting Task Force (LFTF). The manager of Load Forecasting has been the chair of the LFTF for about ten years.<sup>4</sup>
    - The LFTF meets periodically throughout the year. NorthStar found in 2022 the LFTF met fourteen times.
    - The LFTF prepares state-wide work products:
      - Load and Capacity Data (Gold Book) Forecasts
      - Installed Capacity Forecast
      - Load Forecast Uncertainty Model
      - Development of the New York State Load Forecasting Manual.<sup>5</sup>
  - LFTF participation provides a benefit in that the load forecast that PSEG LI provides to the NYISO is compared against a forecast prepared by the NYISO. When discrepancies arise, a top-down review of each forecast and its assumptions is conducted.<sup>6</sup>
- 4. Both LIPA and PSEG LI adequately support the development of FERC Transmission Filings through the submittal of load forecasts, system design and ratings, and relevant cost information.**
- The NYISO assumed responsibility for filing the Federal Energy Regulatory Commission (FERC) Form 715: Annual Transmission Planning and Evaluation Report

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<sup>3</sup> DR 149

<sup>4</sup> <https://www.nyiso.com/lftf>

<sup>5</sup> DR 273

<sup>6</sup> DR 274

C Form 715), for the New York Transmission Owners in 2000. LIPA and FERC Form 715 has six sections:

- Identification and certification: Certifications from the authorized officials of each transmission owner (including LIPA) that provided information to prepare the report. LIPA’s authorized official is the Manager of Transmission Planning at PSEG LI.
  - Power Flow Base Cases: PSEG LI participates in Northeast Power Coordinating Council (NPCC) base case studies by providing relevant data to update the regional load information.
  - Transmission Utility Maps and Diagrams: The NYISO Electric System Map depicts high voltage transmission facilities (115 kV and above) and major generation facilities within New York State. LIPA provided 2023 system maps and diagrams.
  - Transmission Planning Reliability Criteria: LIPA, as a transmission owner, is subject to the reliability standards established by NERC. Also, LIPA is subject to the NPCC Criteria and New York State Regulatory Council (NYSRC) Planning Rules. PSEG LI filed on December 28, 2022, the current transmission planning with NYISO. The planning criteria states that LIPA adheres the standards and criteria set forth from NERC, NPCC, NYSRC, and NYISO.<sup>7</sup>
  - Transmission Planning Assessment Practices: This section lists the planning practices included in the filing.
  - Evaluation of Transmission System Performance: There are twelve scenarios that include seasonal (summer and winter) peak demand analyses over varying time horizons.<sup>8</sup>
- The NYISO files the Open Access Transmission Tariff with FERC on behalf of LIPA. While the NYISO submits the filings, LIPA and PSEG LI develop their system specific wholesale transmission service charges (TSC) included in the filing. The formula for TSC:

$$TSC = [(RR/12) + (CCC/12) - (SR + ECR + CRR + WR + Reserved)] / (BU/12)$$

Where:

RR = Annual Revenue requirement

CCC=Annual Scheduling System Control and Dispatch Costs

SR=Transmission Owners Revenue from sale of Transmission Congestion Contracts

ECR=Net share of monthly congestion rents

CRR=Congestion Payments included in revenue requirement

WR=Wheeling Revenue

Reserved=Congestion Payments not covered above

BU=Billing Units (MWh)

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<sup>7</sup> <https://www.psegliny.com/aboutpseglongisland/legalandregulatory>

<sup>8</sup> DR 1350 and DR 1350 Attachment1 and Supplements 1 and 2 and <https://www.nyiso.com/documents/20142/1406939/NYISO-2023-Form-715-Report.pdf/4ab01d27-647d-3714-9161-fe56967051e9>

- The NYISO does review LIPA’s TSC but uses a comparability standard with the other NY Transmission Owners.<sup>9</sup>
  - PSEG LI develops the specific rate elements under LIPA’s management. They are developed based on LIPA net plant, accounting revenue and cost accounts, and sales forecasts.
  - LIPA is responsible for development of the average weighted cost of capital.<sup>10</sup>
- LIPA and PSEG LI participate in the NY Transmission Owners FERC filing of the Cost Sharing and Recovery Agreement (“CSRA”) filed pursuant to PSC Case 20-E-0197. This filing codifies the agreement to share the costs of local transmission costs for projects approved by the PSC to implement NY’s CL&CPA, as collected through NYISO’s FERC-jurisdictional tariff. LIPA Wholesale Market Policy (“WMP”), Legal departments and outside FERC counsel participated in identifying and evaluating alternative cost sharing approaches, negotiating language for the CSRA, working with the joint TO/LIPA counsel. LIPA’s contribution addressed the unique structure of LIPA’s participation in the agreement, consistent with and protecting our non-jurisdictional status. Filing and agreement were reviewed and approved by LIPA senior management.<sup>11</sup>

## Process and Planning

### 5. PSEG LI’s demonstrates a significant planning effort in the development of its Load Forecast. These areas include:

- Internal data acquisition
- Weather data
- Econometric data
- Supporting analyses

### 6. PSEG LI has access to and uses reliable system data. There are three main sources of historical usage data. The hourly Supervisory Control and Data Acquisition (SCADA) Energy Management System (EMSO), billed sales, and more recently AMI data.

- Historical usage is obtained from the SCADA system. The SCADA system has telemetric records of usage at every substation, transformer, and feeder on the distribution system. The data is polled every two seconds for status and every 9 seconds for analog data. PSEG LI uses the General Electric PowerOn Reliance backbone system. Hourly data from the EMS Data Warehouse is queried every month.<sup>12</sup>
- The AMI data is collected from AMI enabled meters via wireless network to the Landis+Gyr system also called the Command Center (CC). Currently 98 percent of

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<sup>9</sup> DR 1350 Attachment 1

<sup>10</sup> DR 1350

<sup>11</sup> DR 1350

<sup>12</sup> DR 810

LIPA customers have AMI enabled meters.<sup>13</sup> Data is stored for a period of ninety days. Data is accessed using various data extraction applications such as LodeStar.<sup>14</sup>

- PSEG-LI’s use of AMI in its forecasting and load management process is in its infancy. Load Forecasting has incorporated AMI technology in the following areas:
  - Determining monthly booked sales.
  - Determining load shapes by rate class and customer class.
  - Load Forecasting expects to use AMI data to improve the weather normalization of sales data.<sup>15</sup>
- PSEG LI has implemented time-of-use rates as a method of managing load by using price signals to encourage customers to shed load during the peak hours. It is expected that PSEG LI will begin modeling this impact in 2024.<sup>16</sup>
- Billing data is received from the Customer Accounting System (CAS) monthly.

#### **7. PSEG LI uses reliable weather data.**

- Historical hourly weather data is purchased from the Northeast Regional Climate Center of Cornell University.<sup>17</sup>
- PSEG LI uses twenty years of historical weather data to determine normal weather.<sup>18</sup>
- PSEG LI uses Central Park in New York City as its weather station for energy forecasting. Temperatures are adjusted for relative humidity and converted to heating and cooling degree days. PSEG LI has found that Central Park closely correlates to the weather patterns seen at Islip and Farmington Airports.
- Beginning in 2018, twenty years of data became available for Farmington and Islip Airports.<sup>19</sup> PSEG LI uses the Farmington and Islip Airport weather data in its peak demand model.<sup>20</sup>

#### **8. PSEG LI procures its econometric and demographic data from reputable sources.**

- PSEG LI purchases its historic and forecast econometric and demographic data from Moody’s Analytics Inc. Moody’s provides historical and forecast data including:
  - Population
  - Income

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<sup>13</sup> DR 191 Attachment 2

<sup>14</sup> DR 811

<sup>15</sup> DR 263

<sup>16</sup> DR 1198

<sup>17</sup> DR 812

<sup>18</sup> DR 256

<sup>19</sup> DR 602

<sup>20</sup> DR 603 Attachment 1

- Households
  - Employees
  - Wages
  - Interest Rates<sup>21</sup>
- PSEG LI also supplements with data from the NY Department of Labor, the US Census Bureau, the Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Federal Reserve Economic Data.<sup>22</sup>
- 9. PSEG LI conducts additional load analyses including load research and price elasticity analysis to provide better insight into how and when customers use energy. PSEG LI's current approach to load research is consistent with industry standards prior to the universal implementation of AMI.**
- PSEG LI's load research program is used to determine class load shapes and class contribution to system coincident peak demand. It is based on a statistical sample of nine groups of customers.
  - In the future with universal AMI, class load shapes will no longer be a statistical sample but based on the aggregation of all AMI meters. This will enhance:
    - Cost of Service Studies
    - Rate Design
    - NYISO Retail Settlement
    - Load Forecasting
    - NWA Analysis
    - EE and Renewables<sup>23</sup>
  - PSEG LI uses price elasticity in applicable customer segments in its middle term models. PSEG LI also adjusts its forecasts for the first three years based on estimates of how price affects sales. The impact was minimal, typically less than one percent.<sup>24</sup> Price elasticity is the only sensitivity analysis conducted in the load forecasting process.<sup>25</sup>
- 10. PSEG LI does not have adequate customer intelligence to market EE programs or evaluate the reality of implementing CLCPA.**
- PSEG LI does not use customer surveys in developing its load forecasts. Customer surveys are a key component to the development of the load modifiers associated with CLCPA.<sup>26</sup>

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<sup>21</sup> DR 151

<sup>22</sup> DR 813

<sup>23</sup> DR 155

<sup>24</sup> DR 1199 and DR 1280

<sup>25</sup> DR 1279

<sup>26</sup> DR 1200

- PSEG LI has not conducted price elasticity analysis concerning customer procurement of electric vehicles or fuel switching of appliances.<sup>27</sup> NorthStar believes this is an important component to beneficial electrification.
- PSEG LI conducted demographic studies concerning potential errors in the population and household data released by the US Census Bureau. Actual data did not match US Census Bureau data. PSEG LI re-estimated the US Census Bureau data.
- PSEG LI did not perform any demographic studies to evaluate customer preferences and likely customer responses to CLCPA initiatives.<sup>28</sup>
- PSEG LI has not completed any appliance saturation surveys since 2018. Appliance saturation surveys offer statistical information on the types and ages of natural gas and electricity end-uses. These identify marketing opportunities for energy efficiency technologies.<sup>29</sup>

## Models

### 11. PSEG LI’s forecasting platform is designed to meet jurisdictional and utility planning requirements.

- PSEG LI has several jurisdictional forecasting levels that are used in various planning efforts. Both sales and peak demand are forecast for normal weather, also called the 50/50 probability scenario. PSEG LI also forecasts an extreme weather scenario called the 90/10 probability scenario. **Exhibit VI-5** provides the jurisdictional forecasts and the planning function supported.
- Weather Normalized Booked Sales is the jurisdiction where the forecasting begins. It represents the forecast used for revenue forecasting. The Booked Sales forecast is then adjusted for other jurisdictions to meet their planning requirements.

**Exhibit VI-5  
Jurisdictional and Planning Forecasts**

Forecast	Description	Purpose
Zone K	Zone K is one of eleven NYISO Planning regions within NY. Adds EE/Renewables and Cogeneration.	NYISO Gold Book NYISO Annual Report
Long Island Control Area	The bulk power transmission system. Adds the load for municipalities procuring their own energy and own their own distribution systems.	Resource Planning and T&D Operations and Planning T&D Capital Planning [Note 1]
<b>LIPA Booked Sales</b>	<b>Baseline Forecast</b>	<b>Revenue Forecasting</b>

<sup>27</sup> DR 1199

<sup>28</sup> DR 1201

<sup>29</sup> DR 156

LIPA Retail Delivery	Total System Energy Removes contributions from NYPA.	Power Resources Contingency Planning
Load Serving Entity	Full-service LIPA customers. Removes Long Island Choice Customers and Recharge NY contributions.	Rate Sensitivity Analysis

Note 1: T&D and T&D Capital Planning use the 90/10 probability peak demand scenario as the system must be capable of operating reliably during extreme weather conditions.

Source: DR 150 Attachment 2 and DR 277

- PSEG LI divides its forecast into three planning horizons.
  - Short-term: Years 1 to 3
  - Medium-term: Years 4 to 10
  - Long-term: Years 11 to 20
- PSEG LI has segmented its short-term forecast into two customer segments: Residential and Commercial/Industrial (C/I).
- PSEG LI has segmented its medium-term forecasts into nine areas. One Residential and eight C/I segments:
  - Residential
  - Information Technology
  - Business Services
  - Education & Health Services
  - Government
  - Manufacturing
  - Trade, Transportation and Utilities
  - Leisure and Hospitality
  - Financial Activities<sup>30</sup>
- PSEG LI performs a trend analysis for its long-term forecast for residential and C/I.
- LIPA develops two peak demand planning scenarios for weather: A normal weather scenario also called 50/50 probability scenario and an extreme weather scenario also called 90/10 probability.<sup>31</sup>

**12. PSEG LI uses econometric equations as the basis of its Short-term and Middle-term energy forecasts. This is an accepted industry practice. The statistical forecasts are adjusted for post-model adjustments, yielding the forecast of Booked Sales.**

- Econometric linear regression equations are developed using historical data to estimate the coefficients in an equation such as:

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<sup>30</sup> DR 1179 Attachment 1

<sup>31</sup> DR 61 Attachment 1



$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots \beta_i X_i$$

Where Y is use-per-customer,  $\beta_0$  is the constant,  $\beta_1$  and  $\beta_2$  are the estimated coefficients and  $X_1$  and  $X_2$  are the explanatory variables. Once the coefficients are estimated, the equation is applied to forecasts of the explanatory variables to produce the forecasts of use-per-customer.<sup>32</sup>

- For the Short-Term Booked Sales Forecast (Years 1-3), the econometric equation is:

$$\text{Log}(Y) = \beta_0 + \beta_1 \text{Log}(X_1) + \beta_2 \text{Log}(X_2) \dots$$

The data driving the customer class models includes:

- Residential Variables: Heating Degree Days, Cooling Degree Days, Real Wage and Salary Disbursements per Employee, and Population per Household.
- C/I Variables: Heating Degree Days, Cooling Degree Days, Real Gross Metro Product per Employee, and Employees per Customer.<sup>33</sup>

PSEG LI uses a log-log specification for its Short-term Model. Log-log models are a form of linear regression modeling that readily displays the linear relationship between the independent variables (X) and the dependent variable (Y). The model is a quarterly forecast. PSEG also prepares a short-term Booked Sales Forecast (Years 1-3) for each rate class. The econometric equation is also a log-log specification.

PSEG LI uses traditional linear econometric equations for its Middle-term forecasts (Years 4-10). The data driving the Middle-Term models include:

- Residential: Heating Degree Days, Cooling Degree Days, Household Size, Real Price of Electricity, and Real Wage and Salary Disbursements per Employee.
- C/I: Heating Degree Days, Cooling Degree Days, and various financial metrics supporting each of the eight C/I segments.<sup>34</sup>
- Trend analysis is the basis of the Long-term forecasts.
- PSEG LI forecasts use-per-customer. Use-per-customer is multiplied by the number of customers forecast to determine total energy.<sup>35</sup>

### **13. PSEG LI's coincident peak demand forecast uses a reasonable methodology.**

- Most recent peak load and annual sales are weather normalized.
- Most recent peak load is attributed to residential and non-residential customer segments based on load research.

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<sup>32</sup> DR 151

<sup>33</sup> DR 151 and 1179 Attachment 1

<sup>34</sup> DR 1197 Attachment 1

<sup>35</sup> DR 149 and DR 150

- Load factors (LF) are calculated for each customer segment. The basic equation for LF is:

$$LF = \text{Annual Sales} / (\text{Peak Demand} * 8760)$$

- Load factors are applied to the customer sector forecast and combined for coincident peak demand.

$$\text{Peak Demand} = \text{Annual Sales} / (LF * 8760) \text{ for each class and then added together.}$$

#### **14. PSEG LI develops top-down forecasts.**

- The Booked Sales system forecast is the only forecast. Subsystem level forecasts are based on disaggregation of the system demand and sales forecasts.
- PSEG LI prepares several area forecasts:
  - Ten-Year Coincident System Peak Demand forecasts for thirteen townships, two cities, and the Far Rockaway Area found on Long Island.
  - Ten-Year winter peak load forecasts as requested.
  - Ten-Year Independent peak load forecasts for 6 Long Island Areas.
  - Forecasts for feeders, transformer banks, networks, and buses are based on winter and summer peak values. Load forecasting weather normalizes these values. The forecasts are developed based on expected lump load additions with and without existing DER facilities.<sup>36</sup>

#### **15. PSEG LI comprehensively addresses how post-model adjustments are to be applied to the econometric forecasts. PSEG LI's methodology is reasonable given the uncertainty of the programs.**

- Demand Response programs are not at post-model adjustment. PSEG LI uses any Demand Response load shedding as an operational tool. Currently Demand Response represents 75 MW of potential load shedding.<sup>37</sup>
- EE is estimated based on PSEG LI's analysis of the technical and economic potential for EE on Long Island. The study evaluated 22 EE measures across 83 customer segments to determine potential savings. The savings were then evaluated from a cost-effectiveness perspective. The forecast represents the level of energy savings that could be achieved at program level of \$80 Million per year.<sup>38</sup>
- The load forecast identifies only one technology as a DER installation – behind the meter customer-sited, roof top solar and associated battery storage systems (PVs). Other types of DER installations are considered resources and discussed in Chapter VII

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<sup>36</sup> DR 352

<sup>37</sup> DR 574

<sup>38</sup> DR 266

- Power Supply.<sup>39</sup> PVs are estimated based on the previous five years of experience, which found a level installation rate. PSEG LI uses the flat trend continued throughout the forecast period.<sup>40</sup>
- BE forecast for heat pumps is guided by the CAC penetration goals. PSEG LI attributed these goals to its Zone K contribution to hourly demand.<sup>41</sup>
- The EV charging forecast is based on the CLCPA target of 850,000 light-duty electric vehicles by 2025. Based on PSEG LI’s share of current NY vehicle registrations, LIPA’s share is 178,500 vehicles. Annual growth rates are based on adoption rates, supply-constraints, vehicle availability, and price parity with comparable fuel powered vehicles.<sup>42</sup>

#### **16. PSEG LI’s modeling software is well suited to developing load forecasts.**

- PSEG LI uses Statistical Analysis Systems (SAS) and Microsoft Excel.
- SAS is a mainframe and PC based software system. Its strengths include information retrieval and data management, report writing, graphics, statistical analysis, econometrics, and data mining.<sup>43</sup> It permits extremely large data extractions such as billing records and hourly usage, statistical modeling and analysis of the data. SAS results can be downloaded directly into Excel. PSEG LI uses SAS to develop its econometric models.
- Post-model adjustments are developed in Excel.

#### **17. PSEG LI forecasts the impacts from retail access (Long Island Choice) as a post-model adjustment.**

- In the bottom row, **Exhibit VI-5** notes where retail access is applied as a post-model adjustment to both the energy and demand forecasts.<sup>44</sup>
- In 2021, there were 33 LI Choice Customers: 30 C/I and 3 Residential. In June 2022, there were 21 LI Choice Customers: 19 C/I and 2 residential.<sup>45</sup>
- The retail access forecast has three basic steps:
  - Forecast enrollment based on tracking recent enrollments.
  - Calculation of historical use-per-customer.
  - Multiplication of the forecast of enrollments by use-per-customer.

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<sup>39</sup> DR 267

<sup>40</sup> DR 269 Attachment 1

<sup>41</sup> DR 265

<sup>42</sup> DR 605

<sup>43</sup> [www.sas.com](http://www.sas.com)

<sup>44</sup> DR 150 Attachments 1 and 2

<sup>45</sup> DR 153

## Results

### 18. PSEG LI's forecasts show increases in both summer and winter sales and demand.

- **Exhibit VI-6** provides PSEG LI's 2022 Forecast for 2023 through 2042.
  - PSEG LI forecasts annual growth rates of 2.2 percent for energy, 3.6 percent winter peak demand and 0.5 percent for summer peak demand.<sup>46</sup>
  - As discussed in greater detail in Conclusion VI-24, the impacts from EE, BE, EVs, and PVs have significant impacts on the econometric forecasts.

#### **Exhibit VI-6 LIPA Booked Sales and Demand Forecast<sup>1</sup>**

	2023	2030	2036	2040	2042
Summer Peak Demand (MW)	4,968	4,849	5,099	5,340	5,462
Winter Peak Demand (MW)	3,184	3,876	5,068	6,060	6,466
Sales (gWh)	18,028	19,922	23,848	26,770	27,994

Note 1: Includes post model adjustments and ICAP Load Modifiers

- Source: DR 150 Attachment 2 and DR 445 Attachment 1 By 2036, PSEG LI is forecast to become a winter-peaking utility. The growth in winter peak demand is largely attributed to conversion of fossil fuel space heating to electric heat pumps.
- The forecast includes post model adjustments for roof-top solar and associated battery storage systems, electric vehicle charging, energy efficiency and beneficial electrification.
- The forecast also includes adjustments for ICAP Load Modifiers which includes Feed-In-Tariff generating units.<sup>47</sup>

### 19. PSEG LI's forecasting model provides reliable results for planning purposes.

- PSEG LI's primary forecasts are system peak demand, system sales, and customer sector sales.
- **Exhibit VI-7** provides a comparison of short-term actual weather normalized demand and sales to the forecasts.
  - The Demand Forecasts have been very accurate over the past five years, with a variance of about one percent.
  - NorthStar found that the sales forecasts have been very accurate, until the COVID-19 pandemic in 2020. NorthStar believes that in 2020, residential sales and C/I sales had near opposite variances as employees began working from home and businesses were temporarily closed.

<sup>46</sup> DR 150 Attachments 1 and 2

<sup>47</sup> DR 445

- In 2021 and 2022, PSEG LI reevaluated the economic drivers of its models and reforecast ex-post facto. The analysis verified the efficacy of the model performance.<sup>48</sup>

**Exhibit VI-7**  
**Short-Term Forecast to Actual Demand and Sales**

Year	Forecast Demand (MW)	Actual Demand <sup>1</sup> (MW)	Variance	Forecast System Sales (GWh)	Actual System Sales <sup>1</sup> (GWh)	Variance
2018	5,263	5,220	0.8%	19,398	19,115	1.5%
2019	5,146	5,207	-1.2%	18,890	18,789	0.5%
2020	5,126	5,103	0.4%	18,690	18,623	0.4%
2021	5,118	5,176	-1.1%	18,058	18,712	-3.6%
2022	5,049	5,037	0.2%	18,143	18,709	-3.1%

Year	Residential			Commercial/ Industrial		Variance
	Forecast Sales (GWh)	Actual Sales <sup>1</sup> (GWh)	Variance	Forecast Sales (GWh)	Actual Sales <sup>1</sup> (GWh)	
2018	9,239	9,101	1.5%	9,626	9,459	1.7%
2019	8,889	9,022	-1.5%	9,464	9,239	2.4%
2020	8,665	9,593 <sup>2</sup>	-4.0%	9,491	9,049 <sup>2</sup>	4.7%
2021	9,160	9,473	-3.4%	8,379	8,758	-4.5%
2022	8,830	9,360	-6.0%	8,794	8,861	-0.8%

Note 1: Weather Normalized

Note 2: Includes adjustments for COVID-19 Pandemic

Source: DR 150 Attachment 1 and DR 763 Attachment 1

**20. PSEG LI reviews its forecasts regularly throughout the year for performance and potential influences.**

- PSEG LI and LIPA conduct monthly sales forecast meetings. The meeting includes a discussion of various topics such as sales variance, changes in economic assumptions post-model adjustments.
- PSEG LI reviews NYISO's forecast for the Gold Book.
- PSEG LI participates in the NYISO load forecasting task force. The group addresses various aspects of load forecasting, including climate change. They host semiannual economic conferences, with an economist from Moody's Analytics presenting their global/national and regional outlooks and answering questions. In addition, PSEG LI meets periodically with the NYISO staff and occasionally Con Ed, to compare energy and peak demand forecasting methods, assumptions and results, in preparation for the NYISO Gold Book Load Forecast and Load Forecasting Uncertainty modeling.<sup>49</sup>

<sup>48</sup> DR 1349 and DR 1349 Attachment

<sup>49</sup> DR 1351

**21. PSEG LI's models produce reliable and statistically relevant results based on reasonable econometric and weather variables.<sup>50</sup>**

- PSEG LI's short-term models (first three years) produced R-squared values of 97 percent for the residential class and 94 percent for the C/I class – a good fit. R-squared values measure the fit of the data. The rate class models applied to the customer class models exhibit similar fits.
- The medium-term models (years four through ten) produce R-squared values of 82 to 91 percent for the residential and the eight C/I sectors. Once again, this is a good fit given the time horizon is longer than the short-term models.<sup>51</sup>

**22. PSEG LI made several improvements to its forecasting platform since the last audit.**

- PSEG LI now has three distinct time periods in its models as compared to the previous audit which had twenty-year models.
  - Short-Term Model - PSEG LI now forecasts on a quarterly basis for the first three years of the forecast. Previously PSEG LI forecast on an annual basis.<sup>52</sup> This process provides for a more accurate transition from actual to forecast.
  - Mid-Term Model – PSEG LI prepares this for years four to ten. It is econometric and is like the models used in the previous audit.
  - Long-Term Model – Trend forecast for years eleven to twenty.
- The impacts of CLCPA are included as a post-model adjustment. The technologies include:
  - Additional loads: EVs, Electric Space Heating, Electric Water Heating, and Storage Battery Charging
  - Reductions: EE and Behind the Meter Renewables<sup>53</sup>

**23. Variances in forecast to actual sales will not have a significant impact on rates or the revenue decoupling mechanism.**

- PSEG LI evaluates the long-term accuracy of its forecasts using a mean absolute percentage error model (MAPE).<sup>54</sup>
- PSEG LI does not establish an acceptable or reasonable margin of error for its forecasting products.<sup>55</sup> PSEG LI's MAPE is 0.6 percent for peak demand, 1.5 percent

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<sup>50</sup> DR 1197 Attachment 1

<sup>51</sup> DR 1197 Attachment 1, DR 163 (2016 Management Audit)

<sup>52</sup> IR 41, DR 151, and 2016 Management Audit, DR 309 Attachment 1

<sup>53</sup> DR 1572

<sup>54</sup> MAPE is the average absolute difference between prediction and actuals over time.

<sup>55</sup> DR 817

for system sales, 2.0 percent for residential sales, and 1.9 percent for commercial/industrial sales.<sup>56</sup>

- The revenue decoupling mechanism (RDM) has resulted in small bill credits for the past four years. **Exhibit VI-8** provides the monthly revenue decoupling mechanism cost per average customer for the past five years.

**Exhibit VI-8**  
**RDM Per Average Customer/Month**

Year	Residential	C/ I
2018	\$5.64	-\$0.48
2019	-\$0.66	\$0.51
2020	-\$2.63	\$1.09
2021	-\$5.72	\$1.73
2022	-\$4.28	\$1.91

Source: DR 706, DR 762 Attachment 1, and DR 818

**24. PSEG LI forecasting models do not affect strategic initiatives. Load Forecasts report actual and project future energy and demand.**

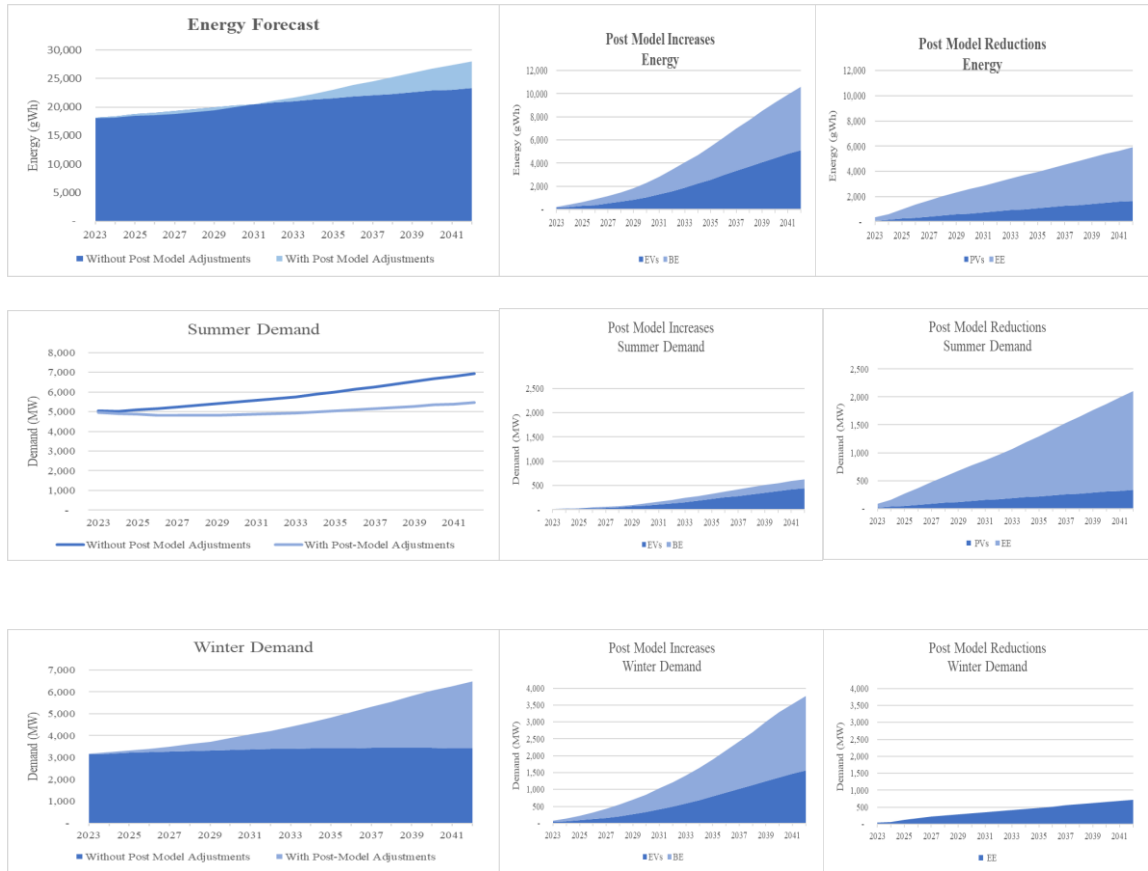
- The impacts from strategic initiatives are shown in **Exhibit VI-9**.
- PSEG LI adjusts its econometric forecasts with several post-model adjustments to account for social and environmental initiatives. These include Energy Efficiency (EE), Customer Owned Roof-top Solar (PVs), EV Charging, and BE.
- **Exhibit VI-9** shows the impact on the energy forecast before and after the inclusion of the post-model adjustments.
  - Until 2031, the growth rate of post-model increases to the energy forecast (EVs and BE) are balanced with post-model reductions to the forecast (EE and PVs). The EE energy forecast is ambitious with a growth rate of almost 15 percent per year. This rate is of considerably greater magnitude than the forecast in 2016. The primary driver in the program is Codes and Standard for Residential Interior Lighting and Other Residential Whole Building Behavioral Changes.
  - After 2031, growth in EV charging and BE outpace any EE savings in the energy forecast.

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<sup>56</sup> DR 817



## Exhibit VI-9 Impacts on the Load Forecast



Source: DR 150 Attachment 2, DR 445 Attachment 1, DR 268 Attachment 1, DR 269 Attachment 1, and DR 445 Attachment 1.

- PSEG LI does not forecast any appreciable increases in total system demand until 2036.<sup>57</sup>
- Growth after 2036 is based on the netting of natural system growth with the load modifiers shown in **Exhibit VI-9**.
- PSEG LI is afforded thirteen years to evaluate how the four load modifiers are progressing and adjust its load forecast and future infrastructure requirements accordingly.

<sup>57</sup> DR 445 Attachment 1

## Feed -In Tariffs (FITs)

### 25. PSEG LI effectively manages its FIT program through a defined and documented process.

- FITs are an expedited means that permits PSEG LI to add generation to the distribution system without the need to enter into the lengthy formal procurement process required by NY Public Agencies.<sup>58</sup>
- FIT solicitations typically follow an eleven-step process, from where a need is identified, a solution accepted, to commercial production. NorthStar did not find the process overwhelming to developers. PSEG-LI has improved its Small Generation Interconnection Process (SGIP) by working with developers. Recent improvements include:
  - Independent review of escalated interconnection cases.
  - Publicly disclose all payment options available to developers.
  - Offer credit card payments to developers.
  - Conduct surveys about the SGIP with developers. The latest survey was in 2022. the results were generally supportive of the SGIP process.<sup>59</sup>
  - Align cost sharing process to be consistent with State Guidelines.<sup>60</sup>
- Since 2012, PSEG-LI has solicited six FITs: four solar, one fuel cell, and one non-solar. **Exhibit VI-10** provides the results of the solicitations. In each case, PSEG-LI received applications for the full goal of the solicitation.<sup>61</sup>

**Exhibit VI-10  
FIT Performance**

Program	Title	Goal	Reservations	Purchased Power Agreements	In Operation	Year
FIT I	Clean Solar Initiative	50 MW	42.6 MW	38.8 MW	Yes	2012
FIT II	Clean Solar Initiative	100 MW	40.5 MW	32 MW	All but one	2013
FIT II	Non-Solar	20 MW	10.2 MW	6 MW	Yes	2014
FIT III	Commercial Solar	20 MW	38.2 MW	18 MW	All but four	2016
FIT IV	Fuel Cell	40 MW	40 MW	7.4 MW	Yes	2016
FIT V	Solar Communities	20 MW	74 MW	3 MW	No	2020

Source: DR 705, DR 814, DR 815, DR 816 and

<https://www.psegliny.com/aboutpseglongisland/ratesandtariffs/tariffs/feedintariff1>

<sup>58</sup> IR 91

<sup>59</sup> DR 702 Attachment 1

<sup>60</sup> DR 701

<sup>61</sup> <https://www.psegliny.com/aboutpseglongisland/ratesandtariffs/tariffs/feedintariff1>

**26. PSEG LI's inability to reach target participation levels is out of PSEG LI's and LIPA control. Often as shown in Exhibit VI-10, PSEG LI accepts numerous applications (reservations) during a FIT solicitation, however, many never become commercially operational. PSEG-LI cites the following causes:**

- At time of application, the developer does not have site control due to unsatisfactory lease negotiation, municipality objections over land use, cost of remediation of land use, and inability to obtain permits.
- Cost of interconnection exceeded developer budget.
- Supply chain disruptions
- Unable to obtain financing for the project.<sup>62</sup>

## **D. RECOMMENDATIONS**

None

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<sup>62</sup> DR 703

## VII. POWER SUPPLY

This chapter provides a review of LIPA and PSEG LI's fuel and power supply programs. Specific areas addressed include:

- An assessment of LIPA and PSEG LI's effectiveness in participating at regional entities such as the NYISO.
- An evaluation of how LIPA manages its Fuel and Purchased Power Contract with PSEG Energy Resource & Trade (PSEG ER&T), as addressed by the Amended and Restated Power Supply Agreement (A&R PSA), Fuel Management Agreement (FMA), and Power Supply Management Agreement (PSM).
- Reviews of how PSEG LI meets its supply procurement obligations and how PSEG ER&T provides hedging.
- An assessment of LIPA's Power Supply Charge – Tariff Leaves 166-169.
- Cost recovery in the Power Supply Charge.

### A. BACKGROUND

The reliability and pricing of electric supply for LIPA's ratepayers depend on several interactive factors, including:

- The volume and composition of mass market default customer load and the availability and costs of the resources needed to meet such loads.
- Availability and costs of renewable energy and other greenhouse gases management resources.
- The ability to provide long-haul transmission for Renewable Portfolio Supply (RPS) generation at least cost.
- Effectiveness of energy efficiency, self-generation, and distributed generation programs.
- The availability and competitiveness of long-term power supply.
- Competitiveness and dynamics of the spot markets.
- Effectiveness of the NYISO in assuring system reliability and managing wholesale markets.
- Effectiveness of utility risk management strategies and practices.

Most of these factors are outside the direct control of individual utilities. However, it is critical that utilities maintain an active presence in the organizations and processes that affect the various factors. For example, in New York State, the planning and construction of long-haul transmission to move electricity (particularly wind-generated power) from upstate to New York City is of critical importance to meeting long-term supply needs of the downstate area. The questions of financing and then pricing the needed transmission lines, along with environmental and other siting issues, are currently under debate and are of critical importance to all New York State electric utilities.

As a transmission owner and participant in New York’s wholesale energy market, LIPA must comply with the rules and standards put forth by wholesale electricity market and/or reliability entities such as the NYISO as well as New York State Reliability Council (NYSRC); Northeast Power Coordinating Council (NPCC); and the North American Electric Reliability Corporation (NERC). Each of these entities has stakeholder forums (such as standing committees, working groups and task forces and ad hoc groups) to address issues which may affect the reliability and cost of electricity for LIPA’s customers.

To protect customer interests and associated reliability and cost impacts, an electric utility must identify, monitor, analyze, and advocate for reliability and power market issues which impact its operations. Involvement in stakeholder forums enables the utility to go beyond mere compliance to proactively developing and advocating changes in market and reliability rules to help improve overall market efficiency and reliability.

LIPA does not own generation facilities other than its historical 18 percent interest in Nine Mile Point 2 nuclear power plant (NMP2). To meet its load requirements, LIPA purchases on-Island and off-Island power supplies.

LIPA receives power from National Grid Generation LLC (GENCO) facilities, the NMP2 facility, and Independent Power Producers on Long Island and elsewhere. In 2022, LIPA received 14 percent of its energy through its proportionate share of Nine Mile Point 2 generation, as well as generation purchased from Fitzpatrick nuclear power plant, 47 percent from local fossil-fuel power plants, five percent from solar, and 34 percent from the energy market.<sup>1</sup>

On January 1, 2015, LIPA entered into agreements with an affiliate of PSEG LI, PSEG ER&T, to provide all energy and fuel management services. PSEG-LI is currently developing its 2023 Integrated Resource Plan (IRP). The IRP study covers the period 2023-2040 and examines LIPA’s resource options considering ongoing industry developments, increased interest in distributed energy resources and renewables under the CLCPA. The IRP will result in an action plan for the period of 2023-2030 that will recommend key actions and investments needed to meet state goals, while continuing to meet the electricity needs of its customers reliably and cost-effectively.

LIPA has an extensive hedging program executed by PSEG ER&T that is designed to stabilize fuel and energy purchases. The LIPA Power Supply Risk Management Committee (PRMC) approved its current hedging program on June 29, 2022.<sup>2</sup>

PSEG LI prepares monthly power supply rates for both its full service and choice customers as required in Electric Tariff Leaves 166-169. There are two components to the Power Supply Charge, Local and Market. The Local Power Supply Charge is applicable to all PSEG LI full-service and Long Island Choice (LI Choice) customers. The Market Power Supply Charge is applicable to customers receiving their energy from LIPA.

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<sup>1</sup> 2023 Integrated Resource Plan- Summary Guide

<sup>2</sup> DR 200 Supplement 1

## **B. WORK TASKS**

### **PSEG LI's Active and Effective Involvement in New York Independent System Operator (NYISO) Issues and Operation as well as Other Regional Entities**

- Evaluate PSEG LI's engagement at stakeholder forums (e.g., standing committees, working groups and task forces and ad hoc groups) of the above-mentioned state or regional market/reliability entities, particularly in areas that are expected to have a significant impact on the T&D system.
- Evaluate PSEG LI's actions regarding advocating for and protecting customer interests, system reliability and mitigating cost impacts in relevant stakeholder forums with respect to NYISO operations, NYISO billing, interpretations and applications of NYISO market rules (including the internal administrative compliance costs of participating in various markets); potential changes in market rules; interpretations and applications of NYSRC, NPCC and NERC reliability rules; potential changes in reliability rules, and results of planning studies conducted by the NYISO and others specified above.
- Evaluate PSEG LI's initiatives to develop, and advocate for changes in market and reliability rules to help improve overall market efficiency and reliability.
- Evaluate PSEG LI's actions to improve the overall efficiency and effectiveness of state and regional market and reliability entities in but not limited to budgeting and cost control, performance objectives and metrics, strategic planning, and overall management.
- Evaluate PSEG LI's performance in representing LIPA's co-ownership interest in Nine Mile Point 2 (NMP2).
- Review PSEG LI and LIPAs participation in the PSC Transmission Planning proceedings in Case 20-E-0197.

### **LIPA's Fuel and Purchased Power Contract Management, as addressed by the Amended and Restated Power Supply Agreement (A&R PSA), Fuel Management Agreement (FMA), and Power Supply Management Agreement (PSM).**

- Evaluate LIPA's auditing enforcement and management of its A&R PSA to effectively and efficiently balance reliability with low-cost electricity for its customers.
- Evaluate LIPA's auditing enforcement and management of its FMA to effectively and efficiently balance reliability with low-cost electricity for its customers.
- Evaluate LIPA's auditing enforcement and management of its PSM to effectively and efficiently balance reliability with low costs electricity for its customers.

### **PSEG LI's Supply Procurement**

- Identify and evaluate PSEG LI's short and long-term power supply portfolio principles, goals, and objectives for its customers.
- Identify and evaluate risk management strategies and practices.
- Identify and evaluate the relevant issue management and escalation process, its actual use and the associated outcome.

- Identify and evaluate the method(s) used by PSEG LI to evaluate the effectiveness of its supply portfolio with respect to price volatility and cost.
- Review and evaluate supply procurement strategies, policies, processes, and methods as they relate to fuel purchased for the on-island generation facilities, and how these will be affected by the CLCPA.
- Review and evaluate the coordination between LIPA and PSEG LI during the negotiation of Power Supply contracts.
- Evaluate the effectiveness of PSEG LI's financial and physical hedging practices as they relate to electric, including an examination of the role and use of transmission congestion contracts and rights used in the NYISO's wholesale market.
- Evaluate PSEG LI's power supply resource planning process. Identify planned changes resulting from the CLCPA. Evaluate PSEG LI's financial and physical hedging practices and evaluate the success in reducing price volatility for customers.
- Examine and evaluate PSEG LI's use of performance benchmarking against other utilities.
- Evaluate the achievement of portfolio performance goals.
- Evaluate portfolio oversight and controls.
- Examine the role of demand-side management, demand response, energy efficiency, and the migration of retail customers to competitive suppliers in the portfolio and procurement processes. (Covered in Load Forecasting)
- Review and assess the current and proposed use of on-island generation provided by GENCO.
- Evaluate PSEG LI's position on and use of alternate energy sources in its supply portfolio (e.g., hydropower, wind, energy storage, etc.).

### **LIPA's Fuel and Purchased Power Cost Adjustment Clause Tariff Leaves 166-169 and LIPA's Fuel and Purchased Power Cost Recovery**

- Review and evaluate any changes to the clarity, usefulness, and thoroughness of LIPA's tariff since the last Management Audit.
- Examine items listed under Tariff Leaves 166-169 for reasonableness and relationship to fuel and purchased power cost.
- Examine LIPA's implementation of the tariff for consistency with the requirements specified under its fuel and purchased power tariff. Determine whether LIPA is accurately grouping power supply charges for the local power supply charge and market supply charge based on the tariff.
- Review and evaluate LIPA's Tariff Leaves 166-169 to identify any changes necessary to better describe and reflect actual fuel and purchased power cost.
- Verify that the cost recovered through this clause is not also recovered in other rates and charges. Specifically identify any components included in Fuel and Purchased Power that have been shifted from base rates.
- Verify that the actual cost that is recovered correctly represents what is allowed under Tariff Leaves 166-169. Evaluate the effectiveness of PSEG LI's policies, procedures, and processes for determining and verifying the correct cost recovery amount.
- Verify that the cost recovered through the fuel and purchased power cost adjustment clause were approved by the appropriate managers and the Board.



- Verify that sufficient historical financial records are kept for a reasonable period of time to enable verification of fuel and purchased power cost.
- Evaluate the reasonableness of the projections of future fuel cost incorporated into the Power Supply Charge.
- Evaluate and recommend any improvements to LIPA’s fuel and purchased power cost reconciliation with customer bills.
- Review and evaluate policies and procedures for approving changes to cost recovery.
- Examine PSEG LI’s day-to-day practices for consistency and adherence with the requirements specified under its fuel and purchased power policies and procedures.

## C. FINDINGS AND CONCLUSIONS

### 1. LIPA and PSEG LI have broad and comprehensive coverage of the activities of its regional regulatory entities.

- LIPA, PSEG LI, and their consultants participate in and monitor regional regulatory entities that include the NYISO, NYSRC, NPCC, ISO New England (ISO-NE), PJM Regional Transmission Operator (PJM), FERC and NERC.<sup>3</sup>
  - The NYISO’s mission is to ensure power system reliability and competitive markets for New York in a clean energy future.<sup>4</sup>
  - The NYSRC’s mission is to promote and preserve the reliability of electric service on the New York State Power System by developing, maintaining, and, from time-to-time, updating the Reliability Rules which shall be complied with by the NYISO and all entities engaging in electric transmission, ancillary services, energy and power transactions on the New York State Power System.<sup>5</sup>
  - The NPCC is responsible for promoting and enhancing the reliability of the international, interconnected bulk power system in Northeastern North America.<sup>6</sup>
  - The ISO-NE and PJM are similar to the NYISO and are chartered with three responsibilities: (1) Bulk Transmission System Operations, (2) Market Administration, and (3) Power Supply and System Planning.<sup>7</sup>
- The regional regulatory entities have numerous subcommittees that address various aspects of the entities’ charter. **Exhibit VII-1** provides LIPA’s, PSEG LI’s and their consultant’s coverage of the regional regulatory entities and their subcommittees.
- PSEG LI dedicates resources to those areas that directly address the operations and reliability of the assets and/or resource requirements. PSEG LI uses internal resources where the expertise exists and supplements its staff with consultants as necessary.<sup>8</sup>

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<sup>3</sup> DR 137 Attachment 1

<sup>4</sup> <https://www.nyiso.com/about-us>

<sup>5</sup> <https://www.nysrc.org/>

<sup>6</sup> <https://www.npcc.org/about>

<sup>7</sup> <https://www.iso-ne.com> and <https://www.pjm.com>

<sup>8</sup> DR 450

**Exhibit VII-1  
PSEG LI Regional Regulatory Entity Coverage**

<b>Entity</b>	<b>Committee/Subcommittee</b>	<b>LIPA</b>	<b>PSEG LI</b>	<b>PSEG Consultant</b>
<b>NYISO</b>	Management Committee	<b>X</b>	<b>X</b>	
	Budget and Priorities Working Group (WG)			<b>X</b>
	By-Laws			
	Liaison			<b>X</b>
	Market Participant Audit Advisory			
	Stay Review			
	Tariff Review			
	Business Issues Committee	<b>X</b>	<b>X</b>	
	Billing, Accounting & Credit Policy WG			<b>X</b>
	Business Intelligence Task Force			
	Electric Gas Coordination WG			
	Electric System Planning WG			<b>X</b>
	Installed Capacity WG	<b>X</b>	<b>X</b>	
	Integrated Public Policy Task Force		<b>X</b>	
	Load Forecasting Task Force		<b>X</b>	
	Market Issues WG	<b>X</b>	<b>X</b>	
	Metering Task Forecast			
	Price-Responsive Load WG			
	Operating Committee		<b>X</b>	<b>X</b>
	Communication & Data Advisory		<b>X</b>	
	Electric Gas Coordination WG			
	Electric System Planning WG			
	Interconnection Project Facilities Study WG		<b>X</b>	
	Inter-Area Planning Stakeholder Advisory			
	Interconnection Issues Task Force			
	Restoration WG			
	System Operations Advisory		<b>X</b>	
	System Protection Advisory		<b>X</b>	
	Transmission Planning Advisory Subcommittee		<b>X</b>	<b>X</b>
<b>NYSRC</b>	Executive		<b>X</b>	
	Reliability Rules		<b>X</b>	
	Reliability Compliance Monitoring		<b>X</b>	
	Installed Capacity		<b>X</b>	
	Defensive Strategies WG			
	Resource Adequacy Advisory WG			
<b>NPCC</b>	Regional Standards			
	Reliability Coordinating		<b>X</b>	
	Government/Regulatory Affairs Advisory Group			
<b>ISO NE</b>	Participants		<b>X</b>	
	Markets Committee		<b>X</b>	
	Transmission		<b>X</b>	
	Reliability		<b>X</b>	
	Load Forecast			
	Power Supply Planning		<b>X</b>	
	Planning		<b>X</b>	
	Interregional Planning Stakeholder Advisory			
	Transmission Owner Planning Advisory			
	Electric/Gas Operations			

Source: DR 137 Attachment 1 and NorthStar Analysis

## 2. PSEG LI and LIPA are engaged in various stakeholder forums.

- As shown in **Exhibit VII-1**, PSEG LI, LIPA, and its consultant have broad coverage at stakeholder forums.<sup>9</sup>
- Where attendance records were available, NorthStar verified attendance by PSEG LI personnel.<sup>10</sup>
- NorthStar reviewed various stakeholder minute meeting and found numerous comments on multiple issues by PSEG LI and LIPA.<sup>11</sup>

## 3. LIPA and PSEG LI have relied on monthly meetings since 2020 to coordinate its regulatory activities.

- Joint policy monthly meetings between LIPA and PSEG LI include the following:
  - Discussion of potential advocacy opportunities.
  - New and pending State and Federal Regulatory proceedings
  - Potential Impacts from State and Federal Regulatory proceedings on system operations and customers
  - Need for comments.
  - Prioritization of initiatives and Resource Management.
  - Work Assignments.<sup>12</sup>
- Stakeholder forums include:
  - CLCPA Transmission Planning
  - NY siting of renewable transmission energy projects
  - Retail Choice
  - Community Aggregation
  - Community Distributed Generation Net Billing
  - New Efficiency New York
  - Electric Vehicle Make Ready
  - Interconnection Working Group
  - Clean Energy Standard Affordability
  - Prolonged Outage Proceedings
- In each monthly review, subject matter experts provide updates to the matters and evaluate the need to comment.
- From these meetings, issues are identified, and a policy stance is developed.<sup>13</sup>

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<sup>9</sup> DR 137 Attachment 1

<sup>10</sup> <https://www.nyiso.com/business-issues-committee-bic-> and <https://www.nysrc.org/committees/>

<sup>11</sup> <https://www.nyiso.com/business-issues-committee-bic-> and <https://www.nysrc.org/committees/>

<sup>12</sup> DR 1259

<sup>13</sup> DR 1259

#### 4. LIPA and PSEG LI did not present a regulatory strategy in the 5-Year Strategic Roadmap.<sup>14</sup>

- LIPA and PSEG LI anticipate that changes in the regulatory environment and energy market will impact LIPA in the following ways:
  - Operations will need to accommodate intermittent resources, interconnection of numerous resources and transmission facilities, while maintaining reliability and affordability.
  - The Customer experience will be shaped by a shift in costs from fossil-based resources to clean resources thereby increasing customer cost and forcing customer decisions in consumption and self-generation.
  - Customer costs will be affected by new rate designs and larger costs being incurred external of the utility.<sup>15</sup>
- The LIPA BOT identified the following initiatives in its March 2023, 5-Year Strategic Roadmap:
  - Transmission and Distribution
    - Adapt a programmatic approach to Asset Management.
    - Apply modern system design and innovative technology.
    - Facilitate interconnection of renewable and distributed resources.
    - Reduce outages caused by storms and other emergencies.
    - Provide a safe environment for LIPA dedicated workforce and the public.
  - Customer Experience
    - Use customer and operational data to enhance customer transactions.
    - Optimize customer channel experience and self-utilization.
    - Modernize core customer systems.
    - Improve energy affordability through rate design and targeted programs.
    - Provide proactive and personalized communications and customized offerings.
    - Strengthen customer operations capacity.<sup>16</sup>
  - There are several omissions from the 5-Year Strategic Roadmap related to supply procurement:
    - Meeting CLCPA goals
    - Development of an IRP that support CLCPA goals and supply requirements
    - Assessment of customer rates impacts from implementing CLCPA goals.
- The BOT Policy for Clean Energy and Power Supply has a goal to achieve a zero-carbon grid by 2040. This policy is not included in the 5-Year Strategic Roadmap.

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<sup>14</sup> LIPA-PSEG Long Island, 5-Year Strategic Roadmap, March 29, 2023

<sup>15</sup> DR 1258

<sup>16</sup> DR 1257

Nevertheless, LIPA and PSEG LI have represented LIPA's interests in the following manner:

- LIPA engaged with the New York Independent System Operator (NYISO) and other utilities to review NYISO's evaluation of proposals for the Long Island Offshore Wind Export Public Policy Transmission Project, with the goal of maximizing benefits and minimizing costs. The project's goal is to reinforce the LIPA system and develop new interconnections to Con Edison's system, enabling at least 3,000 MW of offshore wind to be connected to Long Island and exported to the rest of New York State.
- LIPA continued to coordinate with the Department of Public Service (DPS) and other New York State Transmission Owners to develop a statewide least-cost plan for local transmission upgrades needed to integrate renewables in support of CLCPA goals.
- LIPA submitted to the Department of Energy (DOE) a proposal seeking a federal grant for \$250 million towards \$500 million of T&D investments to enhance interconnection capacity for Distributed Energy Resources. LIPA was notified on February 24 of an initial determination of support by DOE and invited to submit a full grant application in May 2023.
- LIPA participated in the statewide process to define disadvantaged communities and meet its share of CLCPA goals.<sup>17</sup>

**5. LIPA and PSEG LI have developed a consistent position and participated extensively in the New York Public Service Commission's Transmission Planning Proceedings (Case 20-E-019) to present their positions.**

- LIPA participated in the Coordinated Grid Planning Process (CGPP). The CGPP is a three-year cyclic planning process by the State's seven largest utilities. The goal of CGPP is to "identify electric grid expansions that can aid in unlocking renewable generation capacity and provide energy headroom for the purpose of meeting New York State clean energy goals while providing value to customers. Moreover, the CGPP will identify opportunities for expansion of the bulk transmission system to advance CLCPA objectives. This will inform the Commission's consideration of whether to establish a Public Policy Transmission Need (PPTN)."<sup>18</sup> The CGPP developed their final proposal on December 27, 2022.
- LIPA has been diligent in ensuring that the costs associated with local transmission remain with the ratepayer and that costs associated with CLCPA are shared throughout the State. This was accomplished through review of other NY utility proposals to expand the bulk transmission system to assure that LIPA interests are presented.
  - On May 31, 2022, LIPA filed comments in response to Central Hudson Gas and Electric, New York State Electric and Gas, Niagara Mohawk and Rochester Gas and Electric's identification of electric transmission infrastructure that may be

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<sup>17</sup> DR 1257 Supplement 3

<sup>18</sup> DR 1261 Supplement 2

needed to meet CLCPA goals. LIPA maintained that the Phase 2A projects are multi-billion dollar in scope and there were insufficient benefit/cost analyses to support the proposal. LIPA also notes that the cost estimates may be subject to overruns of 50 percent. LIPA recommended approval of only the “no-regrets” projects.<sup>19</sup>

- On July 11, 2022, LIPA filed comments in response to ConEd’s request for cost recovery for the Brooklyn Clean Energy Hub. LIPA’s comments urged caution in the cost recovery, as the project not only serves offshore wind resources related to CLCPA but also supports load and maintains local system reliability. Currently the Brooklyn Clean Energy Hub is the site of Hudson Valley Gas Turbines (3, 4, and 5) and ConEd seeks to repurpose the site.<sup>20</sup>
- LIPA has demonstrated success in its activities.
  - The PSC determined that the Brooklyn Energy Hub is a reliability-based project until such time that it is used for offshore wind generation.
  - PSC determination that transmission costs should be allocated based on use (local transmission vs. CLCPA.) LIPA saved ratepayers an estimated \$900 million due to this distinction of use.<sup>21</sup>

## **6. PSEG LI provides effective representation of LIPA’s interests at NMP2.**

- PSEG LI has one dedicated full-time employee on site with unrestricted access. The employee is responsible for:
  - Awareness of operational and safety status.
  - Conveyance of operations.
  - Submittal of daily reports.
  - Submittal of monthly reports.<sup>22</sup>
- Operational and safety awareness is performed by:
  - Weekly attendance at NMP2 6:30 am Production Meetings.
  - Monthly attendance at the Plant Health Committee and Project Review Committee Meetings.
  - Monthly meeting with NMP2 Site Vice-President.
  - Representing LIPA at the quarterly Management Committee Meetings.
- PSEG LI contributes to development of the:
  - NMP2 Annual Operating Budget.
  - Nuclear fuel expense and fuel-cycle.

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<sup>19</sup> DR 1261 Supplement 3

<sup>20</sup> DR 1261 Supplement 4

<sup>21</sup> DR 1261

<sup>22</sup> DR 416

- NMP2 Financial Report.

**7. NorthStar’s review sample of daily and monthly reports and minutes from the NMP Plant Health Committee and Management Committee Meeting found PSEG LI focused, and vocal on relevant issues.**

- PSEG LI represented LIPA’s interest in an 18 percent reduction in output due to equipment changes on both Units 1 and 2.
- Opinions on root cause analyses.
- Notifications of safety issues.
- Notifications of maintenance issues.

**8. LIPA enforces the provisions of the FMA.**

- The FMA was executed between LIPA and PSEG ER&T on November 26, 2013.
- The FMA was an annual service fee of \$4,300,000 billed in twelve equal installments beginning on January 1, 2015.
- The FMA is adjusted annually for the NY Consumer Price Index. The term of the contract is eleven years.
  - NorthStar verified the annual fee and the consumer price index.
  - NorthStar reviewed a sample of invoices and found the monthly charge to be correct.<sup>23</sup>
- PSEG ER&T is subject to annual performance penalties not to exceed ten percent of the annual management fee. During the past five years, there have been no performance penalties assessed.<sup>24</sup> The performance metrics include:
  - Gas Price Forecasting Accuracy
  - Gas Purchase Price
  - Gas Balancing Charge
  - Quarterly Satisfaction Report formerly Enterprise Data Management
  - Oil Inventory Monitoring
  - Invoice Process
- LIPA Internal Audit conducted a review of the Gas Price Forecasting and the Gas Purchase Price Metrics in December 2021. Controls were found to be effective with no specific observations.<sup>25</sup>

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<sup>23</sup> DR 974 Attachments 1 and 2, DR 1162 Supplement 1, and DR 1262 Supplement 1

<sup>24</sup> DR 420 and Attachments 1-5

<sup>25</sup> DR 201 Supplement 1



## 9. LIPA enforces the provisions of the PSM.

- The PSM was executed between LIPA and PSEG ER&T on November 26, 2013.<sup>26</sup>
- The PSM includes the following billing components: PSMFB Management Fee, PSMFB Annual Fee, PSMFB Scheduling Fee, PSMFB Hedging Fee, PSMMO Service Fee, and Generation Desk Coverage.<sup>27</sup> The agreement begins on January 1, 2015, with a term of eleven years.<sup>28</sup>
  - NorthStar tested the PSMFB Management Fee, the PSMGB Annual Fee, the PSMMO Service Fee, and the Generation Desk Coverage Fee for 2022 and 2023.
  - NorthStar’s review found the fees to be correct.<sup>29</sup>
- PSEG ER&T is subject to annual performance penalties not to exceed 10.65 percent of the annual fees. During the past five years, there have been no performance penalties assessed.<sup>30</sup> The performance metrics include:
  - Cable Schedule Effectiveness
  - Bid Accuracy
  - Adherence to Bidding Strategy and Process
  - Contingent Bid Responsiveness
  - Annual Significant Financial Loss
  - Load Forecasts
  - Capacity Market
  - Overall Satisfaction
  - Critical Report Timeliness<sup>31</sup>
- LIPA Internal Audit conducted a review of the Cable Transaction Effectiveness, Generation Bid Accuracy and the Capacity Market Metric in December 2021. Controls were found to be effective. The auditor noted that the benchmark data used in the Cable Schedule Effectiveness was outdated.<sup>32</sup>

## 10. LIPA and PSEG LI enforce the provisions of the Amended and Restated Power Supply Agreement (PSA).

- The PSA was executed between LIPA and National Grid Generation LLC (Genco) on October 10, 2012. It will expire on April 30, 2028. The general purpose of this

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<sup>26</sup> LIPA Power Supply Management Services Agreement

<sup>27</sup> PSMFB refers to the Power Supply Management Front/Back Office Services, PSMMO refers to the Power Supply Management Middle Office Services.

<sup>28</sup> DR 976 Attachments 1 and 2

<sup>29</sup> DR 976 Attachments 1 and 2, DR 1162 Supplement 1 and DR 1262 Supplement 1

<sup>30</sup> DR 420 and Attachments 1-5 and DR 1166

<sup>31</sup> Fact verification

<sup>32</sup> DR 201 Supplement 1

agreement is for Genco to sell and deliver to LIPA capacity, energy, and ancillary services.<sup>33</sup>

- GENCO prepares three monthly invoices:
  - Monthly Capacity Charge – The monthly capacity charge is 1/12<sup>th</sup> of the annual capacity charge. The annual capacity charge includes estimates of:
    - Budgeted Incremental Net Utility Plant times PTROR<sup>34</sup>
    - Budgeted Incremental Depreciation Expense
    - Labor Cost Index Adjustment (Production)
    - Labor Cost Index Adjustment (Support)
    - Benefit Cost Index Adjustment (Production)
    - Benefit Cost Index Adjustment (Support)
    - Rebase Property Tax
    - Rebased pension and other post-employment benefit expenses
    - After the fourth month of each Contract Year an annual lump sum surcharge or credit will be due from LIPA for Plant Additions and Actual Property Tax.
  - Monthly Variable Charge – The Monthly Variable Charge is \$0.90 per MWH of net generation delivered to LIPA. This charge may also include variable monthly ancillary services.
  - The Regional Greenhouse Gas Initiative Charges.<sup>35</sup>
- PSEG LI reviews the Genco invoice using procedure: PM05LI – Power Market Purchased Power Invoice Review. The review includes a download of the transaction data and verification of the calculations.<sup>36</sup>
- NorthStar reviewed a sample of PSA Invoices and found them to be complete and supported.<sup>37</sup>
- LIPA Internal Audit conducted an audits of the Plant and Property Tax True-up in March 2020. Controls were found to be effective..<sup>38</sup>

**11. PSEG LI's supply portfolio goals and objectives are consistent with operational, customer cost, and regulatory requirements. PSEG LI and LIPA have developed six goals:**

- Support and meet CLCPA goals: All Integrated Resource Plan (IRP) scenarios must meet or exceed CLCPA goals. LIPA intends to participate in all CLCPA related programs including renewable energy credits and to meet specific clean energy technology targets.

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<sup>33</sup> DR 5

<sup>34</sup> Pre-tax return on rate base

<sup>35</sup> DR 5

<sup>36</sup> DR 421 Attachment 1

<sup>37</sup> DR 1167 and all Attachments

<sup>38</sup> Fact verification

- Develop projection and identify the impacts of beneficial electrification: Identify additional electric load associated with electrification of home heating and transportation.
- Determine short and long-term resource needs: Identify the necessary resources to meet CLCPA requirements.
- Maintain system reliability: IRP scenarios will be required to meet, or exceed, existing and projected reliability standards and capacity requirements.
- Minimize rate impact to the extent practicable: Compare different resource options based on their projected cost and performance and select the preferred portfolio of resources (including amounts and types) that best meet reliability, environmental, and affordability criteria.
- Benefit disadvantaged communities: The CLCPA requires that benefits from clean energy investments be realized by disadvantaged communities. The definition of disadvantaged communities, though, and how benefits are to be quantified, had not been finalized by the Climate Justice Working Group during the analytical phase of the IRP.<sup>39</sup>

## **12. LIPA has not been effective in finalizing an Integrated Resource Plan since 2017.**

- LIPA had not developed and received approval of an IRP since 2017. IRPs are a comprehensive study developed every three to five years.<sup>40</sup> The current approved IRP predates CLCPA.<sup>41</sup>
- PSEG LI developed an IRP in 2022 IRP.<sup>42</sup> The process to approve and accept this IRP was not completed in 2022.
- LIPA is nearing completion of the 2023 Integrated Resource Plan. The IRP was to be presented third quarter 2023 for public comment.<sup>43</sup> Public comment is now scheduled for mid-February 2024. LIPA posted on its website a summary guide of the 2023 IRP and a briefing document to the 2023 IRP in mid-November.<sup>44</sup>

## **13. The Summary Guide to the 2023 Resource Plan provides a solid overview of the composition of the portfolio. It identifies strategies and goals for the portfolio but does not meaningfully address rate impact or impact on the power supply charge.**

- **Exhibit VII-2** provides the evolution of LIPA's capacity supply portfolio from a fossil generation portfolio to a clean energy portfolio.

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<sup>39</sup> PSEG LI, LIPA's 2022 Integrated Resource Plan, Final Draft Issue, November 30, 2022 - Confidential

<sup>40</sup> Fact verification

<sup>41</sup> DR 202

<sup>42</sup> PSEG LI, LIPA's 2022 Integrated Resource Plan, Final Draft Issue, November 30, 2022 - Confidential

<sup>43</sup> DR 977

<sup>44</sup> <https://www.flipsnack.com/lipower/2023-irp-summary-guide/full-view.html> and <https://www.lipower.org/irp/>

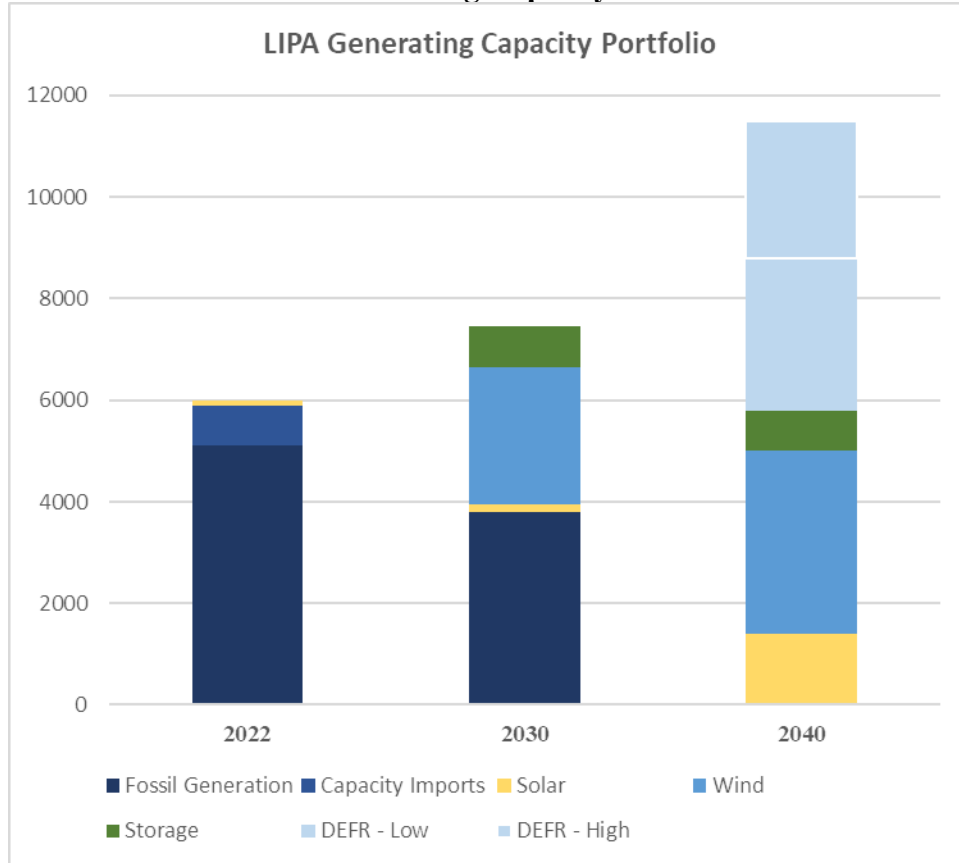
- PSEG LI’s resource plan for generation capacity does not meet the requirements of CLCPA in 2030. CLCPA requires a 70 percent renewable portfolio standard. Fossil generation will still exceed 30 percent of the portfolio. LIPA claims that the 70/30 generation portfolio is a statewide goal and not applicable to individual utilities.<sup>45</sup> LIPA has not provided any NY policy or directives supporting this position.
- PSEG LI’ resource plan meets the requirements of CLCPA in 2040 – 100 percent clean energy. LIPA will phase out the GENCO units by 2040. To meet the requirements of the 2040 portfolio, LIPA has identified the following generation project mostly through early 2030s:
  - Solar – 1,400 MW: Includes 8 solar farms and behind the meter installations.
  - Offshore Wind – 3,600 MW: Four offshore wind projects scheduled to be online in varying times from 2024 to the 2030s.
  - Energy Storage - 750 MW: Three projects representing 175 MW are scheduled for 2025 and beyond.
  - LIPA provides no explanation as to the disposition of its ownership in Nine Mile Point 2 Nuclear Generating Plant.
  - Dispatchable Emission Free Resources (DEFs) as defined in the Summary Guide are new technologies that are currently not marketable. DEFs are anticipated to provide 50 percent of the generating capacity.<sup>46</sup>

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Fact verification

<sup>46</sup> <https://www.flipsnack.com/lipower/2023-irp-summary-guide/full-view.html>

**Exhibit VII-2  
LIPA Generating Capacity Portfolio**



Note: The generating capacity is representative of load to be served. Behind-the-meter resources such as rooftop solar are not included in the generation profile as they are subtracted from customer load in the load forecast.

Source: <https://www.flipsnack.com/lipower/2023-irp-summary-guide/full-view.html>

**14. PSEG ER&T’s hedging risk management strategies and practices are designed to reduce the risks from market exposure and price volatility.**

- There are five elements to the risk management strategy:
  - Triggers – Price Volatility
  - Credit Rating – Market Exposure
  - Clearing Accounts – Market Exposure
  - Volume – Price Volatility
  - Policies, Procedures and Controls – Market Exposure
- Triggers
  - A trigger is an event or condition that forces PSEG ER&T to make a trade or take a specific action. Triggers can be value or time based.

- PSEG Credit Risk Management uses a credit scoring model that calculates financial ratios for counterparties. It is based on two years of audited financial data. Scores range from 1 to 10, where 1 is the most desirable score.<sup>47</sup> All electric supply counterparties have risk scores of 3 or better. Most gas supply counterparties have risk scores of 2 or 3.<sup>48</sup>
- PSEG ER&T reports that for the past three years, transactions conducted through a clearing account represented 85 percent of all electricity volume and 98 percent of natural gas volume.<sup>49</sup> A clearing account reduces counterparty credit risk by maintaining collateral (e.g., cash) in a segregated account in accordance with CFTC rules, until the hedge transaction settlement at expiration.
- PSEG ER&T is currently permitted to hedge a minimum of fifty percent and a maximum of 85 percent of its volumes.<sup>50</sup> PSEG ER&T hedges around 65 percent of its volumes on average.<sup>51</sup> Hedging large volumes leads to less volatile prices.
- The LIPA BOT last approved the Board Policy on Power Supply Hedging Program on September 25, 2019, resolution #1493. The PRMC prepares and maintains the LIPA Policies, Controls, and Procedures Manual for Power Supply Hedging Program which was last updated and approved by the PRMC on June 29, 2022..<sup>52</sup> The manual is specific as to:
  - Roles and responsibilities
    - Establishment of Front, Middle and Back Offices to ensure separation of duties.<sup>53</sup>
    - Delegations of Authorities.
  - Term Limits – not to exceed 47 months without Power Supply Risk Management Committee (PRMC) approval.
  - Volume Limits
    - Capacity - Forward purchases shall be made to meet the requirements of the New York Independent System Operator as a load serving entity.
    - Natural gas - Maximum forward purchases shall not exceed 90% of projected gas consumption requirements.
    - Oil - Maximum forward purchases shall not exceed 90% of projected oil consumption requirements.
    - Power - Maximum forward purchases shall not exceed 90% of load requirements. Maximum forward sales shall not exceed 90% of generation in excess of load requirements.
    - Emission Credits - Maximum forward purchases shall not exceed 90% of annual or seasonal.

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<sup>47</sup> DR 200 Attachment 1

<sup>48</sup> DR 429

<sup>49</sup> DR 429

<sup>50</sup> DR 427

<sup>51</sup> DR 427

<sup>52</sup> DR 42 Attachment 2 and DR 200 Attachment 1

<sup>53</sup> DR 425 and 426

- Permissible Instruments
  - Futures
  - Forwards
  - Swaps and Contracts-for-Differences (CFDs)
  - Options and collars, including exchange-traded, over-the-counter, European or American, calls, puts and any combination thereof, provided, however, that the sale of options is strictly limited to collars and cases where potential liabilities are fully offset by available assets
  - Swap Options (Swaptions)
  - Transmission Congestion Contracts (“TCCs”) and Financial Transmission Rights (“FTRs”)
  - Ancillary Services and Products
  - Physical supply bi-lateral contracts
- Documentation and Record Keeping
- Reporting to LIPA
  - Daily Credit Exposure Report
  - Daily Over-the-limit Report
  - Weekly Financial Counterparty New Current Credit Exposure Report
  - Weekly Top 10 Net Current Credit Exposures with Physical Counterparties Report
  - Weekly Over-the Limit Report
  - Weekly Trading Activity Summary Report
  - Weekly Position Report
  - PRMC Meeting Minutes
  - Quarterly Benchmarking Report from 3rd party hedging advisor
  - Biannual Power Supply Hedging Program Report
  - Annual Compliance Report (Hedging)

**15. PSEG ER&T has been effective in reducing price volatility for LIPA’s customers.**

- PSEG ER&T defines volatility as the coefficient of variation. The coefficient of variation is a mathematical relationship calculated by dividing the standard deviation by the mean on a rolling twelve-month period.<sup>54</sup>
- **Exhibit VII-3** provides a comparison of the volatility of the energy market (solid red line) to volatility of the PSC (blue dotted line).
  - The redline is a proxy for the market cost of energy on Long Island. It includes:
    - NYISO Zone K electricity price.
    - Capacity price based upon NYISO six-month auction.
    - NYISO Ancillary Services New York Power Authority Transmission Adjustment Charges (NTAC).
    - NYSERDA Zero-Emission Credits (ZEC) Charges.

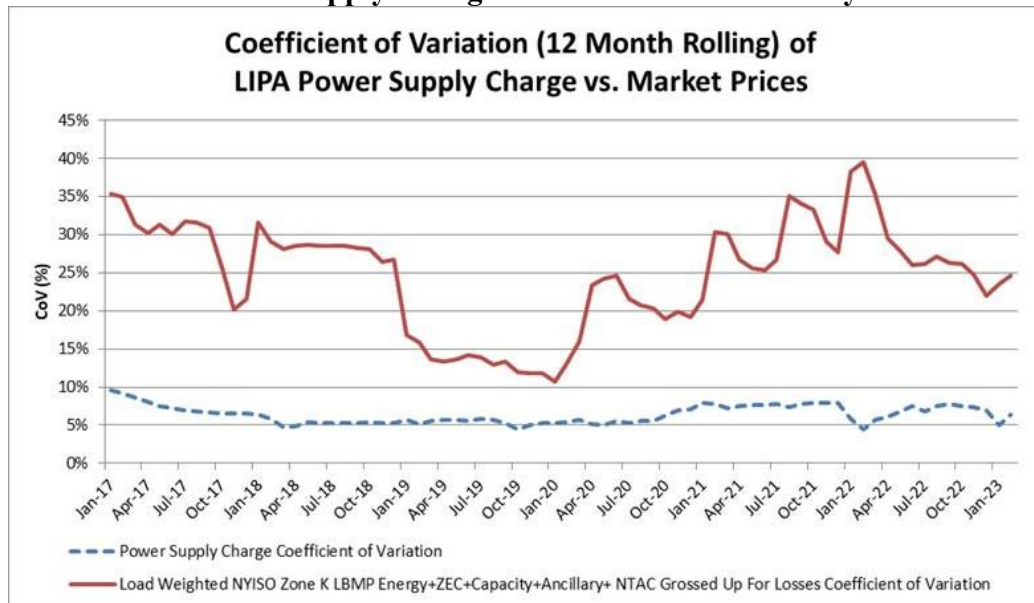
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<sup>54</sup> [https://en.wikipedia.org/wiki/Coefficient\\_of\\_variation](https://en.wikipedia.org/wiki/Coefficient_of_variation)



- Supply Charges applicable to LI Choice Customers.<sup>55</sup>
- The components of the red line are comparable to the components of the blue line. The blue line includes the PPA and the red line the supply charges applicable to LI Choice Customers. The dotted blue line also includes the impact of the hedging program on volatility while the solid red line does not.

**Exhibit VII-3  
Power Supply Charge vs Market Price Volatility**



Source: DR 707

- NorthStar tested a sample of the data used to calculate **Exhibit VII-3** and concurs with the data presented in the graph.<sup>56</sup>
  - The PSC charges represented in the calculation match the addenda to the Tariff.
  - Confirmed the calculated market price of energy.
  - Confirmed the calculated coefficients of variation.
- LIPA has done well in managing price volatility for its ratepayers as shown in **Exhibit VII-3**. PSEG ER&T does not have a formal performance metric for its hedging program.
- NorthStar’s testing noted some errata in the volatility database developed by PSEG ER&T.
  - The NYSERDA ZEC charges had not been updated since December 2020. It was later corrected.<sup>57</sup>

<sup>55</sup> DR 707

<sup>56</sup> DR 707 Attachment 1

<sup>57</sup> DR 609 and DR 707

- PSEG ER&T uses an outdated standard deviation formula “STDEV” that is found in Microsoft Excel prior to 2007. The newer standard deviation formulas will not produce the exact same results.

**16. PSEG LI and LIPA have a cooperative relationship when developing RFPs for generation resources.**

- LIPA’s Director of Power Supply Planning is responsible for:
  - Reviewing and assessing the service provider’s long-range power supply and resource planning process, including the IRP and plans for resource procurement.
  - Overseeing long-range power procurement and reviewing service provider’s issuance of requests for proposals (RFP’s), monitoring the evaluation and selection of proposals, making recommendations to LIPA senior management on the acceptability of proposals and contracts, and preparing documents to submit to the New York State Office of State Comptroller for power purchase agreement approval.
  - Reviewing and providing policy guidance to the service provider on its negotiation and administration of Power Purchase Agreements and other contractual arrangements.<sup>58</sup>
- LIPA and PSEG LI’s Power Market Organization conduct standing weekly meetings to develop RFPs and evaluate the results of RFPs.<sup>59</sup>
- NorthStar reviewed the work products of LIPA and PSEG LI related to two RFPs: 2021 Bulk Energy Storage Solicitation and 2021 Off-Island Capacity Solicitation.
  - Regular changes and edits by both LIPA and PSEG
  - Comments and questions<sup>60</sup>

**17. PSEG LI’s benchmarking of its supply portfolio is limited to its hedging program. These benchmarking reports are not traditional in nature.<sup>61</sup>**

- PSEG ER&T uses the services of a third-party financial hedge advisor to assist in the preparation of bi-annual reports to LIPA’s BOT Finance & Audit Committee (F&A) on the Hedging Program in accordance with the BOT PS Hedging Program Policy.<sup>62</sup>
- LIPA uses the services of a third-party financial advisor to prepare quarterly benchmarking reports on the PSEG E&RT trading program.<sup>63</sup>
- On an annual basis, ER&T uses the services of a third-party financial hedge advisor who conducts an annual industry hedge program survey. ER&T and LIPA use the

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<sup>58</sup> DR 413 Supplement 4

<sup>59</sup> IR 20

<sup>60</sup> DR 1009 and all Supplements

<sup>61</sup> DR 145 and DR 435 Supplement 18

<sup>62</sup> DR 435 Supplements 3,4, and 19

<sup>63</sup> DR 435 Supplement 18

survey results to compare LIPA’s Hedge Program to other companies’ hedge program components. Hedge Program components include Primary Hedge Program Objective; Hedge Strategy Methodology; Hedge Time Horizon; Hedge Volumes; and Hedge Instrument Selection.<sup>64</sup>

- The ER&T biannual hedge report to LIPA’s BOT F&A provides them insight into energy commodity price history, current forward prices, seasonal weather patterns and performance of the Market costs at NYISO Zone K, relative to PSEG LI’s Power Supply Charge (PSC) 12-month rolling volatility.<sup>65</sup>

**18. Changes to Tariff Leaves 166-169 for January 1, 2022, accurately reflect the restructuring of the LI Choice Program (LI Choice).**

- LI Choice is a voluntary program offered to LIPA customers who wish to procure their energy from an Energy Service Company (ESCO). The LI Choice customer would receive generation from the ESCO and all other services from LIPA.<sup>66</sup>
- There were no modifications to Tariff Leaves 166-169 from January 1, 2017, until December 31, 2021.<sup>67</sup>
- **Exhibit VII-4** provides a side-by-side comparison of tariff leaves 166-169 from 2017 and 2022. As shown, changes in 2022 include:
  - Elimination of the Bill Credit Adjustment. This was a credit that reduced the Power Supply Rate for Choice customer bills by removing LIPA electricity costs associated with energy service supply that LI Choice customers receive from their ESCOs.<sup>68</sup>
  - The development and inclusion of local supply and market supply charges. Local supply costs are charged to all customers. Market supply costs are charged only to full-service LIPA customers. This change aligned the LI Choice Program with the other utilities in the State.<sup>69</sup>
  - Costs included in the market supply are itemized.
  - All other costs are captured through the local supply charge.
  - More detail and better explanation of the calculation of TOU rates is provided.<sup>70</sup>

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<sup>64</sup> DR 435 Supplement 19

<sup>65</sup> DR 435 Supplements 3, 4, and 18

<sup>66</sup> <https://www.psegliny.com/myaccount/serviceandrates/lic>

<sup>67</sup> DR 563 Attachments 1-5

<sup>68</sup> DR 563 Attachments 1 and 5 and DR 867 Attachment 1

<sup>69</sup> DR 563 Attachment 5

<sup>70</sup> DR 563 Attachments 1, 5, 6, and 10.

**Exhibit VII-4  
Comparison of Tariff Leaves 166-169**

Tariff Leaves 166-169 Dated January 1, 2017 (used through 12/31/21)	Tariff Leaves 166-169 Dated January 1, 2022
<b>Section A. Power Supply Charge</b>	
<b>Part 1. Costs included in the power supply charge</b>	
a) The total actual cost of fossil and nuclear fuel purchased on behalf of the Authority to produce electricity, including nuclear fuel disposal costs and the Authority's share of the Nine Mile Point 2 nuclear generating plant decontamination and decommissioning costs paid to the operator, plus	a) The total actual cost of fossil and nuclear fuel purchased on behalf of the Authority to produce electricity, including nuclear fuel disposal costs and the Authority's share of the Nine Mile Point 2 nuclear generating plant decontamination and decommissioning costs paid to the operator, plus
b) The total actual cost, including property taxes, of all electric power purchased by or on behalf of the Authority from the New York Power Authority (NYPA), National Grid Generation, other utilities, and independent power producers, including qualifying facilities and Customer-generators, net of revenues received from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus.	b) The total actual cost, including property taxes, of all electric power purchased by or on behalf of the Authority from the New York Power Authority (NYPA), National Grid Generation, other utilities, and independent power producers, including qualifying facilities and Customer-generators, net of revenues received from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus
c) The total actual cost of all transmission wheeling and other charges (including charges on any off-island transmission facilities which deliver power to the Authority's system), plus	c) The total actual cost of all transmission wheeling and other charges (including charges on any off-island transmission facilities which deliver power to the Authority's system), plus
d) The total actual cost of payments by the Authority to Customers who shed load during times of high system demands at the request of the Authority including payments for participation in the Dynamic Load Management programs contained in Section XIII, plus	d) The total actual cost of payments by the Authority to Customers who shed load during times of high system demands at the request of the Authority including payments for participation in the Dynamic Load Management programs contained in Section XIII, plus
e) The actual fuel costs and the value of foregone emissions credits that partially offset revenues credited from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus	e) The actual fuel costs and the value of foregone emissions credits that partially offset revenues credited from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus
f) The cost incurred under any system power supply management or fuel management services agreements, plus	f) The cost incurred under any system power supply management or fuel management services agreements, plus
g) Charges for Capacity, Energy, Scheduling, System Control and Dispatch Service, and ancillary services paid by LIPA as a participant in any Independent System Operator (ISO) administered markets, plus	g) Charges for Capacity, Energy, Scheduling, System Control and Dispatch Service, and ancillary services paid by LIPA as a participant in any Independent System Operator (ISO) administered markets, plus
h) Any other net charges (net of revenues) associated with TCCs, ancillary services and short-term capacity received by the Authority as a	h) Any other net charges (net of revenues) associated with TCCs, ancillary services and short-term capacity received by the Authority as a

Tariff Leaves 166-169 Dated January 1, 2017 (used through 12/31/21)	Tariff Leaves 166-169 Dated January 1, 2022
<b>Section A. Power Supply Charge</b>	
participant in any Independent System Operator (ISO) administered markets, plus	participant in any Independent System Operator (ISO) administered markets, plus
i) Bill Credit Adjustment (BCA) payments to ESCOs and DRCs under the LI Choice Program, plus	Removed.
j) Premiums and other costs associated with the Authority’s fuel hedging program, including any gains or losses realized, plus	i) Premiums and other costs associated with the Authority’s fuel hedging program, including any gains or losses realized, plus
k) Costs incurred to comply with the requirements of the New York State Renewable Portfolio Standards and costs incurred for the purchase of renewable energy credits (including the cost of any alternative compliance payments) and zero emission credits associated with the New York Clean Energy Standards programs.	j) Costs incurred to comply with the requirements of the New York State Renewable Portfolio Standards and costs incurred for the purchase of renewable energy credits (including the cost of any alternative compliance payments) and zero emission credits associated with the New York Clean Energy Standards programs.
l) Costs incurred for the operation, maintenance, and property taxes of the Authority’s share of the Nine Mile Point Unit 2 Generating Facility	k) Costs incurred for the operation, maintenance, and property taxes of the Authority’s share of the Nine Mile Point Unit 2 Generating Facility
<b>Part 2. Average Cost Power Supply</b>	
The average cost of the Power Supply Charge in cents per kWh for the month is calculated by dividing the projected month’s costs included in the Power Supply Charge and the projected month’s total LI Choice customer bill credits by the projected month’s Energy Sales.	The average cost of the Power Supply Charge in cents per kWh for the month is calculated by dividing the projected month’s costs included in the Power Supply Charge and the projected month’s total LI Choice customer bill credits by the projected month’s Energy Sales.
<b>Part 3. Energy Sales</b>	
Energy Sales is the amount of electricity required to meet the Authority’s Bundled Service and LI Choice Customer needs, measured at the Customer’s meter.	Energy Sales is the amount of electricity required to meet the Authority’s Bundled Service and LI Choice Customer needs, measured at the Customer’s meter.
<b>Part 4. Power Supply Charge</b>	
a) The Power Supply Charge, expressed in cents per kWh, is calculated as the sum of: (i) the average cost of the Power Supply Charge expressed in cents per kWh, plus (ii) a rate, expressed in cents per kWh calculated to refund or recover any overcollections or undercollections of the Power Supply Charge as of the end of the preceding period. The Power Supply Charge is rounded to the nearest .0001 cents per kWh.	The Power Supply Charge, expressed in cents per kWh, is calculated as the sum of: (i) the average cost of the Power Supply Charge expressed in cents per kWh, plus (ii) a rate, expressed in cents per kWh calculated to refund or recover any overcollections or undercollections of the Power Supply Charge as of the end of the preceding period. The Power Supply Charge is rounded to the nearest .0001 cents per kWh. a) The Power Supply Charge consists of a Market Supply Charge to be paid by Bundled Service Customers not on Long Island Choice and a Local Supply Charge to be paid by Bundled Service and LI Choice Customers.
	b) The Market Supply Charge recovers the cost incurred by the Authority to provide power services to Customers not on Long Island Choice,

Tariff Leaves 166-169 Dated January 1, 2017 (used through 12/31/21)	Tariff Leaves 166-169 Dated January 1, 2022
<b>Section A. Power Supply Charge</b>	
	<p>calculated as the following costs divided by Energy Sales to Bundled Service Customers, rounded to the nearest .0001cents per kWh:</p> <ul style="list-style-type: none"> <li>(1) The actual cost to purchase fuel for generation at power stations on Long Island and the actual cost of purchased power, plus</li> <li>(2) The total actual cost of electric power purchased by or on behalf of the Authority from the ISO energy markets, net of revenues received from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus</li> <li>(3) The market value of energy purchased from the Nine Mile Point 2 and Fitzpatrick nuclear facilities, as well as renewable and resource recovery facilities under contract to the Authority, plus</li> <li>(4) The Long Island capacity market value of all Long Island capacity under contract to the Authority, as well as the Rest of State capacity market value associated with Nine Mile Point 2, plus</li> <li>(5) The cost of Long Island and Rest of State capacity that might be needed to fulfill Authority’s capacity requirements, beyond what is under contract, plus</li> <li>(6) The variable (O&amp;M) costs and the value of foregone emissions credits (RGGI) that partially offset revenues credited from energy sold to other utilities, power marketers, or other brokers who are not agents for retail power supply customers of the Authority, plus</li> <li>(7) Charges for Capacity, Energy, Scheduling, System Control and Dispatch Service, and ancillary services paid by LIPA as a participant in the New York Independent System Operator (ISO) administered markets, plus</li> <li>(8) Premiums associated with the Authority’s fuel hedging program, including any gains or losses realized, plus</li> <li>(9) The value of Renewable Energy Credit (RECs) for Tier 1 eligible resources under contract to the Authority, costs incurred for the purchase of additional Renewable Energy Credits (including the cost of any alternative compliance payments), Zero Emission Credits (ZECs), and other existing and future costs that are allocated to the Authority as an Load Serving Entity (LSE).</li> </ul>
	c) The Local Supply Charge recovers all costs contained in the Power Supply Charge that are not recoverable through the Market Supply

Tariff Leaves 166-169 Dated January 1, 2017 (used through 12/31/21)	Tariff Leaves 166-169 Dated January 1, 2022								
<b>Section A. Power Supply Charge</b>									
	Charge, divided by Energy Sales to all applicable Customers, rounded to the nearest .0001 cents per kWh.								
<p>b) The Power Supply TOU Period Adjustment Factors are identified in the Statement of the Power Supply Charge and will be updated from time to time as follows:</p> <p>(1) The Power Supply TOU Period Adjustment Factors will be calculated using the most recent average hourly load research sample results for Rate 180 or Rate 280. The rate 180 load research sample is used to calculate the Power Supply TOU Period Adjustment Factors for rate codes 190, 191, 192 and 193. The rate 280 load research sample is used to calculate the Power Supply TOU Period Adjustment factor for Rate 292.</p> <p>(2) The average hourly load research samples for rate 180 or rate 280 will identify the kWh for both the super off-peak period and the peak period for each of the TOU rate codes (190, 191,192, 193 and 292) for an annual period.</p> <p>(3) For all TOU rate codes the super off-peak Power Supply TOU Period Adjustment Factor is set to 60%.</p> <p>(4) For each TOU rate code, the kWh in the super off-peak period will be multiplied by the budgeted average annual Power Supply Charge multiplied by 40% (1-super off-peak Power Supply TOU Period Adjustment Factor). The subsequent dollars by TOU rate code is divided by the total kWh in the peak period to create the peak period adder by TOU Rate code. The peak period adder by TOU rate code is then added to the average annual power supply factor and divided by the average annual power supply factor, which will equal the peak Power Supply TOU period Adjustment Factor.</p> <p>Formulas:</p> <p>1) <math>(\text{kWh in Super Off-peak Period} \times \text{Annual Average Power Supply Charge} \times 40\%) / \text{Peak Period kWh} = \text{Peak Period Adder}</math></p> <p>2) <math>(\text{Peak Period Adder} + \text{Annual Average Power Supply Rate}) / \text{Annual Average Power Supply Rate} = \text{the peak Power Supply TOU period Adjustment Factor.}</math></p>	<p>d) The Power Supply TOU Period Adjustment Factors are identified in the Statement of the Power Supply Charge and will be updated from time to time as follows:</p> <p>(1) The Power Supply TOU Period Adjustment Factors use the average hourly load research sample results for the period September 1st to August 31st, to identify the kWh for both the super-off peak period and the peak period. The following table lists the TOU rate codes and corresponding load research sample used.</p> <table border="1" data-bbox="1056 641 1875 763"> <thead> <tr> <th>TOU Rate Codes</th> <th>Load Research Sample Rate Codes</th> </tr> </thead> <tbody> <tr> <td>190, 191, 192 and 193</td> <td>180</td> </tr> <tr> <td>292</td> <td>280</td> </tr> <tr> <td>294</td> <td>281</td> </tr> </tbody> </table> <p>(2) The average hourly load research samples for rate 180 or rate 280 will identify the kWh for both the super off-peak period and the peak period for each of the TOU rate codes (190, 191,192, 193 and 292) for an annual period.</p> <p>(3) For all TOU rate codes the super off-peak Power Supply TOU Period Adjustment Factor is set to 60%.</p> <p>(4) For each TOU rate code, the kWh in the super off-peak period will be multiplied by the budgeted average annual Power Supply Charge multiplied by 40% (1-super off-peak Power Supply TOU Period Adjustment Factor). The subsequent dollars by TOU rate code is divided by the total kWh in the peak period to create the peak period adder by TOU Rate code. The peak period adder by TOU rate code is then added to the average annual power supply factor and divided by the average annual power supply factor, which will equal the peak Power Supply TOU period Adjustment Factor.</p> <p>Formulas:</p> <p>1) <math>(\text{kWh in Super Off-peak Period} \times \text{Annual Average Power Supply Charge} \times 40\%) / \text{Peak Period kWh} = \text{Peak Period Adder}</math></p> <p>2) <math>(\text{Peak Period Adder} + \text{Annual Average Power Supply Rate}) / \text{Annual Average Power Supply Rate} = \text{the peak Power Supply TOU period Adjustment Factor.}</math></p>	TOU Rate Codes	Load Research Sample Rate Codes	190, 191, 192 and 193	180	292	280	294	281
TOU Rate Codes	Load Research Sample Rate Codes								
190, 191, 192 and 193	180								
292	280								
294	281								



Tariff Leaves 166-169 Dated January 1, 2017 (used through 12/31/21)	Tariff Leaves 166-169 Dated January 1, 2022
<b>Section A. Power Supply Charge</b>	
<p>c) The Power Supply Charge for applicable TOU Rate codes will be calculated each month based on the actual Power Supply Charge (see Statement of Power Supply Charge) times the Power Supply TOU period Adjustment Factors as identified in the Statement of the Power Supply Charge.</p>	<p>e) The Power Supply Charge for applicable TOU Rate codes will be calculated each month based on the actual Power Supply Charge (see Statement of Power Supply Charge) times the Power Supply TOU period Adjustment Factors as identified in the Statement of the Power Supply Charge.</p>
<p>d) The Authority will prepare and retain on file a Statement of the Power Supply Charge. The Statement will be available at the Authority's business offices.</p>	<p>f) The Authority will prepare and retain on file a Statement of the Power Supply Charge. The Statement will be available at the Authority's business offices.</p>
<p>e) The Statement will be revised each time the Power Supply Charge is revised and will contain:</p> <ol style="list-style-type: none"> <li>(1) The identification of the Service Classifications affected, and</li> <li>(2) The date the Power Supply Charge becomes effective, and</li> <li>(3) The month used to obtain the average cost of the Power Supply Charge, and</li> <li>(4) The average cost of the Power Supply Charge in cents per kWh for the specified month, and</li> <li>(5) The Rate in cents per kWh to Refund/Recover Overcollections/Undercollections of fuel and purchased power costs for the preceding periods, and</li> <li>(6) The Power Supply Charge in cents per kWh.</li> </ol>	<p>g) The Statement will be revised each time the Power Supply Charge is revised and will contain:</p> <ol style="list-style-type: none"> <li>(1) The identification of the Service Classifications affected, and</li> <li>(2) The date the Power Supply Charge becomes effective, and</li> <li>(3) The month used to obtain the average cost of the Power Supply Charge, and</li> <li>(4) The Market Supply Charge, the Local Supply Charge, and the Power Supply Charge (Market Supply plus Local Supply) in cents per kWh.</li> </ol>

Source: DR 563 Attachments 1 and 5

**19. PSEG LI's recovery of costs accurately represents what is allowed under Tariff Leaves 166-169.**

- NorthStar found that changes to the Electric Tariff were approved by the Board of Trustees (BOT) on eighteen instances since 2017. There were numerous changes in each of these eighteen instances. Most of these changes did not involve the PSC. There were five notable BOT approved changes to the PSC:
  - On January 1, 2017, the term “Power Supply Adjustment Clause” was changed to “Power Supply Charge”.
  - On January 1, 2017, operating expenses and taxes related to the Amended and Restated Power Supply Agreement were transferred from base rates to the PSC.
  - On January 1, 2017, the PSC was updated to include costs related to the Clean Energy Standard.
  - On January 21, 2022, LIPA changed the structure of the Choice Program. The PSC was split into Local Supply Charges and Market Supply Charges.
  - Starting in 2023, NMP2 Asset Retirement Obligations were moved from base rates to the PSC.<sup>71</sup> NorthStar believes this change was permissible as a retirement obligation is part of the decommissioning cost allowed under Leaf 166, Part 1a.
  - Starting in 2023, the ER&T administrative cost for managing the hedging program was moved from the PSC to the Merchant Function Charge (MFC).<sup>72</sup> The Merchant Function Charge is a mechanism that recovers from Full Requirements customers the following costs associated with providing the service: a) Electricity Supply Procurement b) Electricity Supply Credit and Collection c) Electricity Supply Uncollectible Expenses and d) Debt Service on Purchased Power Costs. This was approved by the BOT and effective January 1, 2023.<sup>73</sup>
- NorthStar reviewed the approved cost categories in Tariff Leaf 166 and found them related to fuel and purchased power cost. All the categories are provided in **Exhibit VII-4**.<sup>74</sup>
- NorthStar compared the general ledger accounts included under each expense category in Tariff Leaf 166. The general ledger account descriptions represent what is allowed under each category. **Exhibit VII-5** provides an example of NorthStar's review.

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<sup>71</sup> DR 564

<sup>72</sup> DR 565

<sup>73</sup> DR 766, DR 767, LIPA Tariff Leaf 182T, and <https://www.lipower.org/about-us/tariff/>

<sup>74</sup> DR 563 Attachments 1-5

**Exhibit VII-5  
Tariff Leaf 166 Sample Expense Category and Accounts**

2022 Tariff Leaf 166 Part 1.a	Accounts <sup>1</sup>
The total actual cost of fossil and nuclear fuel purchased on behalf of the Authority to produce electricity, including nuclear fuel disposal costs and the Authority's share of the Nine Mile Point 2 nuclear generating plant decontamination and decommissioning costs paid to the operator, plus	5093010 LS-LIPA NMP2 Refueling & Amortization cost
	5093020 LS-LIPA NMP2 Fuel & Purch Power
	5550017 LS-Nuclear Fuel Expense
	5550300 LS-LIPA Gas Transportation
	5550014 MS-LIPA Fuel Oil Expense
	5550014 MS-LIPA Fuel Oil Expense
	5550014 MS-LIPA Fuel Oil Expense
	5550014 MS-LIPA Fuel Oil Expense
	5550015 MS-LIPA Gas Electric Generation
	5550015 MS-LIPA Gas Electric Generation
	5550015 MS-LIPA Gas Electric Generation
	5550019 MS-Market Value of NMP2 Energy
	5550023 MS- Fuel Oil Expense
	5550024 MS-Gas Elec Gen Cost

Note 1: LS=Local Supply, MS=Market Supply  
Source: DR 563 Attachment 10

- NorthStar requested a transaction level detail on a sample of accounts and found the types of charges are consistent with the expense category in Tariff Leaf 166. Typical charges are purchased power invoices, fuel invoices, payroll at NMP2, capacity charges etc.<sup>75</sup>
- NorthStar compared the final recording of general ledger accounts in the previous month's reconciliation with the allowed general ledger accounts and found no discrepancies in costs recovered. NorthStar also verified that the accounts designated as Market and Local Supply Charges were recorded accurately as Market and Local Supply Charges.<sup>76</sup>
- The Monthly Power Supply Charge Rate is not approved by the BOT. The BOT approves the allowable costs to be recovered and the methodology to calculate the PSC Rate (Tariff Leaves 166-169). PSEG LI develops the monthly PSC and provides final opinion on the PSC Rate to Power Markets. . LIPA's VP of Power Markets approves the monthly charge around the 24<sup>th</sup> or 25<sup>th</sup> of each month.<sup>77</sup>

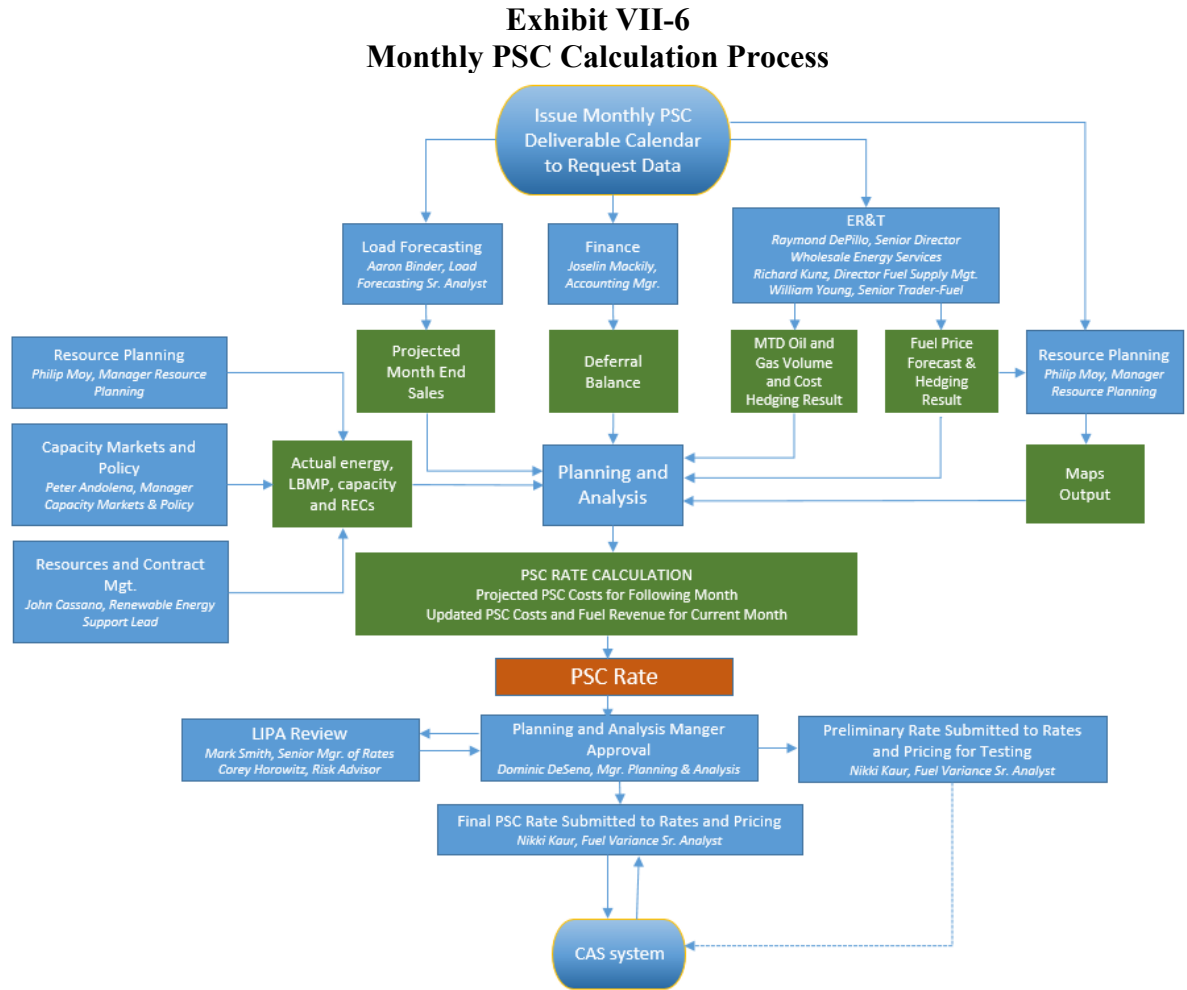
<sup>75</sup> DR 563 Attachment 10 and DR 935 Attachment 1

<sup>76</sup> DR 562 Attachment 63

<sup>77</sup> DR 561 Attachment 3

**20. PSEG LI has a well-defined process for developing the PSC and its policies and procedures are effective in determining and verifying the cost recovery amount.**

- PSEG LI’s process for determining the monthly PSC charge is shown in **Exhibit VII-6**. The process is driven by PSEG LI’s Power Markets Organization. The PSC costs recovered for the following month’s rate includes three components:



Source DR 560

- The forecast of costs for the upcoming month. NorthStar’s detailed review of the PSC was for the December 2022 PSC Rate. This component would be forecast in November 2022.
- A reconciliation between actual cost and actual revenue for the previous month. For the December 2022 PSC Rate, the reconciliation would be based on October 2022 actual costs and revenues. Any differences are included in the December 2022 PSC Rate.

- A true-up with the current month (November 2022). PSEG LI re-estimates the November 2022 PSC from the one prepared in October 2022. Any differences are included in the December 2022 PSC Rate.<sup>78</sup>
- While there is a time lag, actual costs are reconciled with forecast costs and actual revenues are reconciled with forecast revenues. NorthStar finds this methodology reasonable.<sup>79</sup>
- PSEG LI develops an annual calendar of events to develop the monthly PSC. **Exhibit VII-7** provides the 2022 Calendar.
- The process to develop the PSC Rate is a month-long work effort that involves work products from numerous PSEG LI, PSEG ER&T, and LIPA organizations.
- All the work products must come together to Power Markets by the third week of the month.
- LIPA internal audit has not conducted any internal audits of the PSC rate or methodology during the past five years.<sup>80</sup>

**21. PSEG LI does not retain its records related to power market activities in the Enterprise Records Management System. PSEG Planning and Analysis - Power Markets has kept spreadsheet records since January 2015 to verify transactions.<sup>81</sup>**

- PSEG LI states that it maintains records for ten years using Record Retention Code ENR1020. ENR1020, Market Administration, covers the records used to generate LMP data, and physical and financial trades.<sup>82</sup>
- PSEG LI's records inventory does not include any records coded as ENR1020.<sup>83</sup>

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<sup>78</sup> DR 562 Attachments 63-94

<sup>79</sup> DR 1156

<sup>80</sup> DR 28 Attachments 1-5 and DR 203

<sup>81</sup> DR 1153

<sup>82</sup> DR 148

<sup>83</sup> DR 594 Attachment 1

**Exhibit VII-7  
2022 Calendar Deliverables for Calculation of PSC Rate**

<b>2022 Calendar of Deliverables to and from Power Markets for the Calculation of Power Supply Charge (PSC) Rate</b>													
All deliverables are to be emailed to: Names withheld													
<b>Deliverable Item</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug</b>	<b>Sept</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	
1 General ledger detail of all Fuel and Purchased Power expenses. Including PSA, NMP2 and FTU Property Taxes	1/11	2/9	3/9	4/8	5/9	6/9	7/12	8/9	9/9	10/12	11/9	12/9	
2 General ledger detail of all Fuel and Purchased Power expenses. Including PSA, NMP2 and FTU Property Taxes	1/11	2/9	3/9	4/8	5/9	6/9	7/12	8/9	9/9	10/12	11/9	12/9	
3 Fuel Revenue	1/11	2/9	3/9	4/8	5/9	6/9	7/12	8/9	9/9	10/12	11/9	12/9	
4 PSC Deferral	1/12	2/10	3/10	4/12	5/10	6/10	7/13	8/11	9/13	10/13	11/14	12/12	
5 Fuel Price Forecast	1/13	2/10	3/16	4/14	5/16	6/15	7/15	8/16	9/15	10/13	11/14	12/14	
6 Hedging Results	1/13	2/10	3/16	4/14	5/16	6/15	7/15	8/16	9/15	10/13	11/14	12/14	
7 Monthly Fuel Report	1/13	2/10	3/16	4/14	5/16	6/15	7/15	8/16	9/15	10/13	11/14	12/14	
8 Month-to-date Natural Gas cost and volume	1/20	2/16	3/22	4/20	5/20	6/21	7/21	8/22	9/21	10/20	11/18	12/20	
9 Month-to-date Oil cost and volume	1/20	2/16	3/22	4/20	5/20	6/21	7/21	8/22	9/21	10/20	11/18	12/20	
10 MAPS Run - updated forecast (EOD)	1/20	2/16	3/22	4/20	5/20	6/21	7/21	8/22	9/21	10/20	11/18	12/20	
11 Projected Sales for current month	1/20	2/16	3/22	4/20	5/20	6/21	7/21	8/22	9/21	10/20	11/18	12/20	
12 Complete calculation of PSC	1/24	2/18	3/24	4/22	5/23	6/23	7/22	8/24	9/23	10/23	11/21	12/22	
13 Review and Approval of PSC rate	1/25	2/22	3/25	4/25	5/24	6/24	7/25	8/25	9/26	10/25	11/22	12/23	
14 Review and Approval of PSC rate	1/25	2/22	3/25	4/25	5/24	6/24	7/25	8/25	9/26	10/25	11/22	12/23	
15 Submission of PSC rate to LIPA for Review	1/25	2/22	3/25	4/25	5/24	6/24	7/25	8/25	9/26	10/25	11/22	12/23	
16 LIPA provides final opinion on PSC Rate to Power Markets	1/27	2/24	3/29	4/27	5/26	6/28	7/27	8/29	9/28	10/27	11/28	12/28	
17 Finalize press release	1/27	2/24	3/29	4/27	5/26	6/28	7/27	8/29	9/28	10/27	11/28	12/28	
18 Final PSC (tariff leaf) and the 6 Month and 12 Month Average PSC provided to Rates and Pricing.	1/27	2/24	3/29	4/27	5/26	6/28	7/27	8/29	9/28	10/27	11/28	12/28	
19 Approve CAS system input	1/28	2/25	3/30	4/28	5/27	6/29	7/28	8/30	9/29	10/28	11/29	12/29	
20 Provide CASWEB screenshot of PSC Rate and Balanced Billing Factors	1/31	2/28	3/31	4/29	5/31	6/30	7/29	8/31	9/30	10/31	11/30	12/30	

Source: DR 561 Attachment 3

1 **22. PSEG LI uses a production cost model to prepare forecasts of fuel cost and demand**  
2 **in the Power Supply Charge.**

- 3 • The fuel forecast is developed by PSEG ER&T. It is developed each month according  
4 to the Calendar of Events, typically at the beginning of week 3. The commodity price  
5 forecast is generated through General Electric’s Multi Area Production Simulation  
6 Software System (MAPS).<sup>84</sup> It includes forecasts of natural gas by pipeline, heating  
7 oil, and kerosene.<sup>85</sup>
- 8 • PSEG LI then uses MAPs to generate the total monthly fuel supply cost to meet the  
9 forecast monthly supply requirements.<sup>86</sup>

10 **23. LIPA’s statement in Tariff Leaf 167 that the “Local Supply Charge recovers all costs**  
11 **contained in the Power Supply Charge that are not recoverable in the Market Supply**  
12 **Charge” is misleading..**

- 13 • On January 1, 2022, LIPA changed the methodology in calculating the PSC. It split  
14 the PSC into Local and Market Supply Charges. This resulted in PSEG LI redesigning  
15 their general ledgers to attribute all costs to either Local Supply or Market Supply.<sup>87</sup>
- 16 • The Power Supply Charge consists of nine elements with 17 associated Market Supply  
17 general ledger accounts and nine associated Local Supply general ledger accounts.<sup>88</sup>
- 18 • The PSC rate for both Local and Market Supply can be calculated based on the  
19 associated general ledger accounts.<sup>89</sup>
- 20 • The “Local Supply Charge recovers all costs contained in the Power Supply Charge  
21 that are not recoverable in the Market Supply Charge” is a mathematical convenience  
22 of aggregating all of the costs and subtracting the Market Supply Costs from the total.<sup>90</sup>

23 **D. RECOMMENDATIONS**

- 24 1. Begin formal record retentions of Power Market Documents.
- 25 2. Calculate the Local Supply Charge for six consecutive months using two methodologies:
- 26 • The current methodology of subtracting Market Supply Costs from total PSC costs.

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<sup>84</sup> DR 147 and IR 109 – MAPS is a production cost modeling program that includes fuel budgeting as a primary application.

<sup>85</sup> DR 562 Attachment 64 and DR 561 Attachment 3.

<sup>86</sup> DR 562 Attachment 69

<sup>87</sup> DR 1155 Attachment 1

<sup>88</sup> DR 1155 Attachment 1

<sup>89</sup> DR 1155 Attachment 1

<sup>90</sup> DR 563 Attachment 5 and Fact Verification.



- 27      • A separate methodology of calculating Local Supply Charge using the general ledger  
28      accounts for Local Supply Charge.
- 29      Report findings to DPS.
- 30

## VIII. SYSTEM PLANNING

This chapter covers a broad range of topic areas that impact system planning and the future of LIPA. NorthStar reviewed and assessed PSEG LI's infrastructure planning and engineering functions to satisfy load requirements, effectively integrate CLCPA initiatives, and maintain reliability. Focused analyses in the following areas are included within the evaluation of PSEG LI's System Planning, DSP Development, and CLCPA:

- Management and Organizational Structure
- Decision Making
- System Design and Capabilities
- CLCPA

### A. BACKGROUND

The primary objectives of system planning are to satisfy load requirements while maintaining a high level of reliability at the lowest cost. Aging infrastructure, resource conservation, energy efficiency programs, and a decline in sales due to economic slowdown and competitive alternative providers, increases the need for up-to-date, accurate and dynamic system planning. Over many years increasing demand and system growth provided a natural advantage for reliability enhancements.

In order to meet the targets outlined in the CLCPA, PSEG LI must modify its planning processes to identify CLCPA-driven needs and then develop capital projects that will support these initiatives within the statutory timeframes. In order to effectively manage renewable resources, and investments in non-traditional generation sources, PSEG LI will require upgrades to the infrastructure to accommodate distributed energy resources (DER), and other system improvements.

Proper system planning integration should produce an optimal investment roadmap for all stakeholders, including ratepayers, generators, transmission owners, the NYISO and the Authority. It should lead the utility in meeting its reliability, safety, and load objectives at the lowest overall cost.

The adequacy of system planning was evaluated for the area as a whole in view of the pertinent reliability, regulatory, and load requirements. In addition to requiring sound integration of the planning process on a state-wide basis and at all delivery levels, it is also necessary to have seamless and up-to-date load forecasts that can be consistently applied in all investment decisions. A thorough, well-designed system plan is critical to making cost-effective decisions. The plan should identify existing and potential system reliability deficiencies, estimate the likely cost of improvements and evaluate economic trade-offs. Effective system planning optimizes the cost of improved reliability.

LIPA's service territory covers two jurisdictional planning areas: Zone K and the Long Island Control Area (LICA).

- Zone K is one of the eleven planning regions within New York State. Transmission planning for Zone K is coordinated with the New York Independent System Operator (NYISO) in development of its Gold Book, NYISO’s annual report showing existing and forecast load and capacity data.
- The LICA is located within Zone K. The LICA planning area is an adjustment to Zone K to account for municipalities with self-generation, energy efficiency and cogeneration.

PSEG LI designs the system to meet the system coincident peak demand. Coincident peak demand is a product of the load forecasting function and is developed for both jurisdictional planning areas. The demand forecast includes weather-based probabilistic analyses. PSEG LI’s design criteria stipulate a 50 percent normal weather load forecast and a 90 percent extreme weather load forecast of applicable facilities.<sup>1</sup>

Transmission Planning uses forecast demand, known and planned system attributes (such as equipment ratings and configurations) to perform four categories of system studies:

- Five-year and Ten-year Planning Studies – Long-range studies are completed for the five- to ten-year forecast timeframe and address the bulk transmission system and the underlying sub-transmission system, which supplies substations. This study also addresses specific load areas, including the area transmission system, substations and distribution feeders. Both of these types of studies are designed primarily to assess the ability of the system to deliver power to load centers and to serve customer load.
- Seasonal Operating Studies – Seasonal operating studies are a valuable reference tool for transmission operations during periods when the system is under peak load conditions. The operating study contains thermal and voltage limitations, voltage operating guidelines, must-run generation levels, and load transfer information that may be necessary upon contingency. In addition to being a valuable tool for the operation of the LIPA system, the results of the study identify reinforcements that are required to alleviate system constraints.
- Interconnection Studies – Transmission and distribution interconnection studies determine the required interconnection facilities and/or system reinforcements, if necessary, for specific generation projects. Projects connecting to the transmission system are also evaluated in accordance with the NYISO interconnection process.
- Regulatory Studies – These studies are required by North American Electric Reliability Council (NERC) and NYISO. NERC studies are defined in its Transmission System Planning (TPL) Standards. Typically, they are related to thermal overload analyses and critical infrastructure protection.

Planning at the distribution level is done at the substation transformer bank and feeder level. Distribution planning can be categorized as part quantitative and part qualitative. The quantitative aspect is average system growth determined by the load forecast. The qualitative aspect is determining how the average system growth impacts individual sections of the

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<sup>1</sup> DR 61 Attachment 1 and DR 1277 Attachment 1

system. It is more difficult to determine exactly the timing and where new large individual load additions will occur. PSEG LI relies on the experience of the planning engineer.<sup>2</sup>

## **B. WORK TASKS**

DPS requested 32 work tasks in the System Planning and DSP Development area. NorthStar organized these tasks in four areas and included the work tasks for CLCPA in this chapter.

### **Management and Organizational Structure**

- Evaluate the organizational structure used for system planning functions and the skills and capabilities of key engineers.

### **Decision Making**

- Review master plans for the long-term and short-term growth and needs of the system.
- Assess infrastructure expansion needs for long-term and short-term planning, including conditions for Non-Wires Alternatives (NWAs).
- Review and evaluate how PSEG LI optimizes the existing system design, innovates design concepts, and incorporates the integrated design concepts with the latest technology to improve the economics, efficiency, reliability and safety of the system.
- Determine processes for identifying, developing, and justifying the need for major projects (e.g., transmission/distribution lines, substations, etc.) and LIPA's alignment with the NYPSC's Order in Case 20-E-0197.
- Evaluate priorities, guidance and other instructions for evaluations, consideration of tradeoffs, and decision making in the system planning process, including any impacts on DSP development or meeting state goals.
- Determine the extent to which PSEG LI considers benefit/cost analyses in its electric system planning and prioritization, which cost tests are considered (e.g., Societal Cost Test, Utility Cost Test, Ratepayer Impact Measure, etc.), how PSEG LI evaluates the results of individual tests, whether PSEG LI considers the full range of energy-related and non-energy benefits and costs in its analyses; and determine any factors which should be included in future analyses.
- Determine the extent to which benefit/cost analyses and risk analyses are considered in the decision-making process; and an assessment of the specific types of benefit/cost and risk analysis methodologies.
- Review the planning process for the on-going 2022 Integrated Resource Plan (IRP), Load Forecasting methodology, Local Transmission Plans, and other planning documents to evaluate how PSEG LI is changing its T&D infrastructure investments, planning practices, and equipment procurement practices as more DER are incorporated into the system, and further beneficial electrification is pursued.<sup>3</sup>

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<sup>2</sup> DR 50 and 352

<sup>3</sup> The 2022 IRP process was not completed. PSEG LI developed a 2023 IRP that was not completed during the period of this audit.

- Assess how PSEG LI is considering DER interconnection requirements in its system planning process.
- Review how new technologies are evaluated and brought into the planning process for improving system reliability, resiliency, safety, and operating efficiency.
- Assess how PSEG LI is planning to enhance system capabilities necessary to support DER integration, Distributed System Implementation (DSIP) efforts, and other modernization efforts.

### **System Design and Capabilities**

- Determine the extent to which PSEG LI is defining a process to collect, manage, and make system usage data available to DER providers. Identify the PSEG LI function that is responsible for data access to DER providers, assess participation in statewide data frameworks (e.g., IEDR and UER) and quality of information provided.
- Review and assess PSEG LI's interconnection requirements for DERs, including but not limited to, interconnection limits at substation and feeder levels, and alignment with current DPS standards for interconnection.
- Assess the effectiveness, implementation, and design of PSEG LI's Demand Response programs including the Distribution Local Relief Program (DLRP), Commercial System Relief Program (CSR), and the Direct Load Control Program (DLC). Assess ease at which commercial/industrial (C/I) customers enroll in Demand Response programs and identify any unnecessary administrative hurdles.
- Assess PSEG LI's operation as a Distribution System Platform (DSP), and how it facilitates the connection across the grid among DERs, large-scale power generators, storage, demand-response technologies, customers, and other innovative services by effectively sharing its energy data to increase efficiency while lowering costs.
- Review the changes in operational risk profile with respect to the replacement of older technology with newer technology.

### **Other**

- Examine and evaluate any measures and methods that PSEG LI uses to motivate employees to innovate design concepts, optimize system design, and promote the integration of the latest technology for improving the economics, efficiency, reliability, resiliency, and safety of the system.
- Determine the extent to which PSEG LI is considering new service offerings that will generate savings or financial benefits to customers.

### **CLCPA**

- Assess PSEG LI's management of existing subcontractors to achieve project milestones and goals associated with energy efficiency and DER programs. (covered in Chapter X - Program and Project Management)
- Assess the accuracy of LIPA/PSEG LI's assumed allocations relative to statewide goals and whether plans support achievement of the goals/targets.

- Evaluate the role and scope of PSEG LI’s advisory committee on clean and renewable energy programs such as its activities, the content of meetings, how stakeholders are selected, and how stakeholder feedback is incorporated/responded to.
- Review and evaluate any recommendations made by the committee on demand reduction goals, beneficial electrification program goals, and renewable program goals,
- Assess whether removal of aggregation requirements might improve Demand Response program effectiveness.
- Evaluate LIPA and PSEG LI’s initiatives to achieve climate justice and assess how they ensure that the transition to a low-carbon economy results in beneficial outcomes for traditionally underserved communities. Assess PSEG LI’s/LIPA’s plans to provide 35 to 40 percent of clean energy benefits to Disadvantaged Communities.
- Evaluate PSEG LI’s coordination of efforts in achieving program engagement in programs directed towards low and moderate-income (LMI) customers, including energy efficiency related programs.
- Determine whether improvements are needed to achieve CLCPA targets for LMI customers.
- Assess whether the contract with TRC (formerly Lockheed Martin) as manager of the energy efficiency programs has been productive and beneficial in terms of ease and efficacy of delivering services to customers. Evaluate whether the processes within each program run smoothly and customers and contractors are provided with information and incentives on a timely basis.
- Evaluate how effectively TRC communicates program progress and/or issues to PSEG LI. Evaluate how TRC provides program improvement feedback to PSEG LI, and how this feedback is incorporated. Evaluate how TRC gathers program feedback from stakeholders such as contractors or advocacy organizations.
- Evaluate the effectiveness of PSEG LI’s process to develop and prioritize proposals made as part of the Utility 2.0 and EE plans.<sup>4</sup> (Moved from Chapter X – Program and Project Management)
- Assess PSEG LI’s data quality process for vetting information from contractors, in order to verify that jobs are occurring and reported savings are accurate. Evaluate any site inspections that occur as part of this process.
- Evaluate how PSEG LI/TRC review their marketing methods for efficacy.
- Evaluate PSEG LI’s level of receptivity to suggestions made in the public comment period of the Utility 2.0/EE review.
- Assess PSEG LI coordination with NYSERDA in terms of data submission for the Clean Energy Dashboard.
- Evaluate how PSEG LI communicates its progress towards the achievement of CLCPA goals to stakeholders and the public, and how it communicates its plans for achieving CLCPA requirements.

**The following Work Tasks are covered in another chapter**

- Evaluate the organization and staffing of forecasting functions – Chapter VI - Load Forecasting.

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<sup>4</sup> Formerly known as EEBEDR

- Evaluate how CLCPA initiatives such as wind and solar, wider deployment of DER including micro grids, roof-top solar and other on-site power supplies, EV, beneficial electrification and storage are incorporated into the planning process – Chapter VI - Load Forecasting.
- Determine the extent to which DER assets are recognized as part of the planning process by PSEG LI. – Chapter VI - Load Forecasting.
- Examine the impact of demand management (demand response, distributed generation, etc.), energy efficiency, and migration of retail customers to competitive suppliers in the assessment of system infrastructure adequacy and their role in the procurement process - Chapter VI - Load Forecasting.
- Assess the process used to collect disaggregated load data, and PSEG LI’s ability to maintain this data’s integrity and security. Chapter VI - Load Forecasting.
- Assess PSEG LI’s use of AMI technology to collect and manage load data – Chapter VI - Load Forecasting.
- Determine the extent to which PSEG LI is defining a process to develop more granular cost of service estimates for planning valuation purposes – Chapter X - Program and Project Management.
- Assess the process and criteria for making decisions regarding replace versus repair, including how the overall construction program planning process is affected – Chapter IX - Transmission & Distribution.
- Determine the extent to which PSEG LI’s management recognizes the importance of aligning employees, third parties, customers, processes, and technology while planning and deploying DER and improving grid functions – Chapter III - Governance.
- Assess the adequacy of change management tools such as training, communications plans, employee acceptance, and transition management being considered by utility management – Chapter III - Governance.
- Assess the capabilities of PSEG LI’s information systems for meeting short and long-term clean energy policy objectives – Chapter XV – IT and Cybersecurity.
- Review the optimization of trade-offs with respect to the replacement of older technology with newer technology and the resulting impact on the useful lives and depreciation assumptions of the existing infrastructure, as well as impacts on capital and O&M expenditures, revenue requirements, rates, and system reliability – Chapter IX - Transmission & Distribution.
- Evaluate the effectiveness of PSEG LI’s safety programs and the adherence to written procedures for its staff –Chapter XVI - Performance Management.



## C. FINDINGS AND CONCLUSIONS

### 1. PSEG LI's System Planning Organization is well structured and well-staffed to perform system planning functions.

- Exhibit VIII-1 provides the Power Markets Organization.



Source: DR 3 Pages 136, 141, and 145

- Traditional system planning functions such as distribution and transmission are represented as well as a separate organization, Integration Plan and Grid Innovation.<sup>5</sup>
- Distribution Planning consists of seven engineers and one engineering technician. This group is responsible for studying and maintaining the distribution system. The primary work product is the ten-year distribution plan for banks and feeders.<sup>6</sup>
- Transmission Planning is staffed with 13 engineers and one engineering technician. The primary work products of this group include the summer operating study and the ten-year development plan.<sup>7</sup>
- Integration Planning and Grid Innovation is staffed with four engineers. The primary work products of this group are advance DER integration, conduct specialized studies

<sup>5</sup> DR 3

<sup>6</sup> IR 51; DR 3 and DR 50

<sup>7</sup> IR 50; DR 3 and DR 50

that advances DSP and CLCPA initiatives, develop and maintain system hosting capacity and load serving maps, support development of Utility 2.0 report, and identifying innovative distribution system projects.<sup>8</sup>

**2. PSEG LI conducts numerous studies and analyses that aid in identifying system needs, potential solutions, and recommended solutions.**

- System planning studies encompass evaluation in the electric transmission, distribution and generation resource areas.<sup>9</sup> **Exhibit VIII-2** is a listing of significant transmission, distribution, and resource planning studies performed on a cyclical or periodic basis to ensure that the LIPA T&D system adheres to applicable planning criteria. Additional targeted studies are also performed to identify T&D system impacts. Additionally, several initiatives are currently underway to achieve New York State Climate Leadership and Community Protection Act (CLCPA) objectives. These initiatives triggered studies such as the Joint LIPA / ConEd Offshore Wind study.
- Specific studies and projects are also developed to address area load growth and new loads. Examples of these situations include analysis for projects, such as the new Belmont Substation, North Bellmore bank project, EGC to Valley Stream and Riverhead to Canal 138 kV projects. The viability of alternative REV solutions are considered for all capital projects as part of the evaluation of alternative solutions.

**Exhibit VIII-2  
Significant Transmission, Distribution, and Resource Planning Studies**

<b>Study Title</b>	<b>Objective</b>
NYISO Summer Operating Study	<ul style="list-style-type: none"> <li>• Identify power transfer limits expected in the NYCA during upcoming peak summer season</li> </ul>
NYISO Winter Operating Study	<ul style="list-style-type: none"> <li>• Identify power transfer limits expected in the NYCA during upcoming winter peak season</li> </ul>
LIPA Summer Operating Study	<ul style="list-style-type: none"> <li>• Identify transmission and distribution system limitations and power import limits expected during upcoming summer peak season.</li> <li>• Establish operations horizon SOLs; FAC-014, Req #2</li> <li>• Transfer Analysis of LIPA’s Internal Transmission System Interfaces for seasonal peak load conditions</li> <li>• LIPA East End &amp; East of Holbrook Transient Voltage Recovery (TVR)</li> </ul>
LIPA Winter Operating Study	<ul style="list-style-type: none"> <li>• Identify transmission and distribution system limitations and power import limits expected during upcoming winter peak season</li> <li>• Establish operations horizon SOLs; FAC-014, Req #2</li> <li>• Transfer Analysis of LIPA’s Internal Transmission System Interfaces for off-peak load conditions</li> <li>• Light Load analysis</li> </ul>
Local Transmission Plan (LTP)	<ul style="list-style-type: none"> <li>• Transmission owners provide details of their transmission plans including criteria, models, and local area development.</li> <li>• As part of the LTP, local Transmission Owners perform transmission studies for the transmission facilities in their Transmission Districts according to all applicable criteria.</li> <li>• The LTP provides inputs for the NYISO's Comprehensive System Planning Process (CSPP).</li> </ul>
FERC 715 Submission	<ul style="list-style-type: none"> <li>• Annual requirement for submitting firm/non-firm project updates, transmission system modeling data and planning criteria to NYISO and FERC</li> </ul>

<sup>8</sup> IR 52, DR 3, Utility 2.0 Filing and Fact Verification

<sup>9</sup> DR 51

Study Title	Objective
G-3 Loss of Gas Supply – Long Island Local Reliability Rule (Application of NYSRC Reliability Rules)	<ul style="list-style-type: none"> <li>• Determine limitation on Northport gas burn requirement</li> </ul>
Review and Update of PSEG LI Transmission Planning Criteria Document	<ul style="list-style-type: none"> <li>• Ensure the document is up to date and reflects the latest changes</li> </ul>
LIPA NERC TPL Planning Assessment	<ul style="list-style-type: none"> <li>• Address requirements of NERC TPL-001-4 and also FAC-014, Req #4</li> </ul>
FAC-014 Planning Horizon - Establish SOs	<ul style="list-style-type: none"> <li>• Address FAC-014, Req #4.</li> <li>• Establish SOLs for the Near-Term Planning Horizon</li> </ul>
Bulk Electric System (BES) Transmission Project System Impact Study (SIS)	<ul style="list-style-type: none"> <li>• Address FAC-002 Requirements</li> </ul>
Identification of BES buses for sequence of events / fault recording. Short Circuit Study	<ul style="list-style-type: none"> <li>• Address requirements of PRC-002</li> </ul>
NYISO Interconnection Process - Feasibility, SRIS, Class Year	<ul style="list-style-type: none"> <li>• To assess the impact on the LIPA transmission system of proposed new generation or transmission interconnections, and to identify required system reinforcements.</li> </ul>
NYISO Generator Deactivation Process / Deactivation Assessment / Short Term Reliability Process (STRP)	<ul style="list-style-type: none"> <li>• NYISO and PSEG Long Island analyses to assess whether a Generator Deactivation Reliability Need will result from a Generator becoming retired</li> <li>• On a quarterly basis, identifies short-term needs for the near-term five-year study period.</li> </ul>
NYISO Geomagnetic Disturbance Vulnerability Assessment of the Near- Term Transmission Planning Horizon	<ul style="list-style-type: none"> <li>• Steady State Power Flow studies to determine whether the System meets the performance requirements in NERC TPL-007-4 for the benchmark GMD event and the supplemental GMD event.</li> </ul>
NYISO GIC Flow Analysis	<ul style="list-style-type: none"> <li>• NYISO provision of GIC flow information to be used for the benchmark and supplemental transformer thermal impact assessment.</li> </ul>
NERC FAC-008 BES Facility Ratings/Power Factor Study	<ul style="list-style-type: none"> <li>• Calculate power factors for BES Transmission Lines, Generator Step-up Transformers (GSUs), Phase Angle Regulators (PARs)</li> <li>• Power factors to be used by Transmission Operations to calculate Facility MW ratings.</li> </ul>
Review of NERC Reliability Standards, NYSRC Reliability Rules and NPCC Directories	<ul style="list-style-type: none"> <li>• Review new Standards / Directories / Reliability Rules, or modifications to existing Standards / Directories / Reliability Rules. As applicable, provide recommended balloting positions in support of LIPA compliance objectives.</li> </ul>
NYISO Comprehensive System Planning Process (CSPP); Reliability Needs Assessment (RNA) and Comprehensive Reliability Plan (CRP)	<ul style="list-style-type: none"> <li>• Evaluates the resource adequacy and transmission system adequacy and security of the New York BPTF over a ten-year Study Period.</li> <li>• Evaluates the viability and sufficiency of the proposed solutions to satisfy the identified Reliability Needs.</li> </ul>
NYISO Fault Current Assessment	<ul style="list-style-type: none"> <li>• Document significant changes in fault current levels statewide, identify selected critical substations with potentially over-dutied circuit breakers, refer these substations to the respective owners, and recommend remedial actions.</li> </ul>
NYISO Area Transmission Review	<ul style="list-style-type: none"> <li>• Demonstrate conformance with the applicable North American Electric Reliability Corporation (NERC), NPCC Transmission Design Criteria, NYSRC Reliability Rules, and NYISO guidelines and procedures (for NPCC BPS facilities).</li> <li>• NPCC A-10 testing to determine any change in BPS status to existing or planned transmission facilities.</li> </ul>
Summer Load Forecast Distribution Substations and Circuits	<ul style="list-style-type: none"> <li>• Develop three Year Summer Peak Load Forecasts for all LIPA distribution substations and circuits.</li> </ul>
Winter Load Forecast Distribution Substations and Circuits	<ul style="list-style-type: none"> <li>• Develop three Year Winter Peak Load Forecasts for all LIPA distribution substations and circuits.</li> </ul>
Distribution Load Transfers	<ul style="list-style-type: none"> <li>• Develop distribution load transfers for seasonal operation of distribution system and for the rearrangement of the distribution system based upon planned distribution line projects.</li> </ul>
Support LIPA Small Generator Interconnection process	<ul style="list-style-type: none"> <li>• Conducts distribution planning assessments to support small generation interconnection process.</li> </ul>

Study Title	Objective
Ten-Year T&D Development Plan	<ul style="list-style-type: none"> <li>• The objective is to ensure that the LIPA transmission system meets PSEG Long Island Transmission Planning Criteria, NYSRC, NPCC and NERC performance requirements.</li> <li>• The Ten-Year Transmission and Distribution (T&amp;D) Development Plan highlights the various major T&amp;D capital projects within the LIPA service territory that are proposed to maintain service and improve the reliability of the LIPA system.</li> <li>• Recommendations for LIPA system improvements include consideration for reliability, performance, and engineering feasibility.</li> <li>• Provides PSEG Long Island with a strategy for near term expansion of the transmission and distribution system with an emphasis on the cost-effective solutions that are consistent with NYS Reforming the Energy Vision (REV).</li> </ul>

Source: DR 51

- Other PSEG LI work products focus on asset management, aging system, inspection/testing, and system reliability.
  - PSEG LI has numerous asset inspection programs as well as planned maintenance programs that assess the condition of assets on the T&D system.<sup>10</sup> Additionally, various reliability based programs (Multiple Customer Outage (MCO), Multiple Device Operations (MDO), Circuit Improvement Program, Infra-Red inspections, Transmission circuit patrols, Pole Inspections, Distribution Cable testing, Stray Voltage / Visual Inspections, Underground Transmission manhole inspections, and several Vegetation Management programs) are performed annually. These inspection program results are reviewed and analyzed for trends and to make better informed repair/replace equipment decisions. When assets that require repair or replacement are identified, this information is recorded and passed along to the appropriate Operations Division. All required work is then performed and tracked at the Divisional level. The status of work for many of these programs is formally tracked and reported during bi-weekly Reliability Performance meetings.
- System resource studies are an integral component to reliability and the future implementation of CLCPA. The following provides a listing of the main types of studies performed since 2018:
  - Siting Studies - Evaluation and Siting of new transmission and generators (LIPA Energy Plan, Generation and Transmission RFP etc.)
  - Integrated Resource Plan (IRP) – Evaluation of system reliability/capacity need and consider an array of possible future projects to meet peak demand and energy requirements.
  - Economic and Needs Analysis of Units under contract – Evaluation of existing units that are under contract to determine their reliability, performance, and economics (e.g., GT Study)
  - Failure Analysis – Financial Analysis of tie-line or unit failure and its impact on customers
  - Operating Budget - Projections of LIPA Fuel and Purchase Power costs
  - Cost Benefit of transmission upgrades and unit modifications

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<sup>10</sup> DR 48, DR 55, AND DR 112

- Economic impact of environmental regulations
- Contract Evaluation – Evaluation of PPA and other contracts for power/transmission supply
- Repowering Analyses – Evaluation of repowering options for exiting power plants
- Resource Adequacy Analyses - Support the development of Installed Reserve Margin (IRM) and Locational Capacity Requirement (LCR)
- Capacity needs and cost assessment.<sup>11</sup>

### **3. PSEG LI uses industry accepted software systems and models.**

- Power System Simulator for Engineering by Siemens to study thermal and voltage power flow, dynamic stability studies, short circuit studies along with other security and reliability issues.
- Transmission and Reliability Assessment (TARA) by PowerGem to study N-1-1 contingency analysis, optimal re-dispatch of generation for N-1 and N-1-1, thermal transfer limits and PV analysis.
- ASPEN Oneliner by Aspen Software is used to perform short circuit studies and to assess the adequacy of circuit breaker interruption ratings.
- Python – programming language for data automation and management
- PI Historian (PI) – Utilized to access historical transmission and distribution system data for use in calibrating power system simulation models, evaluation and quantification of reliability risks or exposure, etc.
- DER Locational Value Tool - The DER Locational Value Deferral tool identifies the load relief needed using renewables or energy efficiency equipment to avoid traditional load growth projects.
- CYME - The CYME program supports load flow, voltage and short circuit studies for the substations and distribution feeders.
- CYME Gateway - CYME Gateway is a software system that incorporates information from GIS, and SCADA in order to generate a network model to be used for distribution planning and integrated planning studies.
- Area Load Forecast (ALF) – In house application that is used to determine summer and winter peak loads for distribution banks and feeders.
- Distribution Resource Integration and Value Estimation (DRIVE) Tool: This is an EPRI- developed software tool that focuses on existing distribution system ability to accommodate distributed energy resources (DER) without requiring major

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<sup>11</sup> DR 51

infrastructure upgrades. This tool is currently being used to develop PV based hosting capacity maps.<sup>12</sup>

**4. PSEG LI's Transmission and Distribution System Plans appear traditional in its approach to identifying solutions to system needs. PSEG LI develops system solutions based on forecast load and reliability requirements. More recently, PSEG LI has expanded its traditional planning approach to include the impacts from CLCPA although these impacts are not represented in the Transmission and Distribution System Plans.**

- PSEG LI's transmission system includes:
  - Bulk Electric System (BES) facilities. The entire 138 kV transmission system is classified as BES and is subject to NERC TPL-001-4.<sup>13</sup> NERC TPL-001-4 is a planning standard for bulk electric systems across a spectrum of system conditions and probable contingencies. It dictates whether load loss is permitted under certain emergency conditions such as the loss of line or generator.<sup>14</sup>
  - Bulk Power System Facilities (BPS). LIPA has two BPS facilities connected to its system: the Y49 and Y50 cables. PSEG LI must design to meet performance requirements specified in NPCC Directory 1 as applicable.<sup>15</sup> Directory 1 has 19 requirements for system modeling and operations.<sup>16</sup>
  - NYS Bulk Power System as defined by the NYS Reliability Council includes generating units 300 MW and larger and transmission facilities 230 KV and larger. The NYSRC has established a set of reliability rules and compliance requirements for NYS BPS facilities. PSEG LI must comply with Rule G.3, the loss of gas supply and Archived Reliability Rules 27 and 28.
  - Local Transmission Facilities are the remaining assets. These assets are designed to meet TPL-001-4, Directory 1 and the contingencies specific to LIPA's system.<sup>17</sup>
- Based on the results of the system planning studies and other information, PSEG LI develops its Ten-Year Transmission and Distribution Plan.
  - The plan identifies solutions related to reliability, voltage stability and thermal performance.
  - The plan included 17 large distribution projects.
  - None of the recommended projects were considered for NWA solutions, although PSEG LI provided an NWA framework in 2015.
- PSEG LI system planning mandated work products that enhance system capabilities to support DER integration include:

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<sup>12</sup> DR 255

<sup>13</sup> DR 61 Attachment 1

<sup>14</sup> <https://www.nerc.com/pa/Stand/Reliability%20Standards/TPL-001-4.pdf>

<sup>15</sup> DR 61 Attachment 1

<sup>16</sup> <https://www.npcc.org/content/docs/public/program-areas/standards-and-criteria/regional-criteria/directories/directory-01-design-and-operation-of-the-bulk-power-system.pdf>

<sup>17</sup> DR 50 Attachment 1 and DR 61 Attachment 1

- Hosting Capacity Maps
  - Distribution interconnection instructions
  - Transmission Interconnection Instructions<sup>18</sup>
- PSEG LI’s expanded approach to system planning includes a number of non-traditional studies. Examples include:
    - Coordinated Grid Planning Process with the other NY utilities.
    - Headroom Assessments
    - Joint LIPA/ConEd Offshore Wind Study
    - Generation Resource Retirement Studies
    - Climate Vulnerability Studies<sup>19</sup>

These non-traditional plans are represented in the Transmission and Distribution System Plans.

- PSEG LI introduced one new software application, the Locational Value Deferral Tool, to identify if renewables and energy efficiency equipment can provide the necessary load relief in areas of distribution system constraint.<sup>20</sup>

**5. PSEG LI complies with the requirements of PSC Case 20-E-0197 and is an active participant in the State’s planning for CLCPA.**

- PSC Order in Case 20-E-0197 approved a new long-term system planning process that enables the Commission and the Utilities to identify the investments needed to meet the objectives of the CLCPA.<sup>21</sup>
- PSEG LI filed as part of the Utility Transmission and Distribution Investment Working Group Report its Phase 1 initial projects list and Phase 2 potential projects list on November 2, 2020. Phase 1 projects are immediately actionable projects that satisfy Reliability, Safety, and Compliance purposes but that can also address bottlenecks or constraints that limit renewable energy delivery within a utility’s system. The Phase 1 projects presented in the report largely originated from the Ten-Year Plan. These projects have already been identified for system needs and are expected to provide a benefit to support CLCPA goals. **Exhibit VIII-3** provides a summary of PSEG LI’s contribution to the Report for Phase I and Phase 2.
- On December 27, 2022, New York Utilities (including LIPA) jointly filed a revised Coordinated Grid Planning Process (CGPP) with the PSC that reflects stakeholder input into the local transmission and distribution planning processes. PSEG Long

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<sup>18</sup> DR 632, DR 635, and DR 636

<sup>19</sup> DR 253

<sup>20</sup> DR 255

<sup>21</sup> Case 20-E-0197, Order on Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act, August 2023.



Island states that it will continue to closely work with the CGPP team and will utilize local planning processes in the CGPP as applicable.<sup>22</sup>

**Exhibit VIII-3  
PSEG LI Phase 1 and Phase 2 Projects**

<b>Phase 1 Projects</b>			
<b>Project</b>	<b>In Service Date</b>	<b>Order of Magnitude Estimate (\$M)</b>	<b>Project Benefit (MW)</b>
New 138 kV Circuit Riverhead to Canal	6/1/2021	\$83	260
138 kV Conversion Wildwood to Riverhead	6/1/2021	\$10	160
Transmission Project Western Nassau	12/31/2020	\$162	70
2 New 34.5 kV Circuit Far Rockaway to Arverne Rockaway Beach to Arverne	6/1/2022	\$68	10
New 69 kV Circuit Ruland to Plainview	6/1/2022	\$41	40
Reconfiguration Pilgrim Bus	12/1/2023	\$1	20
Reconfiguration 69 kV Canal to Deerfield	6/1/2024	\$2	5
Circuit Upgrade Elwood to Pulaski	6/1/2025	\$35	50
Distribution Projects		\$351	
<b>Total</b>		<b>\$753</b>	
<b>Phase 2 Projects</b>			
345 kV Conversion LIPA Central Corridor	2025-2035	\$221	1,100
New 345 kV Circuit Shore Road to Ruland	2025-2035	\$647	
Series Reactors Newbridge to Ruland	2025-2035	\$7	
345 kV Intertie Zone K to Zone I or J	2025-2035	TBD	500
New Synchronous Condenser Zone K	2025-2035	\$200	-
69 kV Upgrades	2024-2025	\$206	230
Distribution Projects	2025-2035	\$167	
<b>Total</b>		<b>\$1,448</b>	

Source: Utility Transmission and Distribution Investment Working Group Report, NY DPS Case 20-E-0197, November 2, 2020

**6. PSEG LI has not demonstrated a strong commitment to NWA solutions. Only three NWA project has been selected over the span of approximately 10 years.**

- As demand increases due to electric vehicle charging, heat pumps, and storage, , PSEG LI may need additional transmission and distribution capacity. NWAs are one

<sup>22</sup> DR 1278

methodology to reduce the need for additional system infrastructure. NWAs are utility investments in the targeted installation of customer installed energy storage, customer installed solar PVs, Energy Efficiency, and other DERs that can defer the need for future system investments. The decision to use an NWA is dependent on the ability to reduce load and be economically competitive.<sup>23</sup>

- In 2015 PSEG LI developed and used an NWA Evaluation Matrix tool to screen capital projects for NWA options.<sup>24</sup> Two projects resulted in NWA consideration and one was ultimately selected. This NWA project was awarded through a competitive bidding process. Four solutions were accepted including approximately 130 MW in wind generation, 10 MW of storage as well as various other load relief initiatives. The wind generation project is currently in construction.<sup>25</sup>
- Two additional targeted EE solutions resulted in a demand reduction of 2.7 MW.<sup>26</sup>
- The 2015 NWA Evaluation Matrix is not used today. Currently, PSEG LI has two tools to help evaluate the potential for an NWA project.
  - The Locational Value Analysis (LVA) tool estimates the value that is used to defer T&D capital investment, which is needed to incentivize the interconnection of DER within PSEG Long Island's service territory. The values derived from the tool are used as inputs to NWA Planning Tool.
  - NWA Process Development Program and Planning Tool (NWA Tool) evaluate customer measures and markets as an alternative to traditional utility construction. These initiatives promote the identification, selection and procurement of NWAs and enable PSEG Long Island to calculate system benefits and costs more comprehensively.<sup>27</sup>
- Both the LVA and NWA Tools were operational in 2022. There were six projects evaluated for NWA solutions. None were pursued as an NWA option. **Exhibit VIII-4** provides the results of the analyses.

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<sup>23</sup> NorthStar Analysis

<sup>24</sup> NorthStar Consulting Group, Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC, Matter NO. 16-01248, June 29, 2018.

<sup>25</sup> DR 1367 and [https://en.wikipedia.org/wiki/South\\_Fork\\_Wind\\_Farm](https://en.wikipedia.org/wiki/South_Fork_Wind_Farm)

<sup>26</sup> DR 59 Attachment 1

<sup>27</sup> 2023 Utility 2.0 Filing

**Exhibit VIII-4  
NWA Analyses**

<b>Project</b>	<b>Result</b>
Bridgeton Feeder 9R627	Could not obtain required Load Relief.
Edgemere Commons Development Phase 2	Could not obtain required Load Relief
Broadway 2BB	Could not obtain required Load Relief for each hour of the day
Arverne East Development 2AR7H6	Too few customers and NWA solution could not be reached by time of need.
Suffolkshire New Feeder	Solution found but uneconomical.
Woodmere 2MA Feeder Extensions	Feasible solution found – however the current reliability issues are not resolved.

Source: DR 769

- The application of PSEG LI’s new NWA analysis tools are inconsistent, where PV systems sometimes include Energy Storage and other times they do not.<sup>28</sup>
- Effectively, only the 2015 NWA project has been selected over the span of approximately 10 years.

**7. The CLCPA initiatives do not cause near-term increases in load that cause system planning concerns related to load constraints and reliability.**

- The largest new loads are associated with Electric Vehicle Charge and Beneficial Electrification. These new loads are forecast to be offset by Energy Efficiency and Rooftop Solar Installations during the summer peak until 2037. While the winter peak is forecast to start growing in 2024, it is not forecast to exceed the summer peak until 2037.
- The 2023 Utility 2.0 Plan identifies the requirement for large scale Electric Vehicle Charging Infrastructure. While these charging facilities may impact load pockets on the distribution system, these charging facilities have unknown location and timing.<sup>29</sup>
- LIPA is not forecast to see any appreciable load growth until 2032.<sup>30</sup>

**8. PSEG LI and LIPA do not consider benefit/cost analyses in electric system planning.**

- NorthStar’s review of Project Justification Documents (PJD) determined that there is no specific requirement for a quantitative cost/benefit analysis.<sup>31</sup>
  - Key components of the PJD note “Basis and Costing for Unitization” and “Most Significant Business Value Added (Benefits).”<sup>32</sup>

<sup>28</sup> DRs 768

<sup>29</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency Plan. 2023 Annual Update, July 1, 2023

<sup>30</sup> DR 150 Attachment 2.

<sup>31</sup> DR 57 and Attachments 1 and 2, DRs 340 through 346

<sup>32</sup> DR 57 Attachment 1

- “Value Added (Benefits)” examples note system resilience, reliability, minimize outages, flood prevention, load growth, etc.
- Cost is addressed in estimates of cash flow, cost per unit and total (Office level/Order of Magnitude).
- The PJD Process Document includes the instruction to “Analyze cost-benefit relation of your project to know whether it really makes sense.”

**9. PSEG LI is currently in a pre-concept stage as a Distributed System Platform (DSP) operator. PSEG LI has, however, shown progress in its role as a DSP operator.**

- PSEG LI has developed a process for considering NWA alternatives as discussed in Conclusion 5.
- PSEG LI developed its 2023 Utility 2.0 Plan on July 1, 2023. The primary goal of the Utility 2.0 Plan is to achieve a zero emissions grid. PSEG LI is committed to the advancement and management of a DSP that enables proliferation of:
  - Beneficial Electrification
  - Electric Vehicles
  - Energy Storage
  - Energy Efficiency

It should be noted that the technologies listed are entirely dependent on customer acceptance and capital, something over which PSEG LI and LIPA have little control.

- PSEG LI is also committed to streamlining the process for DER interconnections.<sup>33</sup>
- PSEG LI has installed over one million smart meters.<sup>34</sup> The smart meters provide numerous opportunities to study customer usage and design programs to reduce energy use, move energy use, and reduce coincident demand.

**10. PSEG LI’s development of its Hosting Capacity Site and its participation in NYSERDA’s Utility Energy Resource (UER) database are reasonable steps towards providing information to potential DER developers.**

- PSEG LI maintains an online hosting capacity map. Access to the map requires the user to register and obtain a username and password.
  - NorthStar submitted its application and received the necessary login information 48 hours later.
  - The hosting capacity map is functional providing available capacity on its radial distribution system. Users can identify available capacity by a filter and the associated circuits (wire information and substation information) by clicking on the filtered map.

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<sup>33</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency Plan. 2023 Annual Update, July 1, 2023

<sup>34</sup> DR 59

- The maps are updated to reflect Hosting Capacity Stage 3. The most recent update was June 13, 2023.<sup>35</sup>
- PSEG LI participates with NYSEERDA in providing the requested data for the Utility Energy Registry data interface since 2022. Data is prepared and uploaded every six months by the Power Markets Organization.<sup>36</sup>
  - PSEG LI provided its first dataset in January 2022, representing Customer Class Consumption, ICAP Capacity, and Community Choice Aggregation for July 1, 2021 through December 31, 2021.
  - NorthStar attended a demonstration of the UER interface and found PSEG LI data to be detailed and current.<sup>37</sup>
  - PSEG LI participates in the development of NYSEERDA’s Integrated Energy Data Resource program. The program is still conceptual and in Phase I.<sup>38</sup>

**11. PSEG LI has a well-defined process for interconnecting DERs to the system.**

- Small generators connecting to the distribution system are categorized into three groups:
  - Less than 50 kW
  - Above 50 kW and less than 5 MW
  - Above 5 MW and less than 10 MW<sup>39</sup>
- PSEG LI provides the instructions for submitting applications in its “Small Generator Interconnection Procedure for Distributed Generators and /or Energy Storage Systems Less than 10 MW Connected in Parallel with LIPA’s Radial Distribution Systems” (SGIP).<sup>40</sup>
  - The instructions provide a web-link to submit distributive generation projects.<sup>41</sup>
  - A separate username and password must be obtained to use the web service.
- PSEG LI has expedited/fast track processes for DERs less than 50kW and for inverter-based systems of less than 300 kW.
- Projects in size from 50 kW and less than 5 MW require that PSEG LI complete a Coordinated Electric System Interconnection Review (CESIR)<sup>42</sup>. PSEG LI also requires a \$750 application fee.

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<sup>35</sup> <https://lipa.maps.arcgis.com/apps/webappviewer/index.html?id=05b9d34d35904eae9c3b62c0ee4ad927>

<sup>36</sup> DR 634

<sup>37</sup> IR 101

<sup>38</sup> IR 102

<sup>39</sup> DR 636 Attachment 1

<sup>40</sup> DR 636 Attachment 1

<sup>41</sup> <https://www.psegliny.com/aboutpseglongisland/ratesandtariffs/sgip>

<sup>42</sup> A comprehensive engineering study to understand the project’s impact to the utility system and determine what construction upgrades, if any, will be required to the system.

- The largest projects require the most involved review by PSEG LI. PSEG LI must complete feasibility studies, system impact studies, and facilities studies. PSEG LI requires a deposit of the lesser of 50 percent of the cost of the feasibility study or \$10,000 to proceed in large distribution DER.<sup>43</sup>
- PSEG LI requires that generating projects greater than 10 MW be connected to the transmission system. This is consistent with NYISO policy. PSESG LI adopted the NYISO instructions for transmission interconnections.<sup>44</sup>
- PSEG’s SGIP follows the same framework as the DPS standards for facilities less than 5MW.<sup>45</sup>

**12. LIPA/PSEG LI’s Demand Response (DR) program is not given sufficient visibility on the website and provides little useful information to smaller customers.**

- PSEG LI offers three Demand Response Programs:
  - Direct Load Control (DLC) – Customers are equipped with remote control devices that permit PSEG LI to reduce customer loads during system emergencies. The Smart Savers Thermostat Program is one example of DLC for residential customers. The remote-control device is used to increase the thermostat’s temperature setting and reduce air conditioning demand.
  - Commercial System Relief Program (CSRP) – Reduces energy use at critical times. Customers are notified around 21 hours in advance to lower usage. An AMI meter is used to verify the amount reduced for remuneration purposes. The program is available to both residential and C/I customers.
  - Distribution Load Relief Program (DLRP) – A localized version of the CSRP on areas of the distribution system.<sup>46</sup>
- Enrollment in DR programs directly with PSEG LI requires a minimum load of 50 kW. Smaller size customers must enroll with an aggregator.<sup>47</sup> There are four customers directly enrolled with PSEG LI while 393 are enrolled with load aggregators, resulting in the program being marketed by load aggregators.<sup>48</sup>
- Enrollment is small relative to the system load. Currently enrollment in DLC is about one percent of peak day load and less than four percent of all customers.<sup>49</sup>

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<sup>43</sup> DR 636 Attachment 1

<sup>44</sup> DR 635 Attachment 1

<sup>45</sup> “New York State Standardized Interconnection Requirements and Application Process For New Distributed Generators and Energy Storage Systems 5 MW or Less Connected in Parallel with Utility Distribution Systems”, New York State Public Service Commission, May 1, 2023

<sup>46</sup> DR 571

<sup>47</sup> <https://www.psegliny.com/businessandcontractorservices/businessandcommercialsavings/csrp/faq>

<sup>48</sup> DR 574

<sup>49</sup> DR 574

- PSEG LI’s website does not provide the necessary visibility to the DR Program. DR is buried on the website under numerous tabs and options. It takes a knowledgeable user to know where and what to search.
  - PSEG LI’s homepage has a tab “Save Energy and Money”. Upon clicking the tab, the user is directed to an energy savings menu.
  - For C/I customers, there is tab “Savings For Businesses”. The user is directed to a menu that includes the CSRP program. Selecting CSRP takes the user to the application process. The application is for customers greater than 50 kW and informs small businesses to enroll with an aggregator. PSEG LI does not provide a list of aggregators.<sup>50</sup>
  - Residential customers access the energy savings menu by selecting the “save Energy and Money” tab, as well. The user then selects “Home Efficiency”, “Rebates”, and then “Cooling and Heating”. The user then selects “Smart Thermostats” and is shown the \$85 rebate for installing a PSEG LI remote controlled thermostat. The customer can enroll directly from this menu.<sup>51</sup>
  - Residential customers may also enroll in the CSRP and DLRP programs through an aggregator. The eligibility is explained in the CSRP Frequently Asked Questions page.<sup>52</sup>

**13. PSEG LI employs a low-risk approach to replacing older technology with newer technology.**

- PSEG LI’s factors include:
  - Life-cycle replacement
  - Changes in functional requirements
  - Contractual obligations
  - Regulatory Requirements
  - Obsolete existing technology
  - Benchmarking
  - Opportunities for improvement
- PSEG LI consideration of trade-offs include:
  - Risk of doing nothing
  - Budgetary impact
  - On-going O&M Costs
  - Impacts and conflicts with other systems and infrastructure.<sup>53</sup>

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<sup>50</sup> <https://mercury.energyhub.net/t/commercial/pseg-li>

<sup>51</sup> <https://enrollmythermostat.com/pseg-li/>

<sup>52</sup> <https://www.psegliny.com/businessandcontractorservices/businessandcommercialsavings/csrp/faq>

<sup>53</sup> DR 60



**14. PSEG LI is reactive in responding to known risks. Solutions to many of the identified risks require years to mitigate.**

- PSEG defined five risks in its ERMP related to T&D.<sup>54</sup> **Exhibit VIII-5** provides the five risks and the mitigation efforts and schedule.

**Exhibit VIII-5  
T&D Risk Mitigation Efforts**

	<b>2023 Risk</b>	<b>Projects/Activities/Procedures</b>	<b>Schedule</b>
1	Issue: Outdated primary control room  Risks: Increased system vulnerabilities during large and catastrophic events	Construction of new primary control room	Estimated 2027
2	Issue: Failure of Critical Business Applications  Risks: Failure of the OMS and other restoration systems during large and catastrophic events	Business Continuity and Disaster Recovery Testing.  New Resiliency Manager.  Annual simulations.  New Procedure on Restoration of Critical Systems.	Estimated 2023  Completed 2022  Annual by June 30  Annual Review by August 31
3	Issue: Loss of Existing Electronic Card for Physical Entry into facilities  Risks: Unauthorized access, system sabotage, physical injury and NERC fines.	New upgrade to the system	Estimated 2023
4	Issue: Outdated perimeter monitoring security at operating yards  Risks: Unauthorized access, physical injury and theft.	Upgrade system with 60 cameras.	Estimated 2024
5	Issue: Limited Critical Distribution Switching Equipment and Control Room Interface Modules  Risks: Increased customer outages and power inefficiency.	Convert pagers to two-way radio controllers.  Evaluate age of RTY Control Equipment and replace as necessary.	Estimated 2026  Estimated 2024

Source: DR 1320

- Many of these risks were clearly identifiable prior to 2023.

**15. PSEG LI has implemented several programs and tools to improve system safety, including:**

- Use of Drones for Emergency Restoration Services
- Use of Vacuum Trucks to reduce physical strain from digging underground facilities.

<sup>54</sup> DR 618

- New wire pulling tools reduce strain related injuries.
- Hydraulic tools to reduce repetitive motion injuries.<sup>55</sup>

**16. Neither LIPA or PSEG LI have programs that reward employees for innovation.**

- LIPA encourages and funds various activities with professional organizations where employees can demonstrate leadership and professional development. These organizations include the Large Public Power Council, the American Public Power Association, the Association of Edison Illuminating Companies, and the Electric Power Research Institute.<sup>56</sup>
- PSEG LI offers Lean Six Sigma Training (LSS). LSS is a continuous improvement program where employees work in teams to create solutions to problems, streamline processes and increase customer satisfaction. The reward is in employees obtaining LSS Black Belts.<sup>57</sup>

**17. PSEG LI has developed several new service offerings that generate savings and financial benefits for customers.**

- PSEG LI’s stresses the concept of using less energy to keep more money.<sup>58</sup> This concept is reiterated in various ways across its website. PSEG LI has developed 14 residential and eight new commercial energy efficiency programs since the last management audit. These programs offer incentives and rebates to customers.<sup>59</sup>
- PSEG LI has developed several programs that assist customers in reducing energy consumption and saving money:
  - Time-of-Day Rates – the price signals for high peak usage encourage customers to defer energy use until lower cost periods.
  - DLC – PSEG LI remotely adjusts the temperature of thermostats resulting in less frequent cycling of air conditioners.
  - PSEG LI Marketplace – an online shopping experience that offers energy-efficient products and energy efficiency programs. Products include:
    - Smart Thermostats – programmable devices
    - Smart Thermostat Accessories – temperature sensors
    - Power Strips – advanced design that includes auto shut-off outlets.
    - Water Fixtures – water efficient shower heads
    - Air Quality – energy efficient air filters<sup>60</sup>

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<sup>55</sup> DR 620

<sup>56</sup> DR 1321

<sup>57</sup> DR 1321

<sup>58</sup> <https://www.psegliny.com/saveenergyandmoney/energystarrebates>

<sup>59</sup> DR 1369

<sup>60</sup> <https://marketplace.pseg.com/>

## 18. Outside of the necessary planning for T&D upgrades, LIPA and PSEG LI have largely taken a passive approach to implementing CLCPA in Long Island.

- The LIPA Board Policy for Clean Energy and Power Supply #1727 as amended on May 18, 2022 states:

“LIPA’s vision for clean energy and power supply is to provide clean, reliable, resilient electricity to our customers at an affordable cost that both maintains the economic competitiveness of our region and minimizes the economy-wide greenhouse gas emissions of Long Island and the Rockaways by encouraging the electrification of vehicles, buildings, and equipment.”

- Electrification of vehicles, buildings, and equipment is dependent on adoption rates and capital investment of technologies by customers, as well as the commitment of third parties such as installation contractors and DER developers in order to achieve certain key CLCPA milestones.
  - PSEG LI is responsible for providing incentives and installing the charging infrastructure associated with 178,500 EVs on Long Island. PSEG LI has a goal to enroll and energize 498 new Direct Current Fast Chargers (DCFC) ports and 4,247 new Level 2 (L2) ports through 2025.<sup>61</sup> As of October 2023, PSEG LI tracking was short of its annual goals by achieving only one of four metrics related to DCFC and L2 ports.<sup>62</sup> PSEG LI proposed in its 2023 Utility 2.0 plan to delay achievement of 498 DCFC ports and 4,247 L2 ports to 2027 with some projects extending into 2028.<sup>63</sup>
  - The PSEG LI 2022 Utility 2.0 filing stated that Long Island’s proportional share of the beneficial electrification goal would yield a target of 125,000 to 150,000 homes heated with heat pumps by the end of the decade, or an average of about 15,000 annual whole house heat pump deployments a year.<sup>64</sup> PSEG LI installed approximately 7,800 heat pumps between its 2022 and 2023 Utility 2.0 filings.<sup>65</sup>
- As stated by the LIPA CEO during the November 15, 2023 Board of Trustee meeting:

“How are we going to solve that equation to get customers to do something that is already tremendously economic to do? The person that they call when their air-conditioning unit dies does not necessarily tell them about the benefits of putting in a heat pump or know how to market it. So, some of the things we are working on... how do you improve the contractor network, how do you do

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<sup>61</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency, Beneficial Electrification and Demand Response Plan, 2022 Annual Update, July 2022.

<sup>62</sup> LIPA 2023 Sharepoint Metric PS&CE-06 Metric October 2023 report.

<sup>63</sup> PSEG LI 2023 Utility 2.0 Long Range Plan and Energy Efficiency Plan, 2023 Annual Update, July 2023.

<sup>64</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency, Beneficial Electrification and Demand Response Plan, 2022 Annual Update, July 2022.

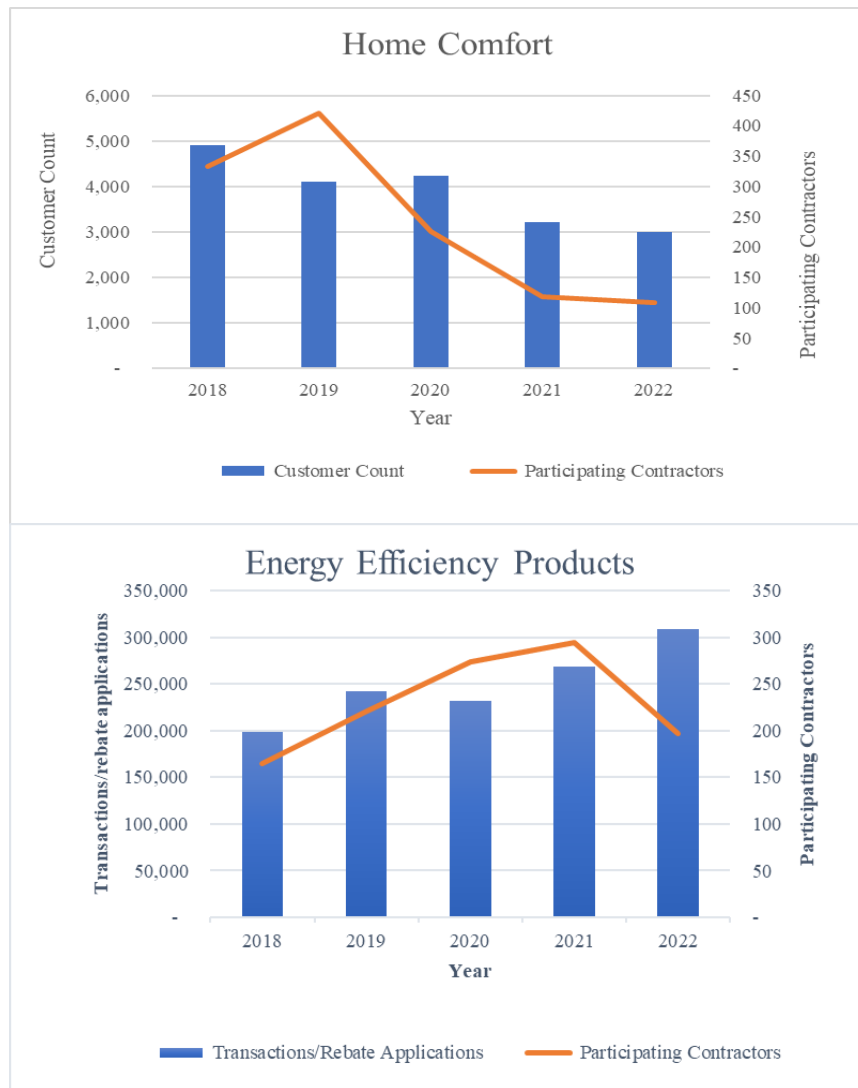
<sup>65</sup> Comparison of PSEG LI’s 2022 Utility 2.0 filing, July 2022 and 2023 Utility 2.0 filing, July 2023. Based on fact verification, LIPA notes that Long Island’s proportional share of the beneficial electrification goal was reduced in July 2023 to a target of 67,769, or about half of the 2022 goal, whole homes heated with heat pumps by the end of the decade.

education for those contractors down the line, how can you better use the information you have on your customers and use your customer relations to help market and sell these things. So, will we crack the code in 2024 on this? Probably not, but what we have laid out in the electrification metric is some step-by-step progress on how we can experiment and begin to crack the code.”

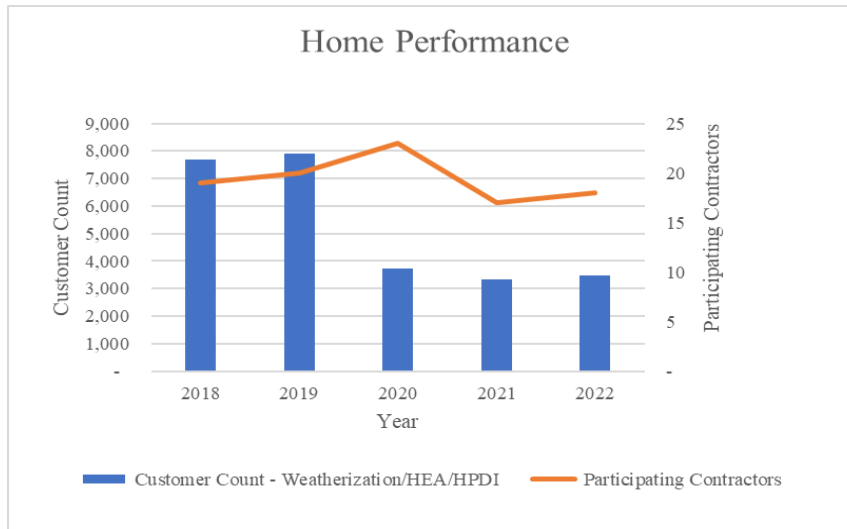
“The Climate Action Council recognizes that we [the State of New York] are currently not meeting those objectives.”<sup>66</sup>

- Participating contractors in LIPA’s Home Comfort, Energy Efficiency Products (EEP), and Home Performance programs which include heat pumps have decreased from previous highs as shown in **Exhibit VIII-6**.

**Exhibit VIII-6  
Participating Contractor in Home Comfort, EEP, and Home Performance Programs  
from 2018 to 2022.**



<sup>66</sup> LIPA Board of Trustee Meeting, November 15, 2023 and fact verification



Source: DR 1131 Attachment 7.

- PSEG LI currently has 27MW of installed bulk energy storage compared to the 2025 goal of 188MW. The Miller Place Battery Storage project’s proposed 2.5MW battery system was canceled due to a number of delays and PSEG LI opted for a traditional grid infrastructure investment.<sup>67</sup> PSEG LI issued an RFP in April 2021 to obtain 175 MW of new bulk energy storage projects to help meet LIPA’s share of NYS’ 2025 storage goal. LIPA is in negotiations for five projects with 329MW of storage. LIPA says negotiations continue into Q1 2024 – over 30 months after receipt of proposals in July 2021.<sup>68</sup>
- PSEG LI evaluated six projects for NWA solutions. None were pursued as an NWA option review.<sup>69</sup>
- Despite being aware of disadvantaged community (DAC) requirements in the CLCPA, LIPA/PSEG LI still has not initiated a process to engage and invest in DACs.
  - A CLCPA requirement is to ensure DACs receive a minimum of 35 percent, with a goal of 40 percent, of the benefits of spending on clean energy and energy efficiency programs, projects, or investments in the areas of housing, workforce development, pollution reduction, low-income energy assistance, energy, transportation, and economic development.
- LIPA’s Board Policy on Social and Environmental Justice states:
 

“LIPA supports social and environmental justice, namely achieving fairness and equity in the transition to a clean energy future, and believes that all

<sup>67</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency Plan, 2023 Annual Update, July 2023.

<sup>68</sup> DR 1213.

<sup>69</sup> DR 769

communities are entitled to equal protection of environmental laws and regulations.”<sup>70</sup>

- NorthStar reviewed the LIPA/PSEG LI 2021 Bulk Energy Storage RFP issued in April 2021. The RFP included specifications related to DACs. The RFP did not require the project be located in or near a DAC.
- LIPA response as to why locating a Bulk Energy Storage project in or near a DAC was not a made a proposal submittal requirement stated:

“Location in or near DACs is one of many factors considered in this procurement. System impacts also need to be taken into account. LIPA was able to select a portfolio of five projects, which optimized cost, system benefits, and benefits to DACs.”<sup>71</sup>

- NorthStar requested the Bulk Energy Storage RFP responses received in July 2021, selection/scoring criteria, and completed project selection/scoring sheets. LIPA stated that selection would be done in or around Q1 2024 – over 30 months after the proposal due date. LIPA further stated:

“Until these processes are completed, LIPA does not believe that the procurement is ripe for review by NorthStar.”<sup>72</sup>

- LIPA and PSEG LI have waited for Climate Action Council to identify and confirm census tracts to begin working with and tracking investments in disadvantaged communities (DAC). PSEG LI stated:

“We expect identification and confirmation of customers who fall within the DAC census tracts to be completed by the end of third quarter 2023. Once identified, customer outreach will take place in accordance with our general outreach efforts in place for 2024.”<sup>73</sup>

- LIPA and PSEG LI knew where DACs were located in the Long Island service territory as a section in the Bulk Energy Storage RFP published in April 2021 was dedicated to DACs.<sup>74</sup> Some of the power plants in LIPA’s service territory are in proximity to DACs.<sup>75</sup> PSEG LI Utility 2.0 filing in July 2022 acknowledged the release of the DAC draft criteria was forthcoming. PSEG LI has only begun to identify enhanced EE, heat pump and electric vehicle incentives and programs to target these customers and communities.<sup>76</sup>

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<sup>70</sup> DR 1204 Supplement 1.

<sup>71</sup> DR 1214.

<sup>72</sup> DR 1213.

<sup>73</sup> DR 1428.

<sup>74</sup> DR 240 Attachment 1.

<sup>75</sup> DR 1205.

<sup>76</sup> PSEG LI Utility 2.0 Long Range Plan & Energy Efficiency Plan, 2022 Annual Update, July 2022.

- LIPA/PSEG LI do not specifically report on CLCPA progress to the public, to the Board of Trustees, or the Board’s Oversight and Clean Energy Committee.<sup>77</sup> PSEG LI’s annual Utility 2.0 filing reports progress on clean energy goals for Solar PV, heat pumps, EE, EVs, and Energy Storage. Utility 2.0 filings are posted on the LIPA website.
- PSEG LI’s Construction Services risk register notes CLCPA as a “high” risk due to the increase in the scope, scale, and number of projects that have been initiated in 2023.<sup>78</sup> However, CLCPA was not presented as a high-priority risk to the LIPA F&A Committee in September 2023 or any other prior meeting.
- NorthStar reviewed PSEG LI Utility 2.0 and EE program plans and alignment to the Climate Action Council’s Final Scoping Plan issued in December 2022. PSEG LI plans do not include programs to address all aspects of CAC Scoping Plan themes and strategies for “Buildings” (e.g., sharing building energy consumption benchmarks or supporting transition from hydrofluorocarbons in food store refrigeration), “Industry” (e.g., commitment to purchasing low-carbon building materials), “Land Use” (e.g., working with LIRR to accelerate Transit-Oriented Development), and other Scoping Plan topics.
- Select PSEG LI Utility 2.0 programs and related initiatives are experiencing delays and other challenges. **Exhibit VIII-7** provides an overview of PSEG LI’s Utility 2.0 program status.

**Exhibit VIII-7**  
**PSEG LI Clean Energy Challenges**

PSEG LI Utility 2.0 and related initiatives	Status
EV Make Ready Programs	Met one of four metrics. Miss planned goals – extend to 2027 and 2028.
ToD rates	Original roll-out in September 2023 delayed until November 2023.
School Bus Electrification Program	Delayed.
Connected Buildings Pilot	Delayed.
Storage	Miller Place Battery Storage project cancelled. Bulk Energy Storage delayed
DER Visibility Platform	Project Kick off delayed. Interface re-work, supply chain issues obtaining certain hardware. Additional scope and other issues led to increase in 2023 budget.
Super Savers	Pilot program for measuring DER and EE efforts to reduce peak demand. Approximately 50% goal since 2019.
IEDR Platform	Delayed.
Residential Storage System Incentive Program	Delayed to Q4 2023.
Disadvantaged Communities	No method of tracking 35-40% investment in DACs or mitigating emissions in DACs.

Source: PSEG LI 2023 Utility 2.0 Filing and [www.PSEGLI.com](http://www.PSEGLI.com)

<sup>77</sup> Review of LIPA Website, Board of Trustee Meetings, and Oversight and Clean Energy Committee Meetings.

<sup>78</sup> DR 903 Attachment 60. For more information, see Chapter III – Governance.



**19. PSEG LI process for establishing EE budgets and savings is flawed. EE budgets are underspent while savings goals thresholds are consistently reported as surpassed.**

- PSEG LI sets EE savings goals annually as part of the Utility 2.0 filing development process. While goals are increased from previous years, these are consistently surpassed as shown in **Exhibit VIII-8**.

**Exhibit VIII-8**  
**PSEG LI EE Goals and Results from 2018 to 2022 (MWh/MMBTU)**

	2018	2019	Total	2020	2021	2022	Total
<b>EE Savings Goal</b>	219,000	233,513	<b>452,513</b>	797,534	962,902	1,045,111	<b>2,805,547</b>
<b>EE Savings Results</b>	243,947	266,005	<b>509,952</b>	965,608	1,120,765	1,110,823	<b>3,197,196</b>
<b>Variance</b>	<b>24,947</b>	<b>32,492</b>	<b>57,439</b>	<b>168,074</b>	<b>157,863</b>	<b>65,712</b>	<b>391,649</b>
<b>% Difference</b>	111.4%	113.9%	<b>112.7%</b>	121.1%	116.4%	106.3%	<b>114.0%</b>

Source: DR 1585 Attachments 1 to 5. EE savings goals and results reported in MWh until 2019, then converted to MMBTU in 2020.

- PSEG LI EE programs are consistently underspent as shown in **Exhibit VIII-9**. Consistent surpassing of goals and underspending on programs suggests goals and budgets should be carefully re-examined with marketing and outreach efforts.

**Exhibit VIII-9**  
**PSEG LI EE Budgets and Actual Spend from 2018 to 2022 (\$M)**

	2018	2019	2020	2021	2022	Total
<b>EE Budget</b>	\$73.3	\$72.6	\$72.7	\$72.6	\$74.5	<b>\$365.7</b>
<b>EE Actual</b>	\$64.3	\$69.1	\$69.3	\$66.7	\$66.9	<b>\$336.3</b>
<b>Variance</b>	<b>\$ (9.0)</b>	<b>\$ (3.5)</b>	<b>\$ (3.4)</b>	<b>\$ (5.9)</b>	<b>\$ (7.6)</b>	<b>\$ (29)</b>
<b>% Difference</b>	87.7%	95.2%	95.3%	91.9%	89.8%	92.0%

Source: DR 1585 Attachments 1 to 5.

**20. PSEG LI does not provide adequate oversight of its EE subcontractor.**

- Lockheed Martin’s Distributed Energy Solutions group was acquired by PSEG LI’s current EE contractor parent company in November 2019. The current EE subcontractor was assigned the Lockheed Martin master services agreement which has been in effect since 2015. The scope of the master services agreement includes the design and implementation of residential and commercial EE programs.
- PSEG LI’s EE subcontractor implements and manages most of the EE programs offered under the PSEG LI brand as shown in **Exhibit VIII-10**.

**Exhibit VIII-10**

**Energy Efficiency Programs Administered by PSEG LI and the EE Subcontractor.**

EE Subcontractor	PSEG LI
<ul style="list-style-type: none"> <li>• Energy Efficient Products (EEP) Program</li> <li>• Home Comfort Program</li> <li>• Residential Energy Affordability Partnership (REAP)</li> <li>• Home Performance Weatherization Program</li> <li>• All Electric Homes</li> <li>• Multifamily</li> <li>• Commercial Efficiency Program (CEP)</li> </ul>	<ul style="list-style-type: none"> <li>• Demand Load Management (DLM) Tariffs</li> <li>• Home Energy Management Program</li> </ul>

Source: PSEG LI 2023 Utility 2.0 update, July 2023.

- PSEG LI’s EE subcontractor program implementation responsibilities include the following:
  - Vendor Engagement - engaging contractors and training stakeholders.
  - Customer Operations - Customer service and technical assistance, including customer consultations, design collaboration, and customer support in developing energy plans and customized engineering studies.
  - QA/QC activities - Qualifying products, qualifying projects, validating project scopes as well as conducting pre- and post-inspections.
  - Rebates and Payments - processing rebates and issuing payments.
  - Program Analysis - Ongoing analysis and continuous improvement of implementation methods, market conditions, and measure mix.
  - Program Reporting - Program analytics, including pipeline, product, and results reporting.<sup>79</sup>
- PSEG LI oversight of its EE subcontractor is largely performed through monthly meetings, review of program implementation guides, and budget/savings variance reports.<sup>80</sup>
- The EE subcontractor’s MSA includes a clause for audit rights for LIPA and PSEG LI.<sup>81</sup> However, these rights are not fully exercised.
  - PSEG LI has not completed an audit of the EE subcontractor since 2020.<sup>82</sup>
  - PSEG LI has not performed a comprehensive audit of the EE subcontractor’s or any of its subcontractors’ Quality Assurance programs or the effectiveness of pre-project inspections and post-project implementation inspections. During a Utility 2.0 Stage Gate 1 small group meeting in February 2023, it was suggested that PSEG LI work with the EE subcontractor to audit heat pump sizing and pricing.<sup>83</sup>
  - During an EE working session between LIPA, DPS, and PSEG LI in February 2023, the REAP program and associated costs were discussed. PSEG LI stated that the MSA does not require the EE subcontractor to provide PSEG LI its actual

<sup>79</sup> DR 1108 Attachment 1.

<sup>80</sup> DR 1586.

<sup>81</sup> DR 1582 Attachment 2.

<sup>82</sup> DR 1581.

<sup>83</sup> DR 1107 Supplement 1.

costs.<sup>84</sup> The MSA has a section on Audit Rights and states that the EE subcontractor is to keep a detailed account of all costs necessary for proper financial management with a system in accordance with GAAP. Furthermore, the MSA states that LIPA, including PSEG LI or its employees, shall have access to the work deliverables and to all of the EE subcontractor's vouchers, memoranda, records, data, and other documents relative to the Work, for inspection, audit, or reproduction.<sup>85</sup>

- LIPA had a third-party perform an EE savings validation for 2022. The analysis determined that it was not possible to replicate and confirm accurate savings for seven of the eight programs in the study without further detail and additional data.<sup>86</sup>
- PSEG LI and its EE subcontractor monitor energy efficiency savings due to contractual obligations and incentives, not program operations performance. The EE subcontractor's reported metrics to PSEG LI do not provide any indication of the effectiveness of program operations.<sup>87</sup> This is illustrated by the Low/Moderate Income Heat Pump (Home Comfort) program issue that began in May 2022. From June to October 2022, heat pump incentive payments and unit installs started increasing as noted in **Exhibit VIII-11**. PSEG LI and the EE subcontractor did not appear to investigate the spike in costs or number of units installed until January 2023.
  - LIPA's study of the "root cause" of this issue concluded that it was a combination of the rebate increase and Con Edison suspending its heat pump program leading to an increase in the number of contractors in the Long Island market.
  - LIPA also found that monitoring mechanisms were not robust enough to effectively identify overspending risk in a more-timely basis.

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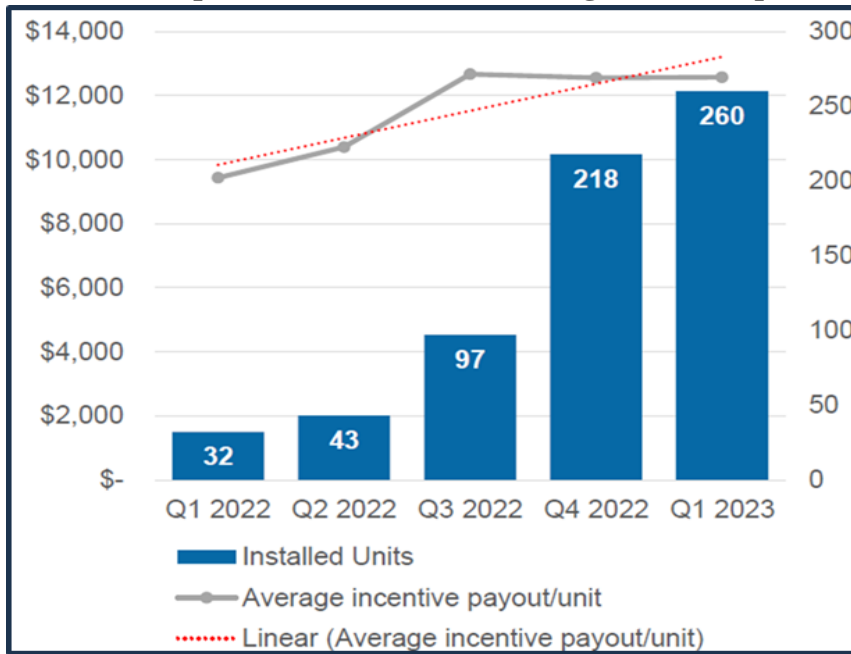
<sup>84</sup> DR 1107 Supplement 1.

<sup>85</sup> DR 1582 Attachment 2.

<sup>86</sup> DR 1107 Supplement 43.

<sup>87</sup> DR 1585 Attachments 1 to 6.

**Exhibit VIII-11  
Total Heat Pumps Units Installed and Average Incentive per Unit.**



Source: DR 1092 Supplement 1.

**21. PSEG LI’s EE subcontractor costs are almost 45 percent of total EE program costs. PSEG LI pays its subcontractor an incentive for underspending EE program budgets, where any unspent EE funds are used to support PSEG LI’s overall operating budget.**

- **Exhibit VIII-12** provides the contract costs paid to the EE subcontractor compared to incentive and rebate costs paid to EE program participants.

**Exhibit VIII-12  
Percentage cost of EE subcontractor administered EE Programs**

	2018	2019	2020	2021	2022
<b>Total Cost (\$M)</b>	73.6	82.1	76.0	73.1	80.7
<b>Incentive/Rebate Spend (\$M)</b>	40.1	44.9	45.1	42.5	43.0
<b>EE subcontractor Contract Payments as a Percent of Total Cost</b>	<b>46%</b>	<b>45%</b>	<b>42%</b>	<b>42%</b>	<b>47%</b>

Source: DRs 1585 Attachments 1 to 5 and 281 Attachment 10.

- According to the PSEG LI’s Master Services Agreement – Amendment three, the EE subcontractor is entitled to annual compensation in the form of a “Fixed Fee”, a “Performance Fee”, and “Performance Incentives”.
  - Fixed Fee – this is form of compensation is equal to 40 percent of the EE subcontractor’s services budget.
  - Performance Fee – This form of compensation is based on approved program goals as measured in MW/MWh or other approach agreed to by PSEG LI and the EE subcontractor. The level of compensation is equal to 60 percent of the subcontractor services budget.

- Performance Incentives – this compensation is comprised of two parts. First, if PSEG LI meets or exceeds its annual EE OSA performance metric, the EE subcontractor is eligible to be paid according to the table in **Exhibit VIII-13**. Second, the EE subcontractor is eligible to receive a payment for underspending the total annual Incentive Budget and achieving the annual Program goal. The EE subcontractor is paid at year end the amount of 15 percent of the total unspent Incentive Budget, capped at \$1.0 million annually.<sup>88</sup>

**Exhibit VIII-13**  
**Performance Incentive Payments for meeting OSA EE Performance Metric**

Year-End Result	Eligible Payment
EE subcontractor assists PSEG LI in achieving agreed performance goal for EE programs	\$150,000
EE subcontractor assists PSEG LI in exceeding agreed performance metric by multiplier of 1.25	\$225,000
EE subcontractor assists PSEG LI in exceeding performance metric goal by multiplier of 1.50 or greater	\$300,000

Source: DR 1582 Attachment 5.

- The Second A&R OSA metric, PS&CE-3 Energy Efficiency Annualized Energy Savings, is measured by the annual MMBtu saved in terms of the gross savings at the meter. The 2022 OSA incentive is \$210,254.<sup>89</sup>
- NorthStar reviewed EE goals and budgets from 2018 to 2022. The analysis is summarized in **Exhibit VIII-14**. This exhibit shows that the EE subcontractor was eligible for an additional \$4M for underspent EE program rebates and incentives budget.

**Exhibit VIII-14**  
**Underspent EE rebate and incentive budgets and EE subcontractor payments from 2018 to 2022**

Year	MWh Savings Goal/Actual (%)	MMBTU Savings Goal/Actual (%)	Incentive/Rebate Budget (\$M)	Incentive/Rebate Actual Spend (\$M)	Eligible Payment for Underspend (\$M)
2018	111.4		\$49.1	\$40.1	*\$1.0
2019	113.9		\$48.4	\$44.9	\$.5
2020	130.3	121.1	\$48.5	\$45.1	\$.5
2021	115.0	116.4	\$48.4	\$42.5	\$.9
2022	99.5	106.3	\$50.3	\$43.0	*\$1.0
<b>Total</b>			<b>\$244.7</b>	<b>\$215.6</b>	<b>\$3.9</b>

Source: DR 1585 Attachments 1 to 5. (\*) \$1.0 cap per MSA contract.

- PSEG LI stated that EE budgets have been underspent every year due to a lack of demand. PSEG LI uses these surplus funds to support its overall operating budget.

<sup>88</sup> DR 1582 Attachment 5.

<sup>89</sup> DR 729 Attachment 1.

“EEBDR budgets have underran every year, but PESG-LI is not intentionally underrunning EEBDR, there just has not been as much demand as expected. Not as much demand as the budget could supply. Surplus supports overall operating budget for PSEG-LI.”<sup>90</sup>

## **22. PSEG LI does not adequately manage renewable energy programs.**

- NorthStar requested information as to how PSEG LI manages its renewable programs. PSEG LI provided a copy of the Utility 2.0 that was filed in July 2023.<sup>91</sup> A regulatory filing is not a credible approach or methodology for program management and oversight.
- NorthStar requested information as to how PSEG LI performs its contractor oversight for renewable energy programs. PSEG LI responded with a list of individuals or organizations that provide services or oversight.<sup>92</sup> PSEG LI’s list does not provide insight into the appropriate activities leading to responsible contractor oversight.
  - Oversight of subcontractors – provided by each PSEG LI program manager.
  - Solar PV and Energy Storage—administrative support provided by PSEG LI program managers.
  - Geothermal Energy—administrated by the EE subcontractor.
  - Demand Response—Services (DERMS Platform and Load Relief calculations) provided by a third-party contractor.
  - Home Energy Management—Services provided by a third-party contractor.
- NorthStar requested information on PSEG LI’s processes for renewable program budget development and variance reporting. PSEG LI responded that the budget is prepared and approved as part of the Utility 2.0 plan and a monthly variance report is maintained by a PSEG LI employee. PSEG LI did not provide any insight into the process, inputs/outputs, systems, stakeholders or management approvers for developing renewable energy program budget or variance reporting.<sup>93</sup>
- NorthStar requested information on PSEG LI’s management decision making regarding its use of contractors or in-house resources. PSEG LI’s response stated that the long-term contract with the EE subcontractor continues through December 31, 2025. External contractors are used when they have specialized expertise.<sup>94</sup> PSEG LI did not provide documentation related to cost/benefit assessment, skill and capabilities gap analysis or other data for informed management decision-making regarding the use of contractors versus in-house resources.

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<sup>90</sup> DR 1107 Supplement 2.

<sup>91</sup> DR 1108 Attachment 1.

<sup>92</sup> DR 1108.

<sup>93</sup> DR 1108.

<sup>94</sup> DR 1108.

### **23. The joint LIPA/PSEG LI Environmental Advisory Committee on Clean Energy and Renewable Energy Programs is not effective.**

- The advisory committee does not have a charter outlining its purpose, goals and objectives, roles and responsibilities, meeting cadence, work products, or other pertinent information as to why the committee exists.
- The Second A&R OSA states:<sup>95</sup>

“forming, in conjunction with LIPA, and providing appropriate resources to an advisory committee comprised of no more than five (5) stakeholders not affiliated with the Service Provider or LIPA (and who shall not receive compensation for their service on the advisory committee) on clean and renewable energy programs, which committee will (until such time as the Parties may agree that the desired market transformation has been sufficiently achieved) hold periodic public meetings to provide input and recommendations to the Service Provider on demand reduction goals, beneficial electrification program goals, and renewable program goals established under Applicable Laws or various state initiatives by the DPS for New York utilities and similar matters. The committee will provide input on the role and scope of these resources in meeting resource needs.”
- Advisory Committee recommendations and associated action items are not recorded. PSEG LI states that the advisory committee provides general guidance and recommendations, but nothing specific has been documented beyond the meeting minutes.<sup>96</sup>
- The Committee has only met seven times since its formation in 2014.<sup>97</sup>
- NorthStar requested Committee meeting minutes and meeting materials. PSEG LI provided two meeting presentations and associated meeting minutes.<sup>98</sup> Meetings appear informational in nature based on minutes provided.

## **D. RECOMMENDATIONS**

1. Review the CAC Scoping Plan and identify themes and strategies to align clean energy and EE programs. Identify Scoping Plan topic leads to consider new and innovative programs to further CLCPA goals.
2. Create and appropriately resource a group in Construction Services to focus on the scope, scale, and number of projects CLCPA construction programs.

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<sup>95</sup> Second A&R OSA, Section 4.2-Operations Services, subsection A.4.e.ii

<sup>96</sup> DR 1203.

<sup>97</sup> DR 1203.

<sup>98</sup> DR 1203 Attachments 6 to 9.



3. Perform a review of historical EE goals and budgets to develop goals and “stretch” goals and adopt realistic budgets to meet goals and “stretch goals”.
4. Conduct a third-party operations audit of PSEG LI’s clean energy and energy efficiency programs in 2024.
5. Improve the visibility of Demand Response programs and their requirements and eligibility on the PSEG LI website. Provide a list of aggregators that would like to be included on the website.
6. Develop a DAC investment “tracker” to demonstrate compliance with CLCPA goals by Q2 2024.
7. Present CLCPA goals and progress to the Oversight and Clean Energy Committee bi-annually.
8. Develop a CLCPA goal and progress tracker to be posted on LIPA and PSEG LI websites to increase public awareness. This CLCPA goal and progress tracker should be refreshed bi-annually. If no progress is made on CLCPA goals for that period, the companies should inform the public why.
9. Formalize the Environmental Advisory Committee and provide resources adequate for its success. Create a formal committee charter, develop goals and objectives, track recommendations and deliverables, identify a Committee Secretary to organize meetings, record meeting minutes, and create meeting materials for distribution well in advance of meetings. Report Environmental Advisory Committee findings, recommendations, and actions to the Board’s Oversight and Clean Energy Committee bi-annually.

## **IX. TRANSMISSION AND DISTRIBUTION OPERATIONS**

This chapter covers the T&D system operations, preventive and corrective maintenance practices, and oversight of the operations by LIPA. Specifically, the transmission and distribution chapter focuses on:

- Reliability
- Preventive Maintenance, Inspection Programs and Vegetation Management
- Asset Management, Repair/Replace and Reactive/Corrective Maintenance

### **A. BACKGROUND**

LIPA's transmission lines deliver power to its electric system for 1.1 million customers in Nassau and Suffolk counties and the Rockaway Peninsula in Queens County. LIPA's transmission system ranges from 23 kV up to 345 kV. The 138 kV and 345 kV system is defined as bulk transmission by the NYISO. LIPA refers to the other voltages as sub-transmission. In addition, LIPA's electric T&D system has five standard alternating current (AC) and two High Voltage Direct Current (HVDC) interconnections to neighboring electric systems. The two 345 kV interconnections are used mainly to import power from the remainder of New York State to serve load requirements of LIPA, NYPA and Long Island municipalities. In addition, 286 MW of power is wheeled to Consolidated Edison's Jamaica substation over the jointly owned Shore Road – Dunwoodie (Y50) interconnection.

The bulk transmission system and the sub-transmission system serve distribution substations. Distribution substations are served from the 138, 69, 33 and 23 kV systems. In general, the sub-transmission system transfers power from the bulk transmission system to the various distribution substations, which typically serve approximately 10,000 customers per station. It also provides connection points to local 69 kV generation resources. In general, the sub-transmission system is designed in a closed loop arrangement originating from transmission substations that supply one or more distribution substations. Supervisory controlled circuit breakers and air break switches isolate faulted lines and restore service within a matter of seconds. The breakers at each end of a line may be line breakers, bus tie breakers, or part of ring bus, or breaker and half substation bus configurations.

Distribution circuits originate at circuit breakers connected to the distribution substations in the system. The circuits are made up of main line conductors connected in an open loop arrangement to one or more adjacent circuits and branch line conductors that are connected to the main lines through fuses. The circuit mains have various sectionalizing devices to isolate faulted conductors and to facilitate the transfer of customers to adjacent circuits. These devices include, automatic sectionalizing units, automatic circuit reclosers, ground operated load break switches and stick operated load break disconnects. The primary circuit mains are generally designed to operate as part of a radial system but in specific instances, where a higher degree of reliability is desired; they are designed for automatic throw-over or network operation. Primary lines that branch off the mains are equipped with fuses at the point of connection to keep the mains in operation when branch line faults occur.

LIPA has two types of low voltage secondary network service. Area networks are supplied from two or more dedicated primary circuits with no other distribution load connected. Spot networks are normally supplied from two or more primary circuits that also supply other distribution loads.

System reliability can be affected by many things including the following:

- Limited maintenance program funding and staffing, including vegetation management.
- Maintenance that is largely corrective upon failure, rather than preventive.
- Aging infrastructure and under-funded capital programs that do not systematically replace old equipment and systems at a rate sufficient to avoid age-related failures.
- Low staffing levels in key work groups are unable to keep up with engineering, maintenance programs, capital programs and recordkeeping.
- Poor or inadequate management, organization, leadership and work processes.

PSEG LI maintains and operates a power delivery system that includes: bulk transmission, sub-transmission, substations, and a distribution system serving all of Long Island and portions of Queens. In 2022, LIPA’s reported assets include:

**Exhibit IX-1  
2022 Power System Assets**

<b>Asset</b>	<b>Amount</b>
Overhead Bulk Transmission System	254 miles
Underground Bulk Transmission System	237 miles
Overhead Sub-Transmission system	762 miles
Underground Sub-Transmission System	187 miles
Bulk Power Substations	41 substations
Transmission/Sub-transmission Substations	27 substations
Distribution Substation	165 substations
Overhead Distribution Lines	31,129 miles
Underground Distribution Lines	12,044 miles
Wooden Transmission Poles	15,545 poles
Steel Transmission Poles	2,396 poles
Distribution Poles	305,921 poles

Source: DR 628

The distribution circuit mains have various sectionalizing devices to isolate faulted conductors and to facilitate the transfer of customers to adjacent circuits. These devices include automatic sectionalizing units (ASUs), automatic circuit reclosers (ACRs), ground-operated load break switches and stick-operated load break disconnects. The distribution system also has a small number of low voltage secondary network services which serve fewer than 6,000 customers.<sup>1</sup>

The Second Amended and Restated Operating Services Agreement (Second A&R OSA) dated December 15, 2021, establishes PSEG LI as the service provider to furnish operating and maintenance services for LIPA’s system. PSEG LI’s T&D organization is consolidated

<sup>1</sup> NorthStar Consulting Group, Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC, Case 16-01248, June 29, 2018, DR 952

under the Managing Director and Vice President of Electric Operations, who reports directly to the PSEG LI Director of Special Projects. **Exhibit IX-2** provides the organizational structure as of October 2022.

**Exhibit IX-2**  
**PSEG LI Electric Operations Organization**



Source: DR 3 Page 4

**Reliability**

System reliability is a measure of system health in both good and stormy weather conditions and the utility’s effectiveness in restoring service after an outage. The NYPSC in its role as a regulator oversees system reliability in Part 97 of Title 16 the New York Codes, Rule and Regulations. Part 97 of Title 16 requires utilities to maintain interruption data for six years that includes:

- Operating Area
- Circuit Name and Location
- Date and Time
- Date and Time of Restoration
- Number of Customers Affected
- Cause
- Weather Condition
- System Component<sup>2</sup>

Part 97 further requires utilities to file interruption data by the 20<sup>th</sup> of each month. From this data, two reliability metrics are calculated:

- System Average Interruption Frequency Index (SAIFI) – measures the average number of interruptions per customer annually. The lower the ratio of interruptions to number of customers, the higher the reliability.

<sup>2</sup> 16 NYCRR 97.

- Customer Average Interruption Duration Index (CAIDI) – measures the average length of time from service interruption to service restoration for a customer experiencing an outage. Lower CAIDI indicates fewer minutes/hours of interruption per customer.

The SAIFI and CAIDI metrics are reported annually in the NY DPS Electric Reliability Performance Report for each regulated utility. Part 97 permits the exclusion of major storm data in system reliability calculations. A major storm is a period of adverse weather during which service interruptions affect at least 10 percent of the customers in an operating area and/or result in customers being without electric service for durations of at least 24 hours.<sup>3</sup>

Another common metric, System Average Interruption Duration Index (SAIDI) is not reported by DPS in its Annual Electric Reliability Reports for the State of New York.<sup>4</sup> SAIDI measures the average length of time from service interruption to service restoration per customer annually.

Outages of less than five minutes are categorized as momentary. Momentary outage performance is captured in the Momentary Average Interruption Frequency Index (MAIFI). DPS sets performance targets for the NY IOUs in its Annual Electric Reliability Reports for SAIFI and CAIDI. DPS does not currently set performance targets for MAIFI, but it is a recognized metric in the International Electrical and Electronics Engineers Standard 1366. LIPA includes MAIFI as a performance metric for PSEG LI under its Second A&R OSA.<sup>5</sup>

MAIFI measures the average number of momentary interruptions per customer in a given year. The lower the MAIFI value the fewer momentary interruptions. PSEG LI provides monthly reliability performance data to DPS for SAIFI, CAIDI, SAIDI and MAIFI.

PSEG LI uses the CGI Group Inc. PragmaLINE Outage Management System. PragmaLINE provides a “cradle-to-grave” handling of customer service interruptions. Key components include:

- PragmaCALL – identifies outages through customer call, SCADA system, web application, or AMI.
- PragmaLINE – manages the outage restoration lifecycle from detection to full restoration.
- PragmaCAD – manages the field work including communications and dispatch.
- PragmaField – mobile application used in first responder vehicles. It is also installed in 150 Meter Services vehicles for inspections, surveys etc.<sup>6</sup>

PragmaLINE interfaces with the operating management system (ESRI GIS) system and the SAS reporting systems.<sup>7</sup> The Reliability Management Organization uses queries from the

<sup>3</sup> NY DPS 2022 Electric Reliability Performance Report.

<sup>4</sup> NY DPS 2022 Electric Reliability Performance Report.

<sup>5</sup> <https://www.flipsnack.com/lipower/lipa-2022-psegli-year-end-metric-report/full-view.html>

<sup>6</sup> Fact verification

<sup>7</sup> DR 107 Attachment 1

Outage Historian Data base that interfaces with ESRI GIS the first week of every month for the previous month's outages.

To maintain or improve reliability, PSEG LI has developed an array of initiatives that address various system assets and vegetation growth. These programs are the off shoot of previous system conditions and studying of the system performance.<sup>8</sup>

### **Preventive Maintenance, Inspection Programs and Vegetation Management**

Preventive maintenance is commonly described as maintenance of equipment or systems before a fault or breakdown occurs. Preventive maintenance usually can be divided into two subgroups:

- Planned Maintenance
- Condition-based Maintenance

Planned Maintenance refers to any variety of scheduled work done on a system or piece of equipment that is intended to avoid any unscheduled outage or breakdown. Condition-based maintenance is work that is done when the need arises, based on one or more indicators that show that equipment is going to fail or that equipment performance is deteriorating. The main difference between these two subgroups is the determination of when the maintenance should be performed.

In spite of preventive maintenance, all T&D equipment can fail and has some predefined life expectancy or operational life. T&D system equipment and components have life expectancies that vary considerably. For example, overhead lines and underground cable may last 50 years or more, while other equipment, such as switchgear, may be designed to operate at full design load for a set number of hours or start and stop cycles. The design life of most equipment is dependent upon periodic maintenance to ensure the equipment reaches or exceeds its design life.

Depending upon the criticality of a particular piece of equipment, and the availability of backup units, one option would be to wait for a piece of equipment to fail. As overall system reliability is a primary objective, in some cases a repair versus replace decision must be made before the equipment is allowed to fail. Effective repair or replace decisions require reliable and timely information, as well as a process that uses that information. The objective is to repair the equipment when the repair is more cost-effective than replacing it.

### **Asset Management, Repair/Replace and Reactive/Corrective Maintenance**

Asset management uses advanced analytics, tools, and data to improve equipment availability, extend asset lifecycles and operating performance. A mature asset management program can be used across the enterprise to manage assets, schedules, resources, processes, inventories and expenses. Specifically, asset management can:

- Reduce downtime and costs.

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<sup>8</sup> DR 626

- Improve operational performance.
- Leverage industry expertise.
- Incorporate best-practice industry data.
- Improve work plans.
- Extend asset lifecycles.
- Enhance financial performance.
- Optimize maintenance work processes.
- Improve preventive and predictive maintenance.

## **B. WORK TASKS**

The audit scope of work included the following:

### **Reliability**

- Review LIPA’s reliability-related O&M and capital budgets and actual expenditures for the last five years. Assess impact on reliability performance.
- Review and assess any reliability improvement plan(s), including schedules/timeline, milestones, responsibilities, staffing and results measurement.
- Review the processes that PSEG LI utilizes to establish and the methods employed to attain SAIFI (System Average Interruption Frequency Index), SAIDI (System Average Interruption Duration Index), and CAIDI (Customer Average Interruption Duration Index), MAIFI (Momentary Average Interruption Frequency Index), S- MCOs (Sustained Multiple Customer Outages), Repeat Customer Sustained Multiple Customer Outages (S-MCOs), and Momentary Multiple Customer Outages (M-MCOs) goals.
- Determine whether work processes are efficiently designed, implemented, and measured. (Covered under Work Management)
- Determine whether LIPA/PSEG LI has taken advantage of appropriate technology to assess the condition of its system.
- Assess whether work force management processes appropriately include work definitions, priorities, time durations standards, efficient scheduling, work order procedures, progress reporting, quality controls and performance measurements (productivity, utilization, lost/delay time trends, etc.). (See Work Management)
- Review reliability-related corporate goals, metrics and KPIs and how this information is reported to executive management and the Board of Trustees. (See Performance)
- Assess the use and functionality of any mobile workforce tools. (See Work Management)
- Assess the efficacy of PSEG LI’s process for improving resiliency and hardening of its system, including the selective undergrounding of portions of circuits, and the effectiveness of its storm hardening program.

### **Preventive Maintenance**

- Review existing inspection and preventive maintenance policies, procedures and programs.



- Review condition assessments, maintenance history, and equipment failure/trend analyses and other information/reports provided to management.
- Review worst performing circuit analyses and steps taken to address any issues.
- Assess whether preventive maintenance, inspection programs (including poles), and vegetation management programs are adequately designed, scheduled, and performed, to effectively maintain the system.
- Review whether trend analyses and other preventive maintenance performance data is maintained and considered by PSEG LI for future implementation of preventive maintenance plans and vegetation management for T&D assets.
- Evaluate whether managers have necessary and timely information to oversee and direct preventive maintenance regarding T&D asset maintenance timelines and requirements to effectively implement preventive maintenance.
- Determine whether the organizational design effectively and efficiently supports the mission.
- Assess whether the records of facilities (including specifications, location, maintenance repair, and trouble history) are comprehensive, accurate, up-to-date, and easily accessible for staff engaged in preventive maintenance activities. (See Corporate Governance – Records Management)
- Assess whether PSEG LI has adequate access to current and accurate property records concerning vegetation management to enable PSEG LI to meet the objectives of its vegetation management program. (See Corporate Governance – Records Management)
- Review the adequacy of PSEG LI’s vegetation management program as it relates to enforcement of their property rights as they pertain to vegetation management activity.

## **Asset Management**

- Assess LIPA/PSEG LI’s assumptions regarding the life expectancy of key equipment reasonable.
- Review the process and criteria for making maintenance decisions regarding replace vs. repair, including how the overall construction program planning process is affected.
  - Evaluate maintenance versus replacement criteria.
  - Evaluate priorities, guidance and other instructions for evaluations, tradeoffs and decision-making.
  - Assess criteria for repair, rehabilitate, replace or run-to-fail decisions.
  - Assess criteria for life cycle versus fit for service maintenance.
  - Review any probabilistic models/risk analyses used.
- Review the processes for translation of information concerning rework, failures, repair history, etc., into corrective actions, infrastructure aging analysis(es), and repair versus replace decision-making.
- Assess the use of the Computerized Maintenance Management System (CMMS), Spending Optimization Suite (SOS), and any other systems used for asset management including their effectiveness for tracking asset condition and maintenance requirements, including the completeness and integrity of its data and its use in determining which assets should be prioritized.

- Determine the extent to which benefit/cost analyses and risk analysis are considered in the decision-making process.
- Evaluate whether work processes are efficiently designed and implemented. (See Work Management)
- Evaluate PSEG LI’s process for managing pole attachments and joint use agreements related to lighting, telecommunications or other equipment attached to or located on transmission/distribution assets.

## C. FINDINGS AND CONCLUSIONS

### Reliability

#### 1. PSEG LI has consistently provided reliable electric service to Long Island during blue-sky and minor storm days for the past five years.

- **Exhibit IX-3** shows the five-year average of the NY investor-owned utilities for the three main indices, SAIFI, SAIDI, and CAIDI. With the exception of Consolidated Edison’s limited overhead systems and numerous underground systems, LIPA performed at the top or near the top on all three indices. **Exhibit IX-4** shows 2022 performance relative to the other NY utilities.

**Exhibit IX-3**  
**5-Year NY Electric System Average Reliability**

Utility	SAIFI (Interruptions/Year)	SAIDI (Minutes /Year)	CAIDI (Hours/Customer)
Consolidated Edison (Underground Network)	0.03	10	5.5
Consolidated Edison (Overhead Radial)	0.47	59	2.1
National Grid	1.04	125	2.0
New York State Electric and Gas	1.36	163	2.0
Rochester Gas and Electric	0.86	93	1.8
Central Hudson Gas and Electric	1.34	185	2.3
Orange and Rockland	1.05	107	1.7
<b>Long Island Power Authority</b>	<b>0.74</b>	<b>58</b>	<b>1.3</b>
<b>Statewide (w/o Consolidated Edison)</b>	<b>1.07</b>	<b>122</b>	<b>1.9</b>

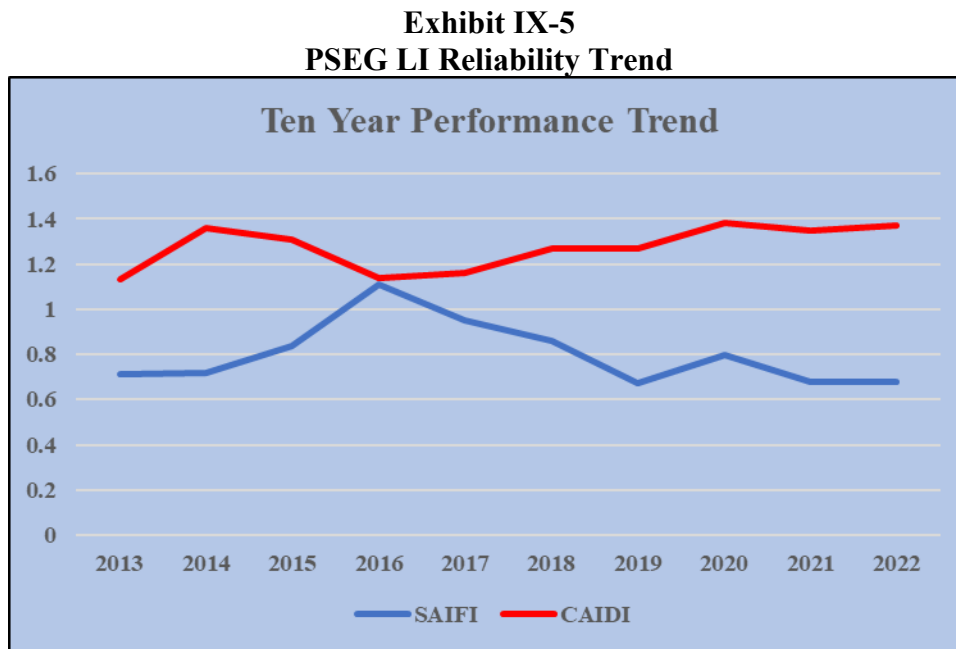
Source: NY DPS 2022 Electric Reliability Performance Report

**Exhibit IX-4**  
**2022 Electric System Reliability Performance**

Utility	SAIFI (Interruptions/Year)		CAIDI (Hours/Customer)	
	Actual	DPS Target	Actual	DPS Target
Consolidated Edison (Underground Network)	0.0174	0.0176	6.2	6.89
Consolidated Edison (Overhead Radial)	0.47	0.4950	1.9	2.04
National Grid	1.06	1.08	2.0	2.10
New York State Electric and Gas	1.45	1.20	1.9	2.08
Rochester Gas and Electric	0.83	0.90	1.6	1.90
Central Hudson Gas and Electric	1.27	1.32	2.3	2.50
Orange and Rockland	0.93	1.20	1.8	1.85
<b>Long Island Power Authority</b>	<b>0.68</b>	<b>0.76</b>	<b>1.4</b>	<b>None</b>
<b>Statewide (w/o Consolidated Edison)</b>	<b>1.04</b>		<b>1.8</b>	

Source: NY DPS 2022 Electric Reliability Performance Report

- LIPA’s improved SAIFI performance trend continues in 2022 and CAIDI has remained consistent.<sup>9</sup> **Exhibit IX-5** shows PSEG-LI’s reliability performance for the past ten years.



Source: NY DPS Annual Reliability Reports 2017 and 2022

**2. PSEG LI’s system-wide SAIFI performance is achieved by focusing on circuits that have incurred the most customer interruptions.**

- DPS Guidelines for Service Reliability and Quality Standards state:

Each company shall develop and maintain a program for analyzing its worst-performing circuits during the course of each year. The program should reflect momentary interruption data where practical and feasible. The companies shall analyze a minimum of five percent of its circuits as part of its circuit review program each year.<sup>10</sup>

- PSEG LI prepares its 25 worst performing circuits list annually. This list is based solely on number of customer interruptions.<sup>11</sup> NorthStar finds this methodology reasonable in that PSEG LI is identifying the greatest number of customers with reliability issues within a given year. However, it should be noted that this methodology does not

<sup>9</sup> NY DPS 2022 Electric Reliability Performance Report

<sup>10</sup> NYPSC Order October 12, 2004 - Cases 02-E-1240, Proceeding on Motion of the Commission to Examine Electric Service Standards and Methodologies and 02-E-0701, In the Matter of a Petition by Orange and Rockland Utilities, Inc. to Update the Company’s Customer Average Interruption Duration Index (CAIDI) Target Levels for the Central and Western Operating Divisions, Attachment 1.

<sup>11</sup> DR 1270

identify the worst performing circuits based on SAIFI or MAIFI, the reliability metrics reported to DPS.

- SAIFI is a simple ratio of the number of outages to number of customers served.
  - Typically, the largest number of outages are on circuits with the greatest number of customers as shown in **Exhibit IX-6**. For any given event, more customers are likely to be impacted due to the size of the circuit.
  - SAIFI is not considered in selecting the 25 worst performing circuits thereby not addressing the worst reliability on the system.
  - Focusing on the most outages (i.e. largest circuits) provides the biggest impact on system-wide SAIFI.
- This methodology differs from the other IOU utilities in New York that consider multiple factors for each circuit such as the number of interruptions, the number of customers, and the number of customer hours.
  - PSEG LI's list of worst performing circuits is not the worst SAIFI or MAIFI scores on the system as shown in **Exhibit IX-6**. **Exhibit IX-6** provides a comparison of the worst performing circuits by number of customers and SAIFI in 2022.<sup>12</sup>
    - The orange shaded cells cross reference PSEG LI worst performing circuits with the worst SAIFI performing circuits. Ten of the 25 circuits are common to both lists.
    - The green shaded cells cross reference the PSEG LI worst performing circuits with highest MAIFI on the system. Two of the 25 circuits are common to both lists.
    - Looking at the impacts on the largest volume of customers, masks the worst circuits on the system but improves system-wide SAIFI. PSEG LI's worst circuits list reaches 57 percent more customers than relying solely on SAIFI and 42 percent more customers relying solely on MAIFI.<sup>13</sup>
  - PSEG LI has the technological ability to consider momentary outages in its worst performing circuits analysis and still address some of the most critical circuits on the system. Candidates for consideration are highlighted in yellow in **Exhibit IX-6**.
  - While PSEG LI's 25 worst performing circuits list garners significant attention and resources, PSEG LI does not neglect the worst performing SAIFI/MAIFI circuits. NorthStar selected nine smaller circuits that have had higher SAIFI scores for three of the past five years to determine what efforts have been made to improve reliability. **Exhibit IX-7** provides details of NorthStar's review.
    - While PSEG LI can demonstrate efforts have been made, these circuits have continued to be troublesome when compared to the system average SAIFI.
    - Eight of the nine circuits still maintain SAIFI levels at least three times higher than the system average.

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<sup>12</sup> DR 973 Attachment 1 and DR

<sup>13</sup> Using the averages shown in Exhibit IX-6: 57 percent =  $(2,229-960)/2,229$  and 47 percent =  $(2229-1,292)/2,229$

**Exhibit IX-6  
2022 Worst Performing Circuits**

PSEG Worst Performing Circuits				SAIFI Worst Performing Circuits				MAIFI Worst Performing Circuits			
Circuit	Customer Interruptions	SAIFI	Customers On Circuit	Circuit	Customers Interruptions	SAIFI	Customers On Circuit	Circuit	Customer Interruptions	MAIFI	Customers On Circuit
8HX4P6	7,758	2.86	2,717	9L782	1,369	5.52	248	4GH4P8	16,390	19.19	854
9X797	7,568	4.40	1,719	6X799	2,293	5.36	428	7LM1R6	5,075	16.06	316
2H587	7,320	1.65	4,434	5SK1N5	125	5.00	25	3LG311	14,841	14.62	1,015
6RL766	6,547	3.12	2,097	6L965	5,266	4.73	1114	5B212	22,452	12.54	1,791
9R626	6,389	3.90	1,637	9K976	2,319	4.60	504	9E991	9,297	11.11	837
3J197	6,346	1.90	3,340	9X797	7,568	4.40	1719	8XR645	21,362	10.48	2,038
9EU4N7	6,298	2.33	2,704	9R626	6,389	3.90	1637	6S1L6	9,046	10.29	879
7RM1K6	6,146	2.43	2,531	5U282	5,063	3.63	1393	6RL766	21,423	10.22	2,097
6L965	5,266	4.73	1,114	4J397	1,606	3.53	455	9HH938	7,385	10.09	732
8F708	5,185	3.14	1,653	5B214	843	3.43	246	3LG312	6,079	10.01	607
5U282	5,063	3.63	1,393	8E826	1,301	3.41	381	4B118	6,753	9.93	680
8T2P5	5,052	2.77	1,825	6HL811	4,604	3.40	1354	5X267	13,306	9.74	1,366
2H378	4,745	2.41	1,971	7B2H3	3,590	3.19	1124	5B375	21,253	9.56	2,223
6HL811	4,604	3.40	1,354	8F708	5,185	3.14	1653	8WR781	19	9.50	2
8W5N5	4,063	1.66	2,444	6RL766	6,547	3.12	2097	6UL857	17,633	9.38	1,880
7J866	3,857	1.21	3,188	4X3P4	3,176	3.11	1021	7XM945	16,744	9.18	1,823
8XR645	3,810	1.87	2,038	4H383	694	3.06	227	8B952	11,509	9.03	1,275
2R437	3,723	1.48	2,521	4J398	1,022	3.02	338	4GH4P9	5,506	8.75	629
8GX9H3	3,642	1.71	2,127	3D384	949	2.96	321	8XR647	22,143	8.02	2,760
7EM818	3,609	1.36	2,646	8HX4P6	7,758	2.86	2717	5B376	13,394	7.92	1,692
7B2H3	3,590	3.19	1,124	6H506	152	2.81	54	5MK243	7,018	7.89	890
5H079	3,586	2.76	1,299	7B702	3,438	2.80	1230	8J891	13,190	7.88	1,674
5H077	3,489	1.86	1,880	7S7P8	2,399	2.78	862	7J861	16,188	7.74	2,092
6Q667	3,474	1.39	2,499	9NR4L5	2,855	2.77	1031	6D637	8,988	7.66	1,174
2G6L5	3,469	1.00	3,463	8T2P5	5,052	2.77	1825	8WR776	7,293	7.40	985
<b>Average</b>	<b>4,984</b>	<b>2.49</b>	<b>2,229</b>	<b>Average</b>	<b>3,263</b>	<b>3.57</b>	<b>960</b>	<b>Average</b>	<b>12,571</b>	<b>10.17</b>	<b>1,292</b>

Source: DR 973 Attachment 1, DR 1271 Attachment 1, and NorthStar Analysis

**Exhibit IX-7  
Smaller Circuits with High SAIFI Remediation Efforts**

<b>Circuit</b>	<b>Worst SAIFI</b>	<b>Year of Worst SAIFI</b>	<b>2022 SAIFI</b>	<b>Customers on Circuit</b>	<b>Noted Issues and Remediation Performed</b>
3D384	3.50	2021	2.96	333	Circuit had numerous equipment failures and contacts with vegetation. Tree trim was completed in 2021 and selected for the Circuit Improvement Program (CIP) in 2023 and FEMA Storm Hardening in 2024.
5B211	3.24	2020	2.45	1,197	Circuit had numerous equipment failures and contacts with vegetation. Tree trim was completed in 2023 and CIP completed in 2022.
5GK222	4.29	2018	1.73	616	The Circuit had numerous contacts with vegetation. Tree trim was completed in 2018, 2020, and 2022. CIP completed in 2019.
5H079	2.76	2022	2.76	1,299	Circuit had numerous intentional outages and contacts with vegetation and animals. Tree trim was completed in 2018 and 2022. CIP completed in 2019 and 2022.
6X799	6.41	2018	5.36	426	Circuit had numerous equipment failures and contacts with vegetation. Tree trim was completed in 2018 and 2022. CIP completed in 2018 and 2022.
7B2H3	3.68	2020	3.19	1,141	Circuit had numerous equipment failures and contacts with vegetation. Tree trim was completed in 2020 and CIP was completed in 2018 and 2021.
7HM130	3.38	2018	2.31	365	Circuit had numerous substation equipment failures and contacts with animals. Substation issues are currently under investigation.
8BA9N3	3.26	2019	2.09	2,673	Circuit had numerous equipment failures and contacts with vegetation. Tree trim was completed in 2020 and selected FEMA Storm Hardening in 2024.
9U678	4.61	2021	Circuit no longer in use.	766	Circuit had numerous outages: equipment failure, accidents, intentional etc. Tree trim was completed in 2020 and circuit was upgraded to 13 kV in 2022. (New circuit number)

Source: DR 973 Attachment 1, DR 1271 Attachment 1, DR 1273, and NorthStar Analysis

**3. PSEG LI expanded the calculation of reliability metrics beyond the standard measures to improve the customer experience.**

- SAIFI, CAIDI, and SAIDI have largely become the industry standard for evaluating system reliability.<sup>14</sup> These metrics are applied to outages in duration of greater than five minutes. While these metrics are indicative of overall system health, they do little to enhance reliability on the individual customer level.

<sup>14</sup> US Department of Energy: [https://www.eia.gov/electricity/annual/html/epa\\_11\\_01.html](https://www.eia.gov/electricity/annual/html/epa_11_01.html)

- The NY DPS establishes annual targets for SAIFI and CAIDI and requires a corrective action plan for missed targets. PSEG LI met its targets for the past five years.<sup>15</sup>
  - The Amended and Restated Operating and Services agreement dated December 31, 2013 required reporting for SAIFI, CAIDI, and SAIDI.
  - The Second A&R OSA effective April 1, 2022, required reporting for SAIFI and SAIDI.
- PSEG LI performs spreadsheet analysis of OMS data at the customer level, determining which addresses have incurred multiple outages.<sup>16</sup> The Second A&R OSA, dated December 15, 2021, required reporting of SAIFI, CAIDI, and SAIDI.<sup>17</sup> For 2022, four additional reliability performance metrics were included:
    - Momentary Average Interruption Frequency Index (MAIFI) – measures the frequency of momentary outage events of less than five minutes.
    - Sustained Multiple Customer Outages (S-MCOs) – Count of customers experiencing four or more sustained outages over a calendar year.
    - Reduction of Repeat Sustained MCOs (Repeat – S-MCOs) – Count of Repeat S-MCOs customers that have sustained four or more outages over two years.
    - Momentary Multiple Customer Outages (M-MCOs) count of customers experiencing six or more momentary outages over a calendar year.
  - PSEG LI developed its MCO program to target reliability issues on small sections of the overhead and underground distribution system that contribute to multiple sustained and momentary outages. PSEG LI has had success with its new metrics.<sup>18</sup>
    - MAIFI has been reduced from 3.44 in 2018 to 1.67 in 2022, exceeding the target of 1.89.
    - S-MCOs has reduced the number of affected customers from 24,471 in January 2022 to 19,762 in December 2022, exceeding the target of 23,475.
    - M-MCOs has been reduced from 79,518 in January of 2022 to 72,198 affected customers in December 2022, exceeding the target of 92,500.
    - R-MCOs met the threshold of 46 with 19 affected customers in December 2022. Long term data is not available.<sup>19</sup>
  - PSEG LI’s reliability budget includes funding for these customer specific programs. The multiple MCO Programs focus on targeted mitigation of small sections of the overhead and underground distribution system which contribute to customers experiencing multiple sustained and/or momentary outages.<sup>20</sup>

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<sup>15</sup> NY Electric Reliability Performance Report 2022.

<sup>16</sup> DR 1080

<sup>17</sup> In 2022 CAIDI was removed as a reportable metric. DR 504

<sup>18</sup> DR 83 Attachment 1

<sup>19</sup> DR 372 Attachment 1

<sup>20</sup> DR 83 Attachment 1



- In addition to required metrics, PSEG LI has developed an internal metric called “Big SAIFI”. Big SAIFI tracks overall system performance without excluding storms. PSEG LI believes this view of the system is more in line with the actual customer experience and measures the efficacy of the storm hardening program and customer experiencing various types of MCOs.<sup>21</sup> From 2018 to 2022, Big SAIFI has reduced from 1.13 to 0.72.<sup>22</sup>

**4. PSEG LI’s reporting of SAIFI, SAIDI, CAIDI and MAIFI is accurate.**

- NorthStar audited the raw data used in the calculation of SAIFI, SAIDI, CAIDI, and MAIFI.<sup>23</sup>
- NorthStar compared its independent calculations to the annual performance reports and the performance data reported by the NY DPS and found complete agreement.<sup>24</sup>

**5. PSEG LI’s reliability programs have maintained system reliability over the past ten years for blue-sky and minor storm days.**

- **Exhibit IX-8** provides LIPA’s ten-year reliability results for SAIFI, SAIDI, and CAIDI for blue-sky and minor storm-days. The 2022 SAIFI is 15 percent below its ten-year average and the 2022 SAIDI is eight percent below its ten-year average.<sup>25</sup>
- PSEG LI’s performance is currently one of the best in the State. **Exhibit IX-4** shows 2022 performance results for all NY utilities.

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<sup>21</sup> DR 355

<sup>22</sup> DR 102 Attachments 1-4, DR 973 Attachment 1 and DR 1079 Attachment 1.

<sup>23</sup> DR 1079 Attachment 1

<sup>24</sup> DR 102 Attachments 1-4, DR 973 Attachment 1, DR 1079 Attachment 1, DR 19 Attachments 1-4, NY DPS Annual Reliability Reports and <https://www.flipsnack.com/lipower/lipa-2022-psegli-year-end-metric-report/full-view.html>.

<sup>25</sup> : DR 102 Attachments 1-4, DR 973 Attachment 1, NY DPS 2017 Electric Reliability Report, and NorthStar Analysis.

**Exhibit IX-8  
LIPA Long-Term Reliability Indices**

Year	SAIFI		CAIDI		SAIDI	
	Actual	DPS Target	Actual	DPS Target	Actual	DPS Target <sup>1</sup>
2013	0.71	0.83	1.13	1.26	48.1	N/A
2014	0.72	0.90	1.36	1.40	58.8	N/A
2015	0.84	0.91	1.31	1.42	66.0	N/A
2016	1.11	0.91	1.14	1.42	75.9	N/A
2017	0.95	0.92	1.16	1.42	66.1	N/A
2018	0.86	0.92	1.27	1.42	65.5	N/A
2019	0.67	0.92	1.27	1.42	51.1	N/A
2020	0.80	0.92	1.38	1.42	66.4	N/A
2021	0.68	0.92	1.35	1.42	55.1	N/A
2022	0.68	0.76	1.37	None	55.9	N/A
<b>Average</b>	<b>0.80</b>		<b>1.28</b>		<b>60.9</b>	

Note 1 – DPS does not issue targets for SAIDI.

Note 2 – Missed metrics are highlighted.

Source: DR 102 Attachments 1-4, DR 973 Attachment 1, NY DPS 2013-2022 Electric Reliability Report, and NorthStar Analysis.

- The 2022 CAIDI is eight percent above its ten-year average. PSEG LI attributes this to the impact of completing its mainline hardening program resulting in shorter durations on mainline outages.<sup>26</sup>
- PSEG LI’s explanation does not support this as mainline CAIDI has been constant since 2018 and branchline CAIDI has increased pulling the entire metric upward. **Exhibit IX-9** provides the mainline and branchline CAIDI for the past five years.
- Current mainline CAIDI is about equal to average mainline CAIDI over the past 5 years but branchline CAIDI is significantly higher than average and trending upward.<sup>27</sup>

**Exhibit IX-9  
Mainline and Branchline CAIDI**

Year	Mainline CAIDI	Branchline CAIDI
2018	47	128
2019	47	116
2020	49	135
2021	43	135
2022	47	138
<b>Average</b>	<b>46.6</b>	<b>130.4</b>

Source: DR 355

<sup>26</sup> DR 355

<sup>27</sup> DRs 102 Attachments 1-4 and 973 Attachment 1

- CAIDI is a metric that measures average restoration time. NorthStar attributes the increase to unknown operational and workforce management issues but does notice that the increase began during the COVID-19 epidemic.

**6. System reliability has shown improvement on major storm days and speaks to the success of its FEMA Storm Hardening Program and Underground Program.**

- Major Storm metric performance has dramatically improved over the past eight years. **Exhibit IX-10** provides PSEG LI’s performance during major storm events (excluding catastrophic events).

**Exhibit IX-10  
Major Storm Reliability Metrics**

Year	SAIFI	CAIDI	SAIDI
2015	0.16	320	51
2016	0.23	180	42
2017	N/A	N/A	N/A
2018	0.27	317	87
2019	0.30	393	119
2020	0.06	221	13
2021	0.05	262	13
2022	0.04	152	6

Source: DR 102 Attachments 1-4, DR 973 Attachment 1, DR 113 2016 Management Audit, and NorthStar Analysis.

- NorthStar reviewed PSEG LI’s reliability on a per outage basis. **Exhibit IX-11** shows the results of this analysis.
  - Equipment Failure and Vegetation Contact are the two primary drivers of system reliability. Typically, they represent 75 percent of total outages and 66 percent of customer interruptions. NorthStar focused its assessment on these two causes.
  - Vegetation represents 20 percent of all outages and about 50 percent of all major storm outages.
  - NorthStar noticed that total major storm outages due to Equipment Failure and Vegetation Contact dropped over 85 percent over the five-year period.
  - NorthStar adjusted its analysis to normalize for the number of storm days and found outages per major storm day have been reduced and the number of customers affected per major storm have reduced.

**Exhibit IX-11  
Major Storm Performance**

	2018	2019	2020	2021	2022
<b>Outages Due to Equipment Failure and Vegetation Contact</b>	4,929	2,774	1,126	713	580
<b>Major Storm Days</b>	25	24	12	7	6
<b>Outages per Major Storm Day</b>	197	116	94	102	97
<b>Total Customers Affected</b>	255,050	262,503	57,673	38,515	40,205
<b>Customer per Major Storm Day Affected</b>	10,202	10,938	4,806	5,502	6,701

Source: DR 102 Attachments 1-4, DR 973 Attachment 1, and NorthStar Analysis.

**7. System reliability has been excellent due in large part to its reliability improvement initiatives.<sup>28</sup>**

- **Exhibit IX-12** provides a description of improvement initiatives. Those initiatives highlighted were reviewed in the audit. As previously stated, the majority of outages are due to equipment failure and vegetation contact. NorthStar focused its review in those areas.<sup>29</sup>

<sup>28</sup> DR 83 Attachment 1

<sup>29</sup> DRs 83 Attachment 1, DRs 356-371, DR 628, and NorthStar Analysis

**Exhibit IX-12**  
**Reliability Improvement Programs**

<b>Program</b>	<b>Status</b>	<b>Goal</b>	<b>Results</b>	<b>Outcome</b>	<b>Improvement</b>
FEMA	Complete				
Storm Hardening	Ongoing				
MCO	Ongoing				
ASUV	Ongoing				
T&D Wood Pole Inspections	Ongoing	D - 310,647 over nine years T – 15,545 one year	D - Completed 258,594 over 8 years (year 9 not available) T- Complete		SAIFI, MCO, Safety
T&D Wood Pole Reinforcements	Ongoing	D - Planned 14,989 over 5 years T- Planned 383 one year	D- Completed 14,989 over 5 years. T – Completed 383 one year	D -Exceeded budget by 62% T – Under budget 26%	SAIFI., MCO Safety
T&D Wood Pole Replacements	Ongoing	Not planned – forecast based on historical needs	Backlog of 1,463 distribution poles.	Costs about \$50 million per year	SAIFI., MCO Safety
T&D Infrared	Ongoing				
Distribution CIP	Ongoing				
ACRV	Ongoing				
Transmission Cycle Trim	Ongoing	250 miles per year – 4-year cycle <sup>1</sup>	Averaged 254 miles per year over 5 years	Exceeded budget by 1%.	SAIFI, MCO
Distribution Cycle Trim	Ongoing	2,200 miles per year – 14-year cycle <sup>2</sup>	Average 2,360 miles per year over 5 years	Exceeded budget by 4%	SAIFI, MCO
Hazard Tree Removal	Ongoing	12,000 in 2022 <sup>3</sup>	Completed 9,261 in 2022	Underspent budget by 4.6%	SAIFI, MCO, Safety
Vine Mitigation	Ongoing				
Trim-to-Sky Program	Ongoing				
Overload Analysis	Ongoing				
Load Pocket Analysis	Complete	Perform analysis of substations that failed during the last 3 catastrophic storms.	8 projects identified to improve Storm Response.	All projects have SOS identifiers for CY 2024/2025	Storm Response
UG RP Initiative	Planned				

Program	Status	Goal	Results	Outcome	Improvement
Distribution Breakers Replacement	Ongoing	16 Class VCB, ACB, and OCB Breakers	Cannot determine as count of this program is not differentiated from planning replacements.	281 Breakers replaced over 4 years but cannot attribute to this program	Asset Health, SAIFI
Transmission Breaker Replacement	Ongoing	15 Class GCB Breakers	Cannot determine as count of this program is not differentiated from planning replacements	110 Breakers replaced over 4 attributed to this program years but cannot	Asset Health, SAIFI
Substation Transformer Replacement	Planned	12 Transmission and 15 Distribution Units from 2023 to 2027	Cannot be evaluated		Asset Health, SAIFI
Transformer Monitoring	Ongoing	To be complete in 2030 on all transformers identified to need them	98 currently installed. Unsure how many are needed.		Asset Health
Transmission Steel Pole and Tower Inspection	Planned	3,873 Steel Structured in 2023. 20 Year cycle.	Budget of \$1.2 M.		Asset Health
Switchgear Replacement	Planned	72 units between 49 and 78 years old – 2 per year	36-year program beginning in 2023.		Asset Health, SAIFI
Underground Distribution Cable Upgrades	Ongoing	12.3 miles per year 669 miles on the system <sup>30</sup>	No data available from 2015 through 2021. 2022 – 12.17 miles.	99 percent of miles for budgeted amount	Asset Health, SAIFI, CAIDI
Residential Underground Cable Upgrades	Ongoing				
Stray Voltage and Visual Inspection Program	Ongoing				
Flyover Inspection of Transmission at LIRR	Complete				

Note 1 – PSEG LI reports 254 miles of overhead transmission and 762 miles of overhead sub-transmission, totaling 1,016 miles.

Note 2 – PSEG LI reports 31,129 miles of overhead distribution lines (mainline, branchline and secondary/service).

Note 3 – 12,000 trees per year target was established in 2022. The Year-End Report on PSEG Long Island’s 2022 Performance Metrics reported that 9,261 trees were removed (77%). DR 660 Attachment 6 identifies budget as \$11.7M and actual expenditures as \$11.2M.

Source: DRs 83 Attachment 1, DRs 356-371, Year-End Report on PSEG Long Island’s 2022 Performance Metrics, DR 660 Attachment 6, and NorthStar Analysis

<sup>30</sup> Fact verification

- Programs such as the Transmission Cycle Trim and Distribution Cycle Trim are long established electric utility programs. PSEG LI completed the miles included in the work plan within or close to budget.<sup>31</sup>
- PSEG LI has underperformed in some programs where there was a misalignment between work planned, actually completed, and the associated cost.
  - In 2022, the Hazard Tree Removal Program delivered 77 percent of the trees and underspent the budget by 4.6 percent.<sup>32</sup> Over the past five years, PSEG LI exceeded budget by 20 percent.<sup>33</sup>
  - The Distribution Wood Pole Reinforcement Program completed the requisite number of units but exceeded budget by 30 percent over the past five years.<sup>34</sup>
- Transmission and Distribution Breaker Replacements and Transformer Monitoring could not be analyzed based on limited information.<sup>35</sup>
- Other programs such as the Load Pocket Analysis, Stray Voltage and Visual Inspection Program, and Flyover Inspections provided unique opportunities to evaluate system conditions and drive future projects/programs.<sup>36</sup>

**8. LIPA adequately funds its reliability programs. LIPA’s capital and O&M budgets for reliability fund in similar proportions to the largest contributors to outages. NorthStar believes this is a key contributor to consistent reliability indices.**

- LIPA’s capital reliability budget is more than 40 percent of the total for T&D capital program.
- LIPA has been consistent in meeting or exceeding its annual spending on reliability for the past five years.<sup>37</sup>
- LIPA’s reliability and storm hardening program budget and actual spend are shown in **Exhibit IX-13**.

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<sup>31</sup> DR 356 Attachments 1 and 2 and DR 357 Attachments 1 and 2

<sup>32</sup> DR 660 Attachment 6 and Year-End Report on PSEG Long Island’s 2022 Performance Metrics.

<sup>33</sup> DR 358 Attachment 2 and DR 660 Attachment 6 (data in DR 358 was replaced with data in DR 660 for 2022)

<sup>34</sup> DR 360 Attachments 1 and 2

<sup>35</sup> DR 363 Attachment 3 and DR 365

<sup>36</sup> DR 83 Attachment 1, DR 362

<sup>37</sup> DR 168 Attachments 1-4 and 1114 Attachment 1.



**Exhibit IX-13**  
**Reliability Programs Budget to Actual**  
**(millions)**

	2018	2019	2020	2021	2022
<b>Operating and Maintenance</b>					
Asset Management – Budget	\$7.3	\$4.0	\$5.4	\$5.5	\$7.8
Asset Management – Actual	\$5.3	\$4.5	\$4.3	\$4.8	\$5.4
<b>Capital</b>					
Reliability – Budget	\$192	\$191	\$163	\$192	\$249
Reliability – Actual	\$184	\$190	\$170	\$209	\$264
Storm Hardening – Budget			\$37	\$51	\$70
Storm Hardening – Actual			\$54	\$64	\$71

Source: DR 168 Attachments 1-5 and DR 1114 Attachment 1

- Seven reliability initiatives account for over 50 percent of the reliability budget as shown in **Exhibit IX-14**. These initiatives are related to vegetation management and equipment failure.

**Exhibit IX-14**  
**Largest Reliability Programs**  
**(millions)**

Reliability Initiative	2018	2019	2020	2021	2022
Multiple Interruptions	\$8	\$7.7	\$6.8	\$7.3	\$7.5
Substation Transformer Replacement Program	N/A	N/A	N/A	\$0.2	\$5
Underground Asset Health	\$3.9	\$7.7	\$6.4	\$6.4	\$11.4
Underground Cable Replacements	\$11.0	\$13.0	\$12.2	\$12.2	\$15.2
Vegetation Management	\$26	\$22	\$30	\$23	\$39
Wood Pole Reinforcements	\$2.3	\$2.2	\$4.0	\$5.0	\$1.6
Wood Pole Replacement (Estimated)	\$50	\$50	\$50	\$50	\$50
<b>Total</b>	<b>\$101</b>	<b>\$103</b>	<b>\$109</b>	<b>\$104</b>	<b>\$249</b>
Percent of Reliability Budget	53%	54%	67%	54%	52%

Source: DR 168 Attachments 1-5, DR 83 Attachment 1, DRs 356-371, DR 628, DR 1113 Attachment 1, and NorthStar Analysis

**9. In addition to its performance initiatives, PSEG LI has numerous system and reliability data points. Each of these data points identify systemic or customer specific issues that drive future reliability programs. They include:**

- Worst performing circuits analysis
  - Lists the 25 worst circuits in the distribution system.
  - Tracks annually the number of customers interrupted and the durations.
  - Lists the programs and scheduled year for Circuit Improvements.

- No circuit was on the list for more than two consecutive years.<sup>38</sup>
- Root cause analyses
  - Triggered by trend analysis or repeated observations over a short to medium period of time or singular occurrences where no direct cause can be found.<sup>39</sup>
  - Ten analyses conducted in the last 5 years.
  - Each analysis results in an asset strategy to mitigate the problem.<sup>40</sup>
- Multiple interruptions
  - Downloading of site-specific outages from the OMS.
  - Identifying addresses with multiple customer outages.
  - Investigating and developing outage solutions on small sections of overhead and underground distribution lines.<sup>41</sup>
- Outage Historian
  - An application that interfaces with the outage management system.
  - Permits queries and analyses of data.
  - Allow review of outage causes, areas, and customers affected.<sup>42</sup>

**10. PSEG LI’s focus on major storm operations is the next step in reliability program improvement.**

- SAIFI has been consistently good the last five years. There is a practical limit as to how much more SAIFI can improve. PSEG LI’s lack of an enterprise-wide asset management plan limits how PSEG LI can optimize its resources to maintain current reliability.<sup>43</sup>
- PSEG LI has benefited from its focus on Big SAIFI and on its MCO programs.

**Preventive Maintenance**

**11. A variety of organizational units support the preventive maintenance program.**

- PSEG LI Outside Plant preventive maintenance organizations include the following:<sup>44</sup>
  - Overhead/Underground Lines – performs underground transmission manhole inspections for high pressure fluid filled systems, performs maintenance repairs coming from annual infrared inspections conducted by contractors of both

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<sup>38</sup> DR 106 Attachment 1 and NorthStar analysis

<sup>39</sup> DR 607

<sup>40</sup> DR 606 Attachment 1

<sup>41</sup> DR 83 Attachment 1

<sup>42</sup> DR 626

<sup>43</sup> Board of Trustee Meeting September 27, 2023 discussion of EAMS implementation project.

<sup>44</sup> DR 287

distribution and transmission facilities. Performs maintenance of any substandard conditions noted from annual transmission line patrols conducted by Operations. Performs maintenance repairs coming from Distribution Design inspections of distribution system circuits. Performs pole replacements coming from pole health inspections performed by contractor.

- Distribution Operations – performs inspection and maintenance on distribution system capacitor banks. Performs inspection and maintenance on distribution system network transformers/protectors. Performs inspection and maintenance on automatic throw-over switches.
  - Distribution Automation – coordinates annual inspection/check of operability of distribution system capacitor banks and automatic sectionalizing units and automatic circuit reclosers.
  - Meter Services – performs maintenance on distribution system capacitor banks.
  - Distribution Design – performs periodic walk-down inspections of the distribution system identifying any substandard conditions.
  - Training Support & Contractor Services – oversees contractors performing vegetation management cycle tree trim of distribution circuits on a 4-year cycle.
  - Substation Maintenance - performs inspection and maintenance on distribution system network transformers/protectors.
  - Asset Strategy – oversees contractors performing transmission and distribution wood pole inspections and reinforcements (trussing), stray voltage testing and inspections, and transmission and distribution infrared inspections.
- Inside Plant preventative maintenance organizations include the following:
    - Substation Maintenance – performs all preventative maintenance activities of equipment contained within LIPA substations (i.e., transformers, breakers, switchgear, battery sets, switches, etc.)
    - Underground Lines – performs all preventative maintenance of underground transmission terminations within the substation confines.
    - System Protection Operations – performs all preventative maintenance activities relating to system protective relaying devices/schemes.
  - LIPA monitors PSEG LI’s system inspection, vegetation management, and physical security programs. Three LIPA resources perform oversight for each of the following:<sup>45</sup>
    - System inspections – one resource
    - Vegetation management – one resource
    - Physical security – one resource
  - LIPA stated that it provides input into the establishment of enhancements to the programs, reviews distribution system operations and transmission system operations.<sup>46</sup>

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<sup>45</sup> DR 289

<sup>46</sup> DR 1547 – support was CEII

- LIPA participates in industry groups including Large Public Power Council (LPPC), American Public Power Association (APPA), the Association of Edison Illuminating Companies (AEIC), and Electric Power Research Institute (EPRI). However, LIPA could not provide any work products or examples of industry trends or performance improvement initiatives resulting from this participation.<sup>47</sup>

**12. The most meaningful measure of T&D preventive maintenance effectiveness is system reliability as noted in Conclusion #1. Preventive maintenance policies, procedures and programs are effective and generally reflect industry practices.**

PSEG LI's description of preventive and corrective maintenance programs include the following:<sup>48</sup>

- For substation equipment preventive maintenance work, PSEG LI maintains equipment maintenance frequency sheets. Equipment maintenance frequencies are based on manufacturer suggestions, industry standards and operating history, and loaded into SAP, which generates work plans for the Operating groups. Additionally, with the Enterprise Asset Management System (EAMS), PSEG LI plans to transition to a combination of time-based, condition-based and predictive-based maintenance program.
- For substation equipment corrective maintenance, each is handled case by case because of its unique occurrence. Equipment that required immediate repairs is identified based on operating issues or routine inspections by Transmission Operations & Substation Maintenance personnel. Maintenance work required for major substation assets (i.e., Transformers, breakers, switches, batteries, relays, etc.) is performed by in-house personnel and is tracked on an asset specific basis in SAP. SAP repair cost-tracking by asset, helps in making economic based repair/replace decisions.
- Preventive maintenance and corrective maintenance programs for transmission & distribution equipment and systems are performed by in-house and contractor crews, depending on the specific program. PM programs of automatic throwover (ATO) switches, automatic circuit reclosers (ACRs), capacitor banks, and network protectors (NWP) are performed annually by PSEG LI crews. Similarly, any required corrective maintenance/repair of these distribution assets is also performed by PSEG LI crews.
  - Multiple Device Operations/Multiple Customer Outages (MDO/MCO) programs: frequent device operations (fuses and switches) and customers experiencing repetitive outages over the course of a given year trigger inspections of the associated circuits to determine root cause and corrective actions as well as worst performing circuit analyses.
  - The Circuit Improvement Program (CIP) is performed annually based on system performance data, the worst performing circuits are inspected and substandard conditions (i.e. cracked cross arms, broken hardware, poles needing repair/replacement, and heavy tree conditions) are identified for corrective action.

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<sup>47</sup> DR 1548 refers to DR 1321

<sup>48</sup> DR 112, 288 and 293

- Automatic circuit re-closer inspections are done annually for any observed deficiencies and repairs are made on an as needed basis.
  - Automatic throw-over switch inspection and repair are performed annually for any observed deficiencies and repairs are made on an as needed basis.
  - Network protector inspection is performed visually every year for more superficial substandard conditions with a more rigorous maintenance performed every 3 years on these devices. Identified deficiencies are addressed immediately or are scheduled based on criticality of issue.
  - Capacitor bank inspection and repair is performed annually by Distribution Operations as well as tested remotely by Distribution Automation with minor repairs made as needed.
  - UG Transmission manhole inspection and repair is performed by the OH/UG Lines organization with half the system's manholes inspected each year.
- PSEG LI stated that the T&D wood pole inspection program is based on the industry standard – a 10-year cycle. Nine of the ten years in the cycle are committed to the inspection of the LIPA owned distribution wood pole population. The tenth year is dedicated to the inspection of all LIPA owned transmission wood poles.<sup>49</sup> A contractor performs the pole inspections and treatment work. All poles receive a visual inspection from the groundline to the top of the pole and any substandard conditions are noted. The pole inspection scope of work consists of various types of inspections, including a visual inspection only (for poles 0 – 20 years of age), sound only, sound and bore, and excavate, sound & bore inspections. Based on the inspection findings and condition of the pole, the contractor may apply internal treatment (e.g., OsmoFume) and/or external treatment (e.g., MP-500EXT paste), as required, to help preserve the pole's remaining strength.
  - Corrective maintenance measures are based on the pole inspection results. Some poles are found be restorable rejects. These are poles that are in good condition but have minor decay at the ground line. These poles can usually be reinforced with a steel truss that will significantly prolong their useful life. Reinforcing involves the contractor driving a steel truss into the ground alongside the rejected pole, and strapping the truss around the pole. This is a very cost-effective measure to maximize the service life of the pole asset as opposed to replacing the pole prematurely.
  - A pole that fails ground line inspection and cannot be reinforced is deemed a non-restorable reject and must be replaced. There are various factors as to why a pole may be classified as non-restorable including significant internal decay, extensive rot above the truss line, mechanical damage, etc. The established criteria for identified “priority” reject poles to be replaced is 180 days and for “non-priority” reject poles to be replaced is two years. The poles to be replaced are prioritized and ranked by Asset Strategy based on factors such as percentage of remaining original strength, location of pole (mainline / branch line), equipment on pole, criticality of the circuit that the pole is on, etc. The prioritized list of priority and non-priority reject pole data is loaded onto the

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<sup>49</sup> Rebuttal testimony of transmission and distribution budget and operations panel, John D. O’Connell, Nicholas J. Lizanich and Theodore G. Pappas, June 4, 2015.

Work Planning Master Log Share Drive for the scheduling and tracking of the pole replacements. These pole replacements are performed by PSEG LI overhead line crews and/or contractors.

- The transmission infrared inspection PM program is performed annually. The entire 1,016 miles of LIPA owned overhead transmission lines are inspected via helicopter utilizing an infrared camera. The transmission infrared inspection program is conducted at the end of June each year and typically takes approximately one week to complete. The transmission infrared inspection consists of surveying overhead transmission lines running between substations and identifying “hot spots” along the lines and at line/splice/equipment connections. The work is performed by contractors. One contractor provides the helicopter and pilot services and another infrared inspection contractor provides the navigator and the infrared camera operator to record and document identified hot spots. The distribution infrared inspection PM program is performed annually. All 2,500-plus miles of overhead 3-phase distribution mainline are inspected via motor vehicle with a roof top mounted infrared camera. The distribution infrared inspection program typically takes up to four months to complete and runs from mid-May through mid-September each year. The distribution infrared inspection consists of surveying the overhead 3-phase distribution mainline and identifying hot spots along the lines and at line/splice/equipment connections. The work is performed by the infrared inspection contractor, providing both the motor vehicle driver and the infrared camera operator to record and document identified hot spots. The inspection data is analyzed based on the recorded temperature above ambient of an identified hot spot, and is categorized as either Critical, Serious, or Intermediate. Hot spots are classified as follows:
  - Critical - greater than 100° F above ambient
  - Serious - 51 - 100° F above ambient
  - Intermediate - 16 – 50° F above ambient
  - No action required - 0 to 15° F above ambient
- For inspections performed outside of peak load times of the year, a correction factor may be used to determine whether “Intermediate” hot spots should be categorized into the next higher “Serious” ranking.
  - Peak load is considered to be from mid-June through mid-September.
  - For the inspections performed from mid-May through mid-June, and for inspections performed after mid-September, add 15° F to the readings.
  - The use of the correction factor is dependent on the actual system loads during those times of the year.
- PSEG LI’s contractor compiles the inspection results in photo reports and field data spreadsheets. Asset Strategy reviews the data for accuracy and work scope compliance and then imports the hot spot report data to a shared drive for PSEG LI Overhead Lines, and the Work Planning group to schedule the repairs. Work Planning maintains the shared file where Asset Strategy populates the hot spot data detected from both the T&D Infrared surveys on a weekly basis. The shared file includes a spreadsheet tracker

populated with the hot spots detected, their location, and their severity. All Hot Spot reports include the hot spot location, a normal color photo, a thermographic (infrared) photo, the ambient temperature and the temperature rise information. The tracker is in the shared file for the purpose of listing the hot spots as well as tracking repair scheduling and completion dates. In an effort to prevent customer outages and maintain customer safety, the following criteria is utilized to schedule corrective maintenance/repairs of identified hot spots.

- Critical hot spots – Repair immediately if practical, or within 5 days. Hot spots greater than 250 degrees F are considered an imminent hazard and are in real time e-mailed and called in by Hot Shots to Asset Strategy. Overhead Lines is notified to immediately address and make repairs.
- Serious hot spots – Repair within 30 days when practical. Scenarios that may delay the repair include but are not limited to the following: Emergent Reliability and/or Safety focused programs deemed as higher priority by the LOB, clearance issues, severe weather and/or heat storm events, etc. Additionally, serious hot spot repairs may be delayed beyond 30 days if such repairs are scheduled to be performed as part of other capital improvement programs such as the Circuit Improvement Program, Power On, Conversion and Reinforcement, Pole Replacement Program, and Public Works. In these cases, serious hot spot repairs are included as part of the program’s work scopes and progressed in accordance with the project’s schedule and required completion date.
- Intermediate hot spots – Monitor status. If the same hot spot appears in the Infrared Report in back-to-back years, then in the second year, repair within 90 days.

**13. Preventive maintenance is largely based on institutional knowledge and inspections rather than advanced trend analyses or analytical techniques with some exceptions. SAP initiates preventive maintenance work orders and records of work performed.**

- PSEG LI adjusted legacy preventive maintenance frequencies based on a comparative assessment to the PSE&G NJ utility T&D maintenance programs. During transition from National Grid to PSEG LI, leadership performed an assessment of the legacy company’s preventative maintenance practices to determine if any adjustments should be made to improve equipment performance.<sup>50</sup>
- Preventive maintenance budgets were reviewed and established pursuant to the 2016-2018 rate plan proceeding. Legacy maintenance activities were assessed along with the associated legacy budgets and adjustments were made to maintenance frequencies.<sup>51</sup> For each budget cycle, responsible organizations contribute to the cost planning process to assure that there are adequate resources and funding to support the defined plans within SAP. The Asset Strategy organization has the oversight responsibility for these maintenance programs.

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<sup>50</sup> DR 303

<sup>51</sup> DR 305



- Inside plant preventive maintenance work plans are pre-loaded into the SAP work management module with distinctly assigned frequencies. Each year, the work coordination team extracts the next year’s maintenance plans for scheduling to the work force. When maintenance orders are completed in the field, work coordination will complete the work order in SAP. Tracking of work completed can be observed and monitored by running periodic reports out of SAP.<sup>52</sup>
- Outside plant preventive maintenance plans are not associated with one specific asset, but are generally tied to the associated distribution circuit. Therefore, scheduling this work is not built directly into SAP. Annual scheduling of these programs is driven by the various owners of the different maintenance plans. The tools used to manage the scheduling of work are spreadsheets and databases – primarily the summer readiness tracking report that is produced monthly.<sup>53</sup>
- Operations (Substation Maintenance) and Asset Strategy personnel acquire and review data obtained from key inside plant assets such as transformers and breakers.<sup>54</sup>
  - This data is analyzed to determine if any sign of health deficiencies are noted. Using CMMS algorithms, these organizations, along with the Substation Maintenance Technical Group, review the watch list of assets and determine if additional data sampling is necessary to better understand the trends being observed.<sup>55</sup> As an example, as transformers age or are subjected to system transients, certain gases may be present/observed in the periodic oil samples taken. Analysis of this trend data will initiate remedial actions up to and including taking equipment out of service to prevent potential failure.
  - PSEGLI’s System Reliability group reviews OMS outage data for cause of outage, such as equipment failures, tree impact, weather etc. Frequencies of T&D outages are trended to trigger follow up field inspections to determine the primary drivers of the outages. Inspections will typically reveal tree/vegetation contact or substandard equipment as the root cause to the outage trends being observed.
- PSEG LI cites numerous systems and available information data sources that can be used for preventive maintenance analyses although enterprise-wide integration is not apparent at this time.<sup>56</sup>
- A weekly schedule of preventive maintenance work is prepared for each crew (in-house and contractor), which identifies specific jobs for each crew to execute.<sup>57</sup> This work is scheduled in accordance with planned work hours and units, which is aligned with the budget.

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<sup>52</sup> DR 298

<sup>53</sup> DR 298

<sup>54</sup> DR 296 and 297

<sup>55</sup> CMMS will be replaced by EMMS.

<sup>56</sup> DR 307

<sup>57</sup> DR 299

- Overhead/Underground Lines capital and expense work in each of the divisions is entered into Primavera (P6) providing the ability to match workload to resource capacity. Within each division, work coordination teams schedule the daily/weekly work to construction referencing the broader P6 schedule and required start/end dates
- Substation Maintenance preventative maintenance work is contained within SAP. Preventive maintenance work is program based work with target completion dates for the program set for pre-summer or for end of the annual period.
- System Protection Operations preventive maintenance work is contained within SAP. Each year the next set of maintenance work is extracted out of SAP for scheduling. Work Coordination/planning teams create work packages for the maintenance crews from this annual plan within SAP.
- Vegetation Management - Contractor performed maintenance is scheduled using data housed in SharePoint. Excel spreadsheets track the circuits scheduled in a given year's program and progress to completion of the program. In terms of an appropriate vegetation management frequency/cycle:<sup>58</sup>
  - The current cycle trim frequency is 4 years. PSEG LI believes this frequency is based on "industry best practice" which PSEGLI implemented in 2014. However, there may not be an "industry best practice" as there are many varying conditions that would affect vegetation management across the industry.
  - No analyses or studies regarding the vegetation management cycle have been conducted during the period under audit (i.e., 2017 to present).

**14. While system reliability has remained high when compared to NY utilities, there are mixed signals between PSEG LI's reported vegetation management performance and LIPA's observations.**

- PSEG LI reported a four-year trend of fewer customers interrupted.<sup>59</sup> PSEG LI's worst performing circuits frequently attribute vegetation contact as a causal factor (as noted in **Exhibits IX-6 and IX-7**).<sup>60</sup>
- LIPA recently completed an audit of PSEG LI's vegetation management program focusing on the adequacy and effectiveness of procedures and controls.<sup>61</sup> The audit reported six high risk and several moderate and low control weaknesses currently exist. The audit stated that these weaknesses require immediate management attention to ensure that adequate controls are implemented and operating as intended. High risk findings included the following:
  - Inaccurate measurement of performance metric T&D-26 due to inclusion of limb removal and tree topping.

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<sup>58</sup> DR 308

<sup>59</sup> DR 310 Attachment 1, 2022 Reliability Update, November 2022

<sup>60</sup> DR 973 Attachment 1, DR 1271 Attachment 1, DR 1273, and NorthStar Analysis

<sup>61</sup> DR 310 and 1545 Supplement 1

- Inaccurate measurement of performance metric T&D-26 due to lack of reconciliation between invoices and metric tracker.
  - The removals unit price creates uncertainty as select diameters can fall into two price categories.
  - Insufficient documentation is obtained for limb removal and tree topping measurements.
  - Inconsistent reporting of planned and forecasted cost on VM metrics.
  - Lack of monitoring and review controls to track contingency utilization.
- Full remediation of the audit findings by PSEG LI is expected by Q2-2024.<sup>62</sup>

## Asset Management

### 15. An asset management program at LIPA/PSEG LI has been aspirational for over a decade.

- The 2013 management audit recommended that LIPA: Establish an asset management model that supports the LIPA T&D preventive maintenance program.<sup>63</sup>
- The prior management audit found that PSEG LI was developing an asset management function.<sup>64</sup> More specifically:
  - PSEG LI recently created an asset management function to improve operational reliability and maintenance decision-making.<sup>65</sup> In late 2016, organizational changes were made to formally establish an Asset Strategy group containing specific asset subject matter expert positions. The purpose of this group was to provide governance and guidance to the transmission and distribution operations’ organizations so that asset decisions (e.g., decisions to repair or replace, activity timing and maintenance practices) made more consistently and with a strengthened business view. PSEG LI Asset Strategy continued to identify and add asset programs (“asset classes”) during 2017.
  - PSEG LI’s development of new technologies such as its Centralized Maintenance Management System (CMMS), would allow PSEG LI to leverage asset health data more effectively/efficiently. Better asset information would lead to improved maintenance decisions, schedule/plans and improved decision-making regarding asset life.
  - In 2015, PSEG LI distributed a “Repair Versus Replace Decisions for LIPA T&D Assets” guidance document.<sup>66</sup> The document highlights the approach to be taken with regard to repair versus replace decisions specific to inside plant (most

<sup>62</sup> DR 1545 Supplement 2

<sup>63</sup> Comprehensive Management and Operations Audit of Long Island Power Authority, Matter No. 12-00314, Final Report, September 13, 2013

<sup>64</sup> Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC Matter No. 16-01248 Final Report, June 14, 2018

<sup>65</sup> Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC Matter No. 16-01248 Final Report, June 14, 2018 DR 65 and 374

<sup>66</sup> Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC Matter No. 16-01248 Final Report, June 14, 2018 DR 65 Attachment 1

substation equipment) and outside plant (generally T&D equipment located outside the substation) assets.

- LIPA and PSEG LI explained that the Asset Management Program was in its infancy.

## **16. Repair vs replace decision-making relies on “considerations” and lacks formal economic or operational analytical requirements.**

- As a foundation for basic T&D asset management, PSEG LI was asked to describe the processes and criteria used for making decisions regarding replace vs. repair. PSEG LI provided a guidance document developed in October 2020: Repair Versus Replace Decisions for LIPA Transmission & Distribution (T&D) Assets. This document was intended to provide guidance for asset management organizations and direction to operations organizations, with respect to repair/replace investment decisions relating to transmission and distribution assets.<sup>67</sup>
  - Historically, the approach to repair/replace decisions was driven in part by the urgency of time where assessment can be performed (e.g., projected failure), the system asset criticality, repair ease/difficulty, replacement equipment availability, and opportunity to upgrade to newer standards or increased capability. Repair/replace was also dependent on timely execution.
  - The logic behind a “run to failure” philosophy is straightforward: if a particular asset is functioning as designed, do not invest any planned maintenance dollars that may extend the life of that asset; only plan to replace upon the failure of such equipment. PSEG LI stated that assets that fall into this category typically:
    - Can be remedied quickly without a dramatic impact to customer satisfaction or system reliability.
    - Are not considered “critical” to the operation of the system.
    - Are difficult to assess in terms of the timing of the impending failure.
    - Asset types are such, that making repairs in lieu of replacement would likely be more costly than a direct replacement of that asset and the desire for returning the system to normal quickly precludes a repair.
- The decision to replace older technology with new technology may be driven by one or more factors. At PSEG LI, each business unit takes such factors into consideration when evaluating investment decisions in order to assure effectiveness of operations, on-going business viability and capturing opportunities to improve levels of service and enhancing overall experience to customers.<sup>68</sup> Such factors would generally include:
  - Time-based “life-cycle” replacement (technology refresh).
  - Changes in business (operations or customer facing) that drive new functionality requirements.

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<sup>67</sup> DR 56

<sup>68</sup> DR 60

- Contractual obligations (e.g., OSA).
  - Regulatory requirements (e.g., NERC Critical Infrastructure Protection).
  - Expiring support of existing technology.
  - Limitations within the existing technology.
  - Benchmarking against peers.
  - Opportunities for continuous improvement.
  - Risk associated with changing existing systems or technology.
- In conjunction with the above factors, tradeoffs must also be considered within these types of investment decisions. These tradeoffs include:
    - Potential risks to the business if no action is taken.
    - Budgetary impact – will investing in the new technology impact other planned investments or potentially limit other areas of the business.
    - Additional “Run The Business” costs – what additional, on-going costs will be incurred as a result of the technology replacement (e.g., maintenance, support, training, additional staff).
    - Collateral financial impact – what additional costs may be incurred due to impact on other systems, infrastructure, configuration or interfaces.
    - Customer facing impact – will the improvement in technology have a greater impact on customers and/or a greater number of customers.
  - NorthStar’s request to provide analyses on life expectancy for asset management and an explanation of how these analyses are used resulting in a list of asset group life expectancy but not supporting analyses or how they are translated into maintenance practices.<sup>69</sup> PSEG LI stated that: “Within the electric utility industry, actual inspection practices are specific to a piece of equipment and generally do not vary by industry. The variability predominantly lies in the frequency of performing those activities. For example, PSEG-LI examined legacy maintenance plans and then compared those to the PSE&G (NJ) maintenance practices that have been developed in alignment with industry practice.”

**17. PSEG LI still does not have an asset management program. Development of an asset management program since the prior audit has been limited to date and is largely intuitive versus analytical. It is now focused on the development of an EAMS.**

- PSEG LI provided a Summary of PSEG LI Asset Management Initiatives covering details of the build out of the CMMS system.<sup>70</sup> However, all work to enhance the existing CMMS system was put on hold by LIPA in 2021, in order to begin work on the selection and implementation of a new EAMS, as required by the LIPA Board of Trustees (Board). This Board resolution served as the basis for LIPA’s 2022 Metric for the implementation of an EAMS.

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<sup>69</sup> DRs 292, 293 and 294

<sup>70</sup> DR 295

- The EAMS scope as defined to date includes major dissimilar management functions, all under the title of “asset management.”<sup>71</sup> Elements of the EAMS system include an extraordinary scope of management functions that NorthStar has not yet seen in an integrated system platform:<sup>72</sup>
  - Work Management – planning, scheduling and dispatch, storm/emergency
  - Asset Management – inspections, in-service, asset moves, retirement
  - Crew Management – managing work, crew assignments (personnel), availability
  - Routing – GIS-based route optimization, reassignment with routing
  - Materials Management – reservations, pick, reordering, reconcile, issue, transfer, return.
  - Procurement – source to pay
  - Mobility & Extended Mobility – true enterprise vision and strategy
  - Asset Performance / Health Analytics – predictive, capital planning, maintenance strategy.
- EAMS-specific system functional requirements exceed 500.<sup>73</sup> Of these functional system requirements, 117 pertain to asset management.
- It is unlikely that any one existing system or the development and implementation of one integrated management system that automates all these functions will be successfully completed as currently projected.
- More importantly, EAMS has been delayed and is now projected to be implemented in the 2026/2027 timeframe.<sup>74</sup>

## **D. RECOMMENDATIONS**

1. Make considerations for MAIFI performance in determining the worst performing circuits list.
2. Determine the causes for poor SAIFI performance for the following circuits that have been unable to be remedied over multiple years. Determine the causes that are within PSEG LI’s control and those outside of PSEG LI’s control and report findings to DPS.
  - 3D384
  - 5B211
  - 5GK222
  - 5H079
  - 6X799
  - 7B2H3
  - 7HM130

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<sup>71</sup>

<sup>72</sup> DR 84

<sup>73</sup> DR 987 - 2A3 RFP Attachment 2-A.3 Functional and Technical Reqts

<sup>74</sup> Board of Trustees meeting September 27, 2023.

- 8BA9N3
3. Document the successful implementation of each of the EAMS functional requirements by a utility using the EAMS software selected before proceeding with implementation.



## **X. PROGRAM & PROJECT MANAGEMENT**

This chapter addresses PSEG LI's management of complex capital programs and projects on LIPA's electrical system, including project prioritization, cost estimate development, and project control and performance. As explained in Chapter IV – Budgeting and Financial Reporting, program and project funding is authorized during the annual budget process; the authorized capital funds are then appropriated to specific projects as necessary. This chapter addresses project management from the appropriation of funds to the completion of the project.

### **A. BACKGROUND**

The Second A&R OSA, in effect as of April 1, 2022, assigns PSEG LI broad responsibilities in the capital improvement, operations, and maintenance of the transmission and distribution systems. Those responsibilities include the development and preparation of:

- Capital planning procedures.
- Recommended capital plans and monitoring of the approved annual capital budget.
- Risk assessments and analyses in support of capital projects prioritization and planning that account for LIPA's Integrated Resource Plan and Utility 2.0 plans.
- Long- and short-range system plans.
- Proposed annual operating and maintenance plan and input into LIPA's long-term financial plan.
- Long- and short-range transmission and distribution planning analyses and forecasts to determine the need for capital improvements, including:
  - Introduction of smart grid and other emerging technologies.
  - Project management services to ensure the technical performance and reliability of the Transmission and Distribution (T&D) System.
  - Meeting LIPA's goals and objectives set forth in the Long-Range Plan and Utility 2.0 Plan.
- Capital improvements and repair or modification activities required due to Public Works Improvements.

The Second A&R OSA requires PSEG LI to monitor, analyze, and report on the:

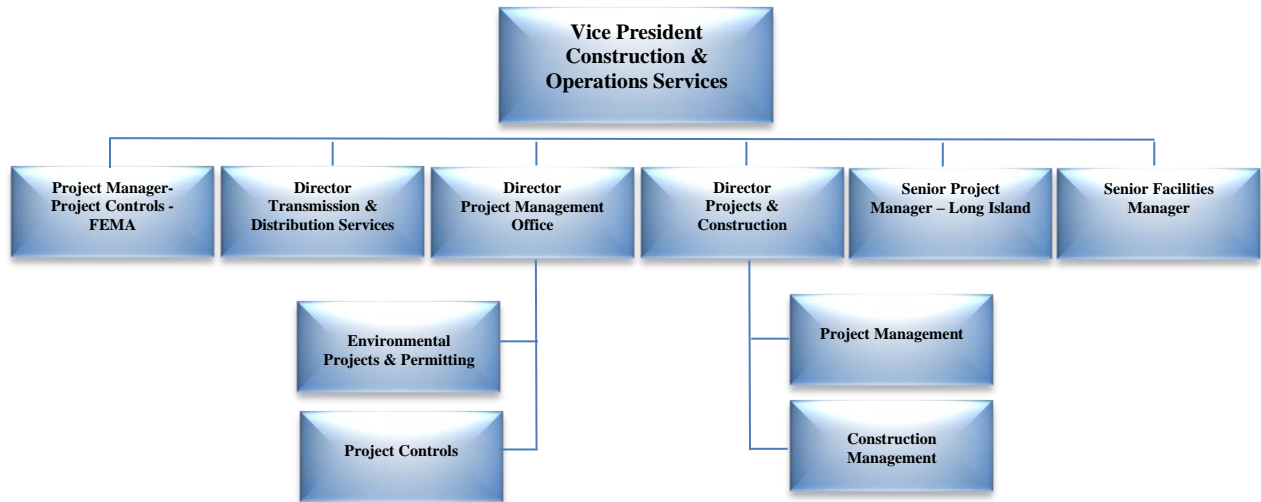
- Supervision of capital projects including engineering and related design and construction management services.
- Monthly monitoring of budgets necessary for both capital and operating expenses for the services provided by the PSEG LI.
- Monthly and year-to-date budget to actual variances, and explanations of such variances.
- Financial projections based on variance analyses.<sup>1</sup>

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<sup>1</sup> Second A&R OSA Section 4.2(A)(2) and Section 4.2(A)(5).

As noted in the prior management audit, the PSEG LI project management and project control functions resided in its Business Services organization. Currently, PSEG LI provides these services through its Construction and Operations Services organization. The Vice President of Construction and Operations Services reports directly to the President and COO of PSEG LI.<sup>2</sup> **Exhibit X-1** shows the organizational units within Construction and Operations Services that provide program and project management activities.

### **Exhibit X-1 Construction & Operations Service Organization Chart**



Source: DR 3.

PSEG LI uses its Project Management Playbook (PMP) to guide project managers and their teams through the series of required activities when developing, executing, and closing a capital project. The PMP defines a five-phase project lifecycle for the delivery of capital projects. Since the 2018 management audit, PSEG LI’s project lifecycle has replaced the term “Construction” with “Project Execution”.

- Project Initiation
- Preliminary Engineering/Design
- Detail Engineering/Design
- Project Execution
- Completion

PSEG LI developed other policies and procedures that support the PMP. These documents largely follow a similar structure with sections setting forth the purpose, application, assigned responsibilities, procedures, and required documents.<sup>3</sup> The supporting documents noted in the PMP are:

<sup>2</sup> As of this writing, this role is filled on an interim basis.

<sup>3</sup> P&C/PMO Fixed Asset Reporting Key Control document structure is different from other procedures. Fixed Asset Reporting uses Objectives, Risks, Key Controls and Description, and Process Activities and Controls.

- Project Authorization
- Estimating
- Project Scope Management
- Project Scheduling
- Cost Management
- Construction Management and Contract Administration
- Invoice Management for P&C/PMO
- Document Management
- Quality Assurance/Quality Control
- P&C/PMO Fixed Assets Reporting Key Control<sup>4</sup>

PSEG LI uses the Spend Optimization Suite (SOS) as a management decision tool to facilitate the process of T&D capital project prioritization over various time horizons. There are three important modules that comprise the SOS platform, including:

- Strategic Alignment (SA) Module – This module stores the strategic Business Value Framework. This “framework” is comprised of overall Strategic Objectives, along with more specific sub-objectives or “Success Criteria”, across which investments are evaluated and scored.<sup>5</sup> PSEG LI documentation states that the company’s strategy is defined and the relative priority of each Strategic Objective is assigned.<sup>6</sup>
- Investment Definition & Scoring (IDS) Module – This module indicates where each non-financial Success Criteria has an associated investment scoring screen where Value and Risk of Deferral scores are calculated based on factors such as current performance, scope of impact (i.e. the number of customers impacted by the investment), investment impacts (i.e. interruptions eliminated, minor to significant impact by category, etc.), criticality factors, etc., based on the measure and its scoring approach (which may be quantitative or qualitative, depending on the nature of available information).
- The Investment Optimizer (IO) Module facilitates the investment planning and budgeting processes through portfolio optimization. SOS portfolio optimization takes a holistic view of all expenditures by project and enables the determination of a spending portfolio that fits within given constraints and produces the highest cumulative weighted benefit (or minimum risk of deferral) across all nominated Strategic Objectives and Success Criteria of the business. The IO allows users to designate the scenario parameters, including budget constraints, specific types of spend activities and amounts such as storm hardening dollars, etc., for the system and/or by individual line of business. All constraints may be set as a maximum or minimum value.<sup>7</sup>

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<sup>4</sup> DR 64 Attachments 1 through 10, 12. New documentation supporting the PMP since the 2018 audit includes Estimating, Document Management, QA/QC, and the P&C Fixed Asset Reporting Key Control. The Project Execution Plan was listed in the 2018 Audit, but not provided in DR 64.

<sup>5</sup> DR 57.

<sup>6</sup> DR 66 Attachment 1.

<sup>7</sup> DR 57.

The SA module scores projects in accordance with the Business Value Framework (i.e., the Strategic Objectives and Success Criteria). The Strategic Objectives and the underlying Success Criteria are provided in **Exhibit X-2**. The Strategic Objective weighting amounts are the same as the previous audit, however, PSEG LI has added certain Success Criteria to the Economic and Safe and Reliable Strategic Objectives, as noted below.

**Exhibit X-2**  
**SOS Strategic Objectives and Success Criteria Weightings**

Strategic Objective	Weighting (%)	Success Criteria	Weighting (%)
Economic	15	Net Present Value*	25
		Hard & Weighted Soft Savings*	25
		Qualitative Assessment of Revenue Recovery*	25
		Financial & Business Ops.*	25
People	10	Human Work Environment	50
		Physical Work Environment	50
Green	10	Environmental & Business Ops.	25
		Renewable Energy Generated	25
		Efficiency Savings	25
		Fleet Miles/Gallon	25
Safe and Reliable	65	Asset Operations & Proficiency	6
		Asset Health & Condition (Trans)	15
		Asset Health & Condition (Distribution)	15
		SAIFI	20
		MAIFI	14
		CAIDI	12
		JD Power – Electric	12
		Customer Service & Ops.	6
		Meter to Cash*	20
		General Inquiry Abandonment Rate*	20
		PSC/LIPA Inquiries	15
		Appointments Kept*	21
Asset Health & Condition – Fleet, Facilities, etc.*	61		

DR 758 Attachment 1.

Note (\*) additions to Success Criteria since prior NorthStar audit.

The SOS platform scores projects in accordance with how those projects meet Strategic Objectives, and the Success Criteria that underlies each Strategic Objective. The SOS process determines the value impact of funding the project and the risk impact of deferring the project based on answers to questions regarding each criterion. An investment must be scored in at least one of the value and risk categories. If not, the investment will be deferred as not providing any value or mitigating any risk.<sup>8</sup>

PSEG LI classifies T&D capital projects into two categories: discretionary and mandatory. Discretionary projects are those that can be curtailed or even eliminated without having an

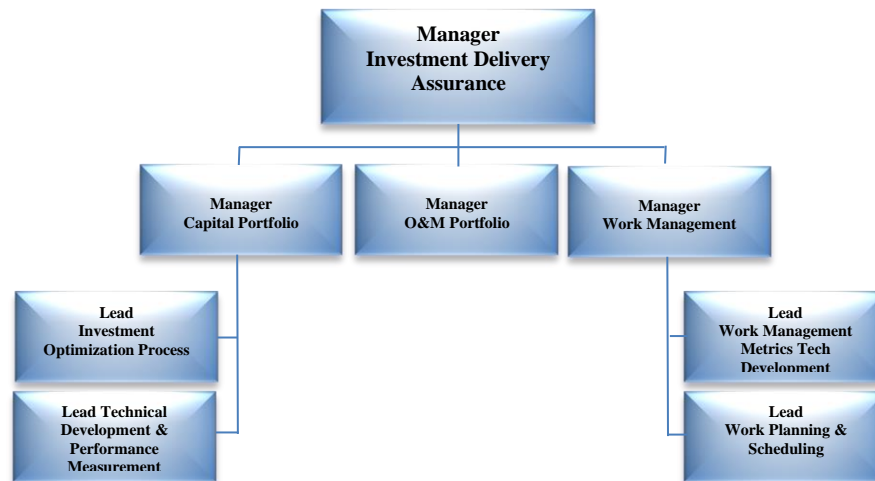
<sup>8</sup> DR 698 Attachment 1 and DR 622 Attachment 1.

immediate impact on the delivery of services. PSEG LI categorizes mandatory projects into three groups:

- Forced Priority – multi-year projects that are currently “in flight” and should be funded to completion. Typically, these are large value, multi-phase, complex projects.
- Minimum – Required to ensure basic utility service or essential to safe and reliable operation.
- Legal – projects that are legally or contractually required.

The SOS platform is managed by the Investment Delivery Assurance (IDA) organization within Electric Operations. The IDA organization consists of three functional groups. These are the Capital Portfolio, O&M Portfolio, and Work Management groups as shown in **Exhibit X-3**.

### Exhibit X-3 Investment Delivery Assurance Organization



Source: DR 436 Attachment 1.

In addition to the SOS platform, the Capital Portfolio group is also responsible for maintaining the Long-Term Budget Plan. This plan consists of an 8-year forecast of the budget and portfolio of projects, programs, and blanket work for T&D. The plan is updated annually based on the status and completion of multi-year projects, budget changes, funding levels, emerging new projects, and priorities.<sup>9</sup>

T&D capital projects are input to the SOS platform from four primary sources:

- The Planning group consists of three functions: Transmission Planning, Distribution Planning and Integrated Planning and Grid Innovation. These groups use analytical processes, various planning criteria, systems, load forecasts (from Strategy & Planning) to develop system plans for grid reinforcement as well as meeting the requirements necessary to support grid modernization.

<sup>9</sup> DR 66 Attachment 2.

- The Asset Strategy team studies asset performance and conducts inspections to develop preventive maintenance investment plans for various T&D asset classes.
- The Reliability Management team performs studies of system failures to determine reliability enhancement requirements and program investments.
- The Electric Operations field personnel have knowledge of system “trouble spots” and may also recommend projects for system reliability and/or improvement.<sup>10</sup>

One of the key outputs of the SOS platform is the Project Justification Document (PJD). The PJD contains a full description of the problem or need, cost, benefit and the basis for project recommendation.<sup>11</sup> All recommended capital construction projects are presented for consideration to at least two of the three capital project governance committees in order to be sanctioned for funding and, ultimately, approved by LIPA during the annual budget process supported by a PJD.<sup>12</sup> The three committees are the Project Council (PC), the Transmission & Distribution Planning Coordinating Council (TDPCC), and the Utility Review Board (URB).<sup>13</sup>

The PC was formed in 2018 and is a forum for T&D stakeholders to bring new/emergent projects to be vetted for scope, value and risk mitigation.<sup>14</sup> The sponsor of a prospective investment reviews the work scope with the Council to validate that the project is worthy to be moved to the URB for approval into the work plan. Specifically, the PC is responsible for:

- Ensuring new projects are appropriately screened for constructability and public outreach requirements.
- Providing a forum to discuss in-flight projects with issues associated with meeting in-service dates and fully understanding the consequences of missing required in-service dates.
- Developing strategies to mitigate risk of missing in-service dates, including feasibility of alternate contingency plans.

The PC is composed of T&D stakeholders across PSEG LI including T&D Planning, Engineering (i.e., transmission, substation and protection engineering), Permitting, Cost Estimating, Environmental, Project Management, Construction (i.e., inside and outside plant), Real Estate, Power Asset Management and Power Markets.<sup>15</sup> The LIPA Directors of T&D Operations may be invited to selected meetings so that the significant changes to project ISDs, if any, can be communicated. Meetings are conducted every two weeks.<sup>16</sup>

The purpose of the TDPCC is for PSEG LI planning and project stakeholders to present and discuss proposed projects and studies with LIPA management to encourage discussion and gain consensus between PSEG LI and LIPA on the direction and results of proposed projects and studies. As needed, other relevant planning initiatives may also be discussed. TDPCC

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<sup>10</sup> DRs 3, 4, 47 48, and 49.

<sup>11</sup> DR 157 Attachment 6.

<sup>12</sup> DR 57.

<sup>13</sup> DR 436. PC and TDPCC are T&D capital construction project committees. URB reviews all capital projects.

<sup>14</sup> DR 57.

<sup>15</sup> DR 57 and DR 379 Attachment 1. Power Asset Management and Power Markets are invited to PC meeting for relevant projects only.

<sup>16</sup> DR 379 Attachment 1.

membership consists of director and manager level representatives from LIPA and PSEG LI Planning, Engineering, Project Management, Projects and Construction, Transmission Operations, Resource Planning, Reliability, Power Asset Management, Power Portfolios, and other designated parties. Meetings are conducted every two weeks.<sup>17</sup>

PSEG LI manages the LIPA capital program through its URB. The URB reviews and approves all PSEG LI T&D, Fleet, Facilities, IT and Customer Service capital investments.

The URB is responsible for:

- Providing oversight to PSEG LI's capital budget for the business planning horizon.
- Reviewing PSEG LI's investment projects to ensure affordability, priority and possible alternatives analysis.
- Reviewing project alternatives to ensure appropriateness of pursued project.
- Reviewing PSEG LI's capital spending estimates for the upcoming year and tracking actual spending against estimates.
- Reviewing a project's Project Change Request (PCR) document where the spend has increased within five percent and 10 percent.
- Re-approving project cost increases that are 10 percent and/or higher of the URB authorized amount.<sup>18</sup>

Membership composition in the URB has increased by three additional members since the 2018 audit. Currently, the URB is comprised of 11 members including the President of PSEG LI, (Chair)<sup>19</sup>, VP of Construction & Operations, VP of Electric Operations, VP of Customer Services,<sup>20</sup> VP of Legal, VP of Power Markets, Director of Finance, Director, of External Affairs,<sup>21</sup> Chief Information Officer, VP of Business Services, and the Chief Information Security Officer.<sup>22</sup>

## **B. WORK TASKS**

- Assess how programs and projects are prioritized and approved over various time horizons in order to establish comprehensive work plans.
- Define and review program and project planning, design, estimating, engineering, costing, scheduling, risk management, issue response, purchasing/procurement, and execution. (Also, see Chapter XII - Outside Services)
- Review the analysis and decision-making used to optimize the use of in-house workforce versus contractor labor.
- Assess PSEG LI's contractor and engineering bidding practices to determine if RFPs define project requirements adequately to provide complete bids at the lowest practical

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<sup>17</sup> DR 57, DR 376 Attachment 5, and DR 406 Supplement 1.

<sup>18</sup> DR 73 and DR 376 Attachment 1.

<sup>19</sup> As of this writing, this role is filled on an interim basis.

<sup>20</sup> DR 3. This position does not exist in the current PSEG LI organization structure.

<sup>21</sup> DR 3. This position does not exist in the current PSEG LI organization structure.

<sup>22</sup> DR 57, DR 64 Attachment 4, and DR 376 Attachment 1. VP of Business Services was added in fact verification.



- cost, and if the process allows PSEG LI to negotiate bids received based on project needs. (Also, see Chapter XII – Outside Services)
- Review the planning and management of construction contractor project.
  - Assess the quality assurance and quality control measures at the program and project level.
  - Examine PSEG LI’s contractor management, project/program management, including accountability, goals, objectives, and performance measurement, as well as the PSEG LI’s ability to complete projects on time and within budget.
  - Test a representative sample of capital projects (current and completed) to determine whether appropriate policies and procedures are being followed.
  - Evaluate the effectiveness of PSEG LI monitoring and controls to manage excessive overtime and minimize overall cost and reduce overtime. (Also, see Chapter XI - Work Management)
  - Evaluate the management of clean energy programs (e.g., energy efficiency and renewable energy programs), including oversight of any subcontractors, budgeting methodology and variance reporting, and the efficacy of using in-house labor vs. external contractors.
  - Review the rationale for resource decisions, and determine how tradeoffs are analyzed and decisions made.
  - Review and assess the types of quality assurance/quality controls that PSEG LI uses to evaluate the work performed by the energy efficiency program subcontractor.
  - Assess PSEG LI’s process for developing RFPs for DER assets including Solar, Storage, and other Non-Wires Alternatives.
  - Evaluate the effectiveness of PSEG LI’s process to develop and prioritize proposals made as part of the Utility 2.0 and EEBEDR plans. (Moved to Chapter VIII - System Planning, DSP Development, and CLCPA)

## **C. FINDINGS AND CONCLUSIONS**

### **1. PSEG LI’s use of the SOS platform for project prioritization is not effective.**

- The SOS platform evaluates each T&D specific, blanket and program project that compete for the same funding dollars with the goal of selecting projects that align to the “Company strategy” and provide the most value to the T&D system.<sup>23</sup>
- The SOS platform is not used to evaluate and prioritize all PSEG LI capital projects. The SOS optimization process is used for T&D projects only.<sup>24</sup> PSEG LI has not implemented NorthStar’s prior audit recommendation to expand the use of the SOS optimization process to other business areas, including IT and Customer Operations.
- The SOS platform scoring and evaluation methodology do not align with LIPA Board policy. Without LIPA or LIPA’s Board of Trustee input into the SOS platform’s

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<sup>23</sup> DR 758 Attachment 1.

<sup>24</sup> DR 780.

scoring and optimization parameters, it is unclear how stakeholders can be assured that funds are optimally directed to the appropriate capital projects.

- LIPA states that “the Strategic Objective scores” were created by PSEG LI and are not based on criteria developed by the Board. SOS scores do not measure outputs of the Board’s policy process.<sup>25</sup>
  - While the SOS platform is useful as decision-making tool, the Business Value Framework and underlying weightings were developed by PSEG LI for its own “strategy” and not based on criteria developed by LIPA, the Board of Trustees or meaningful collaboration.
  - Furthermore, the results of SOS output are undermined by weaknesses in the estimation process.
- LIPA is not involved in the T&D capital project prioritization process. LIPA is not provided the entire population of scored, optimized capital projects from the SOS platform, nor is LIPA involved in the PSEG LI management review of projects as part of the annual budget process. LIPA only reviews and approves the resulting work products – PJDs and associated project budgets.
    - The SOS platform can perform up to five optimization scenarios and identifies projects that can be deferred, optimized or partially funded under each scenario.<sup>26</sup> The scenarios result in a recommended list containing a combination of projects that fit within budget constraints and maximizes support of overall PSEG LI T&D strategic objectives.
    - The SOS platform produces a list of “optimized” T&D capital projects that is provided to PSEG LI management for review and approval prior sending to LIPA.<sup>27</sup>
    - PSEG LI states that the SOS output of “optimized” projects is meant to augment the expertise and experience of the decision makers, not to replace good judgment. PSEG LI further states that it recognizes that there may be investments that are selected based on its management expertise and the most pertinent information available not captured within the SOS optimization output.<sup>28</sup>
    - Therefore, the actual project selection process is a combination of PSEG LI management’s review and ranking of projects as well as the SOS optimization scenarios.
    - LIPA is not a member of the URB where projects are sanctioned to be included in the annual budget.
  - Strategic Objectives and associated Success Criteria weightings used by the SOS platform to evaluate T&D capital projects have not been updated since prior management audit. PSEG LI states that the Strategic Objective and their Success Criteria weightings in the Business Value Framework are reviewed periodically and can be changed at any point in time in response to changes in business strategy or to

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<sup>25</sup> DR 749.

<sup>26</sup> DRs 66 Attachment 1 and 758 Attachment 1.

<sup>27</sup> DRs 698 Attachment 1 and 66 Attachment 2.

<sup>28</sup> DR 57.

emphasize certain investment types.<sup>29</sup> As previously shown in **Exhibit X-2**, PSEG LI has not significantly changed the Strategic Objectives, Success Criteria, or the associated weightings used by the SOS platform despite certain far-reaching global, national and state issues that have transformed the way many industries, including the utility sector, conduct business.

- The SOS platform’s Business Value Framework groups two unrelated factors in the scoring of capital projects, Safety and Reliability, into a single Strategic Objective with the highest Success Criteria weighting (i.e., 65 percent).
- NorthStar’s review of the SOS platform output found that a majority of projects were classified as mandatory. This represents approximately 70 percent of the \$561 million 2022 T&D approved capital budget.<sup>30</sup>

**2. PSEG LI has not implemented the prior management audit recommendation to improve its Work Breakdown Structure (WBS). PSEG LI continues to use a WBS to track various project expenditures rather than a sequenced list of work deliverables used to track project progress along with cost.**

- There is a fundamental difference between the cost (estimated or actual) to complete a deliverable work product (e.g., a significant project component) and diverse types of costs that can be incurred throughout the course of an entire project.
- To be clear, a capital project can incur significant expenses and yet show limited progress toward completion. Spending is not equivalent to progress.
- When project deliverables are identified in sequence, along with the cost to complete those deliverables, they represent verified progress toward the entire project’s completion.
- The Project Management Institute’s (PMI) Project Management Body of Knowledge defines a WBS as:

“A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables.”<sup>31</sup>

- In response to NorthStar WBS inquiries, PSEG LI stated:

“PSEG LI does not use WBS to measure the progress of work performed or report on work completion progress.”<sup>32</sup>

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<sup>29</sup> DRs 622 Attachment 1 and 758 Attachment 1.

<sup>30</sup> DR 624 Attachments 2 and 3 and DR 403 Supplement 2. NorthStar could not identify two projects in the SOS output that were listed in the 2022 and 2023 LIPA T&D capital budget.

<sup>31</sup> A Guide to the Project Management Body of Knowledge (PMBOK Guide) – Seventh Edition and the Standard for Project Management, Project Management Institute, 2021. Emphasis added.

<sup>32</sup> DR 1290

- PSEG LI documentation shows that the WBS is utilized to track project costs in five (5) major categories and subsets as listed below.<sup>33</sup>
  - Project Management Administration (1.A)
  - Inside Plant (1.B)
  - Outside Plant (1.C)
  - Withdrawal (W)
  - Salvage (S)<sup>34</sup>
- NorthStar reviewed PSEG LI’s WBS template used by the Projects & Construction and PMO groups. The WBS template provided in **Exhibit X-4** is a list of project cost categories, not a sequenced list of discreet work deliverables.

**Exhibit X-4**  
**Partial List of the PSEG LI WBS Template Used for Capital Projects**

WBS Level	WBS	WBS NAME	Chargeable	WBS DESCRIPTION
1	L.XXXXX.1	<b>PROJECT NAME</b>		
2	L.XXXXX.1.A	<b>PROJECT MANAGEMENT</b>		
3	L.XXXXX.1.A.1	Project Managers	X	
3	L.XXXXX.1.A.2	Project Controls Analyst	X	Cost/Schedule Analyst
3	L.XXXXX.1.A.3	Project Engineer	X	
3	L.XXXXX.1.A.4	Project Estimator	X	
3	L.XXXXX.1.A.5	Material Expeditor	X	
3	L.XXXXX.1.A.6	QA/QC	X	QA/QC Analyst
3	L.XXXXX.1.A.7	Public Affairs	X	
3	L.XXXXX.1.A.8	Supply Chain Management		Procurement, Contract Management, Legal
4	L.XXXXX.1.A.8.1	Procurement	X	
4	L.XXXXX.1.A.8.2	Contract Management	X	
4	L.XXXXX.1.A.8.3	Legal	X	Legal during contract negotiations/disputes
3	L.XXXXX.1.A.9	Project Planning Engineer	X	Planning
2	L.XXXXX.1.B	<b>INSIDE PLANT</b>		
3	L.XXXXX.1.B.1	<b>INSIDE PLANT - PHASE I</b>		
4	L.XXXXX.1.B.1.1	<b>DESIGN &amp; ENGINEERING</b>		
5	L.XXXXX.1.B.1.1.1	<i>Design &amp; Engineering - In House</i>		
6	L.XXXXX.1.B.1.1.1.1	Substation Engineering	X	
6	L.XXXXX.1.B.1.1.1.2	Civil Engineering	X	
6	L.XXXXX.1.B.1.1.1.3	SCAPE Engineering	X	
6	L.XXXXX.1.B.1.1.1.4	IT Engineering	X	
6	L.XXXXX.1.B.1.1.1.5	Asset Strategy	X	
5	L.XXXXX.1.B.1.1.2	<i>Design &amp; Engineering - Outside Services</i>		
6	L.XXXXX.1.B.1.1.2.1	Substation Engineering - O/S	X	
6	L.XXXXX.1.B.1.1.2.2	Civil Engineering - O/S	X	
6	L.XXXXX.1.B.1.1.2.3	SCAPE Engineering - O/S	X	
6	L.XXXXX.1.B.1.1.2.4	Geotechnical	X	
6	L.XXXXX.1.B.1.1.2.5	Landscape	X	
6	L.XXXXX.1.B.1.1.2.6	Noise	X	
5	L.XXXXX.1.B.1.1.3	Surveys & Mapping	X	
5	L.XXXXX.1.B.1.1.4	Real Estate	X	
5	L.XXXXX.1.B.1.1.5	Environmental Compliance	X	
4	L.XXXXX.1.B.1.2	<b>LICENSING &amp; PERMITTING (IP)</b>		
5	L.XXXXX.1.B.1.2.1	Licensing & Permitting - In house	X	
5	L.XXXXX.1.B.1.2.2	Licensing & Permitting - Outside Services	X	L&P Consultant
5	L.XXXXX.1.B.1.2.3	L&P Permits and Fees	X	Cost of permits
4	L.XXXXX.1.B.1.3	<b>PROCUREMENT (IP)</b>		
5	L.XXXXX.1.B.1.3.1	Land Acquisition	X	Land Purchases

<sup>33</sup> DR 64 Attachment 3.

<sup>34</sup> DR 64 Attachment 3.

Source: DR 64 Attachment 3.

- As shown in **Exhibit X-4** above, the following examples are project cost categories, not project “deliverables”. A project deliverable is the completion of a work product element. Cost categories are groups of costs charged to a project such as people, material or equipment. The following WBS items used by PSEG LI are not work products:
  - Project Management is a cost category.
  - Project Controls Analyst.
  - Civil Environmental.
  - Poles.
  - Civil Engineering.
  - Construction Supervision.
  - Outside Services.
  - Labor.
  - Material.
  - Salvage.

- NorthStar also reviewed a cross-section of capital projects in detail. The WBS that was used, tracked project cost categories.<sup>35</sup>
- PSEG LI still does not use a WBS as defined by the Project Management Institute.<sup>36</sup> Project work elements are not aligned with expenditures to complete and deliver a work product.<sup>37</sup> Effective capital project management requires a hierarchical WBS to organize project elements into logical bundles of sequential work that enable scheduling, resource loading, and objective progress measurement. Correct use of a WBS provides the basic framework to plan, execute, and manage a project. WBS coding permits precise identification of project elements to allow accurate project management, budgeting, communication, cost reporting, scheduling, and performance. Without a deliverable-oriented structure, PSEG LI cannot demonstrate the value of work performed, the number of units installed, or any other deliverable over a specified time period. PSEG LI cannot demonstrate progress until the entire project has been completed.<sup>38</sup>

**3. PSEG LI created a team of T&D estimators to develop estimates for planning, engineering and construction projects and to address estimating deficiencies identified in the prior audit.**

- Project estimators have procedures and software tools for developing capital project estimates.
- The project estimation group is part of the Project Management Office (PMO). As shown in **Exhibit X-5**, the Project Manager that leads the group reports to a Manager of Project Controls who reports to the Director of the PMO.

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<sup>35</sup> DR 340 Attachment 34, DR 341 Attachment 27, DR 342 Attachment 12, DR 343 Attachment 16, DR 344 Attachment 13, DR 345 Attachment 40, and DR 346 Attachment 12.

<sup>36</sup> A Guide to the Project Management Body of Knowledge, Project Management Institute, 7<sup>th</sup> Edition, 2021.

<sup>37</sup> IR 131 and DRs DR 340 Attachment 34, DR 341 Attachment 27, DR 342 Attachment 12, DR 343 Attachment 16, DR 344 Attachment 13, DR 345 Attachment 40, and DR 346 Attachment 12.

<sup>38</sup> Further discussion on WBS is provided in Chapter XI – Work Management.

## Exhibit X-5 PSEG LI Project Estimating Group



Source: DR 3.

- PSEG LI has a procedure related to project estimating (TD-ES-001-0001).<sup>39</sup> This procedure provides the steps and requirements for developing, reviewing, and approving estimates for the T&D capital projects to ensure that estimates submitted for review and approval meet the criteria to support investment decisions. The procedure defines four different estimate levels for capital projects to sequentially improve work definition and accuracy, shown in **Exhibit X-6** and described below:
  - Order of Magnitude: prepared at the initiation of a project and used to draft the capital budget plan for future years.
  - Conceptual: prepared upon completion of the preliminary engineering and used to update the capital budget plan and to request the funding for detailed engineering and procurement of long lead materials.
  - Design: prepared upon completion of the Detailed Engineering Design.
  - Definitive: based on construction contractor selection and a level of confidence in the other work categories. This estimate informs stakeholders of the estimated final project cost and that all necessary requirements (i.e., design, licensing & permitting and procurement) have been finalized. The final actual cost is compared to the Definitive Level estimate for the estimating accuracy metric.<sup>40</sup>

<sup>39</sup> DR 64 Attachment 3.

<sup>40</sup> DR 64 Attachment 3 and DR 590.

**Exhibit X-6**  
**Project Cost Estimate Reports by Project Phase**

Estimate Level	Applicable Project Phase
Order of Magnitude	Project Initiation
Conceptual*	Preliminary Engineering/Design
Design	Detailed Engineering/Design
Definitive	Pre-Construction

\*Not required for accelerated projects (i.e., conversion and reinforcement projects).

Source: DR 64 Attachment 3.

- The procedure states that not all projects will go through all levels of estimates. The procedure specifies that a Conceptual Level estimate is not applicable for accelerated projects – known as Conversion and Reinforcement (C&R) projects.
- PSEG LI utilizes three software tools/platforms in the development of project estimates.<sup>41</sup> A brief explanation of each is provided:
  - Estimating Tracker: The estimating process is initiated by an estimate request submitted through the Estimating Tracker. SharePoint is used by the PSEG LI estimating group to assign Estimate IDs for each estimate prepared and as a repository for all Project Cost Estimate Reports.
  - Sage Estimating and Eos High Voltage Knowledgebase: Sage Estimating and Eos High Voltage Knowledgebase are utilized to prepare estimates by PMO Estimating Group. Sage Estimating uses the data from the Eos High Voltage Knowledgebase to develop an estimate. PMO Estimating Group regularly updates the Eos High Voltage Knowledgebase with the most recent in-house labor rates, contractor rates and material pricing. The in-house labor rates are updated at the beginning of the year based on the SAP rates that are locked for the entire fiscal year. The material pricing and contractor rates are updated in the Eos High Voltage Knowledgebase at a minimum of once every year.
  - EOS Navigator: Eos Navigator is an estimate management system designed to work with Sage Estimating software. Eos Navigator is used to start a new estimate or make a copy of the existing estimate.<sup>42</sup>
- In addition to the software tools/platforms, other inputs to develop direct costs associated with estimates are sourced from informal conversations with various stakeholders, project documentation, historical costs of similar projects and actual project costs.<sup>43</sup>
- PSEG LI states that the inputs required to prepare an estimate are defined on a project-specific basis depending on the level of estimate, scope of the project, and other factors.

<sup>41</sup> DR 68, DR 581 and IR 89.

<sup>42</sup> DR 782.

<sup>43</sup> DR 580 and IR 89.



- Project estimates are organized using a PSEG LI WBS. After a project number has been provided by IDA, the project is set up in SAP with the WBS.
- Appendix 1 of Procedure TD-ES-001-0001 provides the “Recommended Estimate Level Check Lists” with deliverables, a brief description of deliverables and organizational groups/stakeholders responsible for providing inputs to support the project estimate.

**4. Capital project cost estimating uses Risk & Contingency as blanket percentage across cost categories, rather than an analysis of project risk based on complexity, asset type, or if it’s a transmission or distribution project.**

- PSEG LI cost estimates are comprised of three basic cost categories. These are direct, assessments, and risk and contingency costs.
  - PSEG LI develops direct costs for estimates through a combination of estimating software tools/platforms, as well as informal conversations with various stakeholders, a review of project documentation, analysis of historical costs of similar projects, and examination of actual project costs.<sup>44</sup>
  - PSEG LI states that assessment or “indirect” costs are mainly shared resources that are utilized across PSEG LI organizational activities. On a monthly basis, the costs that reside in each specific overhead cost pool within SAP are allocated to the O&M and/or Capital activities that utilize these shared resources.<sup>45</sup> Adding the direct and assessment costs results in a project’s “Base Cost”.<sup>46</sup>
  - PSEG LI defines risk as “Costs that can be identified but not exactly quantified (Known unknowns)”. Contingency is defined as “Costs that cannot be identified (Unknown unknowns)”. The company further states that funds for Risk & Contingency (R&C) evolve toward decreased risk and increased certainty as project development moves forward and further clarity is obtained for scope, schedule and constructability plan.<sup>47</sup> The sum of the “Base Cost” and R&C funds results in a project’s “Total Cost”.
- Assessment categories include costs associated with Facilities (labor/non-labor), Fleet (labor/non-labor), Warehouse/Materials (labor/non-labor), and capital and O&M overheads associated with T&D line of business (e.g., Supervisors, Support Labor, Tools & Equipment, etc.).<sup>48</sup>
- PSEG LI has revised how it applies R&C percentages to capital projects. Specifically, the method of applying a blanket percentage rate to all work categories was revised to apply standard percentages to specific WBS elements and implemented in January

<sup>44</sup> DR 580 and IR 89.

<sup>45</sup> DR 581 Attachment 1.

<sup>46</sup> Base Costs can include an “escalation” cost that is not defined in PSEG LI’s Cost Estimating procedure. Base Costs may also include Construction Contingency for outside contractors and in-house construction. For all project estimates developed after the Order of Magnitude – any prior actual costs are added to the Base Cost. For example, see DR 64 Attachment 3.

<sup>47</sup> DR 64 Attachment 3.

<sup>48</sup> For more information on Assessments, see Chapter IV – Budget and Financial Reporting.

2018.<sup>49</sup> In essence, PSEG LI’s cost estimates for all capital projects managed by Projects & Construction and the PMO (no matter the complexity, asset type, or if the project is for the transmission or distribution network) still use standard percentages for R&C. These percentages range by WBS element from 10 to 40 percent for an Order of Magnitude level estimate to five to 10 percent for a Definitive estimate. **Exhibit X-7** provides R&C percentage values assigned to capital projects at each estimate level and certain WBS element.

**Exhibit X-7  
Risk and Contingency Percentage Values by WBS Element**

WBS Element	Order of Magnitude (%)	Conceptual (%)	Design (%)	Definitive (%)
PM/Admin	10	10	5	5
Design & Engineering (IP/OP)	20	15	5	5
L&P (IP/OP)	30	20	10	10
Procurement (IP/OP)	40	20	10	5
Construction (IP/OP)	20	15	10	5
Assessments	40	30	10	5

DR 64 Attachment 3. There is a separate table of R&C values for Interconnection projects.

- PSEG LI scope documents include a section for “Potential Project Risks”.<sup>50</sup> The Potential Project Risks section in the scope document typically is a list that may include, but are not limited to:
  - Poor weather impact.
  - Sufficient qualified resource availability.
  - Permits obtained in timely manner.
  - Long lead time for equipment.
  - Public outreach.
  - Obtaining/missing clearances/outage windows for work.
  - Contracting delays.
  - Constraints on construction hours in the area.
  - Unknown structures below grade.
  
- The project risks listed in a scope document do not have the minimum, basic risk analysis in terms of potential project impact, probability of occurrence or estimate of financial exposure.
- PSEG LI’s use of standard percentages, as noted in **Exhibit X-7** in its cost estimate reports, encourages project managers/cost estimators to rely on R&C standardized percentage values rather than performing project-specific risk assessments. Project risks should be recorded and monitored in a risk register based on work and deliverables to be accomplished at each phase of the project life-cycle.
  
- NorthStar requested PSEG LI to explain the relationship between the use of R&C funds and a WBS. PSEG LI’s states that R&C is a percentage assigned at each estimate level

<sup>49</sup> DR 543.

<sup>50</sup> For examples, see DRs 340 Attachment 1, 341 Attachments 1 and 2, 342 Attachment 1, 343 Attachment 1, 344 Attachment 1.

(Order of Magnitude, Conceptual, Design and Definitive) to the Work Breakdown Elements for projects governed by P&C/PMO.<sup>51</sup>

- As discussed previously, PSEG LI does not use a deliverable-oriented WBS. It is a collection of cost categories. R&C funds are not estimated and assigned to risks associated with the completion of deliverables at each phase of the project life-cycle.
- R&C funds are not released based on the successful completion of established deliverables for each project phase.
- PSEG LI project reporting documentation to the URB does not consistently describe how R&C funds are used.

**5. PSEG LI capital project cost estimating has not improved. Similar to previous audit findings, PSEG LI continues to use Risk & Contingency to inflate the approved project budgets thereby limiting meaningful cost management.**

- R&C applied to Direct costs and Assessments is ultimately added to the base budget.<sup>52</sup> There is no itemized, transparent cost accounting of expenses recorded against R&C amounts that map to a specific project risk, WBS deliverable, and project phase. PSEG LI states that “there is no segment “risk & contingency” in the PSEG LI cost model.”<sup>53</sup>
- When a new or revised estimate is requested (e.g., moving from an Order of Magnitude estimate to Conceptual, or Design estimate to a Definitive), actual costs incurred to date show that increases to the base budget are already incurred without explanation as to the risk or contingency issue being addressed. R&C is applied again at the levels shown in **Exhibit X-7**. It is assumed that costs are managed until a project meets or exceeds its approved budget.
- PSEG LI policy on R&C is:

“If the R&C is intended to be used on a project, the project manager will request an estimate, where the R&C will be re-calculated in the estimate, moved to the base budget and then submitted to the URB for approval.”<sup>54</sup>
- PSEG LI projects do not have a “baseline” estimate from which cost performance can be evaluated and managed. The Definitive estimate is supposed to be the final estimate level report according to PSEG LI’s procedure TD-ES-001-0001. However, NorthStar’s review of project documentation suggests that Definitive estimates are frequently changed. Examples include the following:
  - Project remains at a Definitive Level estimate with an increase of \$0.235M to the base budget to remove the old switchgear that was replaced.<sup>55</sup>

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<sup>51</sup> DR 1291.

<sup>52</sup> DR 774, DR 340 Attachment 37, DR 341 Attachment 35, DR 342 Attachment 20, DR 343 Attachment 23, DR 344 Attachment 23, DR 345 Attachment 44, DR 346 Attachment 16.

<sup>53</sup> DR 774.

<sup>54</sup> DRs 543, 774 and 930.

<sup>55</sup> DR 340 Attachment 45.

- Project remains at a Definitive Estimate and has been re-estimated by PMO.<sup>56</sup>
- The project remains at a Definitive Level Estimate with an increase to the base budget of \$0.2M due to higher than estimated assessments associated with the phase shifter vendor field work. The Target Budget has changed from \$4.0M to \$4.2M.<sup>57</sup>
- Project remains at a Definitive Level Estimate with an increase to the base budget of \$0.067M. The increases are due to additional work identified by Overhead Lines associated with the 4kV to 13kV conversion switch over (\$46K) and higher than estimated project assessments.<sup>58</sup>

## 6. Reported cost estimating accuracy is misleading.

- PSEG LI’s cost estimate reports are comprised of three basic cost elements – Direct, Assessment, and R&C costs. Direct costs are the only costs that are estimated by PSEG LI’s PMO Estimating Group using different tools and methods. R&C and Assessment costs are based on percentage rates that do not require traditional estimating processes.
- R&C costs are calculated as a percentage of estimated direct costs associated with a specific WBS element as noted in PSEG LI’s Cost Estimating procedure and shown previously in **Exhibit X-7**. These percentage values evolve based on decreasing forecast risk and increasing certainty for each cost estimate report level.
- Capital programs and projects require support from various administrative functions and departments that may not be directly related to specific projects. PSEG LI uses the term “Assessments” to describe these indirect support costs and the process used to assign these costs. Assessment costs are charged to projects on a monthly basis within SAP through allocation formulas embedded in the system’s logic. Assessment cost categories such as labor/non-labor fleet, warehouse, facilities, etc. are selected by the PSEG LI cost estimator as appropriate for a project.<sup>59</sup> Assessments are included in a project estimate using a percentage rate.<sup>60</sup> Assessment costs may fluctuate based on the level of direct charge activity over the project life-cycle.<sup>61</sup> For example, the higher the level of monthly direct charges, the more assessment cost is allocated to that specific project. PSEG LI and LIPA had a limited understanding of the allocation methodology associated with assessment costs charged to capital projects to support audit inquiries. More specifically:
  - Once overhead costs are pooled, they are assigned to activities/projects based on logic and rates set in SAP.
  - The charging logic of overhead costs should be based on cost causation principles. Cost causation means that expenses should be borne by those activities which cause the utility to incur the expense.

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<sup>56</sup> DR 346 Attachment 21.

<sup>57</sup> DR 346 Attachment 30.

<sup>58</sup> DR 344 Attachment 25.

<sup>59</sup> DRs 592 Attachment 1 and 412 Attachment 1.

<sup>60</sup> DR 581.

<sup>61</sup> DR 583.

- NorthStar requested cost element detail for the assessment cost pools to understand what costs are included in the overhead assessment charges.<sup>62</sup>
  - The method used to report on assessment costs makes oversight difficult. Assessments are reported to LIPA at a VP (or business unit) level.<sup>63</sup>
  - The process of allocating assessments is not well defined and the split of assessments between capital and O&M is not monitored. PSEG LI indicated that it is difficult for the company to provide a report on the nature of the costs (rent, fleet, facilities, outside services, etc.).<sup>64</sup> Furthermore, PSEG LI suggested that more assessment dollars are charged to capital vs. O&M. PSEG LI stated that is because the capital projects incur a majority of the direct charges that are burdened with assessments (i.e., labor and outside services). Despite these narrative descriptions PSEG LI was unable to provide data to demonstrate that higher assessments charged to capital projects is appropriate. PSEG LI allocates substantially more to capital activities than O&M activities despite the direct spending between capital and O&M being roughly equal over recent years.<sup>65</sup> The assessment process results in substantial costs added to capital projects, with little insight as to the nature of those costs, and how these indirect assessments support the capital projects.
- Therefore, it is unclear how LIPA can effectively oversee the assessment process and costs charged to the capital program without knowledge of the underlying expense detail that makes up the assessment pools.
  - **Exhibit X-8** provides the estimates for Direct, Assessment and R&C costs of selected projects reviewed by NorthStar. The Assessment and R&C costs recorded in cost estimates comprise significant percentage of the total a project’s estimated cost.

**Exhibit X-8.**  
**Comparison of Estimated Direct Cost with Assessments**  
**and Risk & Contingency (\$MM).**

Cost Category	SOS project ID						
	1917	1122	1484	1808	1949	2004	1209
Estimated Direct Cost Amount	2.2	40.8	3.0	3.0	0.5	1.2	2.9
Assessment and R&C Amount	1.2	22.8	1.9	2.1	0.3	0.6	1.2
Total Estimated Cost Amount	\$3.4	\$63.6	\$4.9	\$5.1	\$0.8	\$1.8	\$4.1
Assessment and R&C as a % of Direct Cost	52%	56%	63%	68%	60%	54%	40%

Source: DRs 340 to 346 and DRs 774 and 775, NorthStar analysis. % may not calculate exactly due to rounding.

- More importantly, gradual R&C percentage reduction over succeeding project estimates that allow cost increases as a norm, combined with Assessment charges that

<sup>62</sup> DRs 742 and 743.

<sup>63</sup> DR 743.

<sup>64</sup> For more information, see Chapter IV – Budget and Financial Reporting.

<sup>65</sup> Further information is provided in Chapter IV – Budget and Financial Reporting

inflate the project’s initial approved budget beyond twice its estimated direct cost make meaningful cost management superficial.

- LIPA instituted T&D-36 “Construction Cost Estimating Accuracy” metric that is reported based on the month when a capital project is closed-out. Cost estimating accuracy (as a percentage) is measured by the absolute variance percentage of each project’s actual closed-out cost versus the Definitive Level estimate’s “Base Cost” (i.e., direct costs/risk & contingency spent/assessments/escalation) as approved by the URB.
- PSEG LI’s T&D-36 “Construction – Cost Estimating Accuracy” performance metric target was to achieve an 85.0 percent cost estimating accuracy for construction projects in CY 2022. PSEG LI reported a CY 2022 cost estimating accuracy of 90.7 percent.<sup>66</sup>
- PSEG LI cost estimating methodology does not allow T&D-36 to demonstrate accuracy in construction cost estimating.
  - All T&D project estimates are comprised of Direct, Assessment, and R&C costs. NorthStar found that of the three cost categories included in an estimate, a capital project’s Direct cost is the only element that is not “pre-determined”. Since Direct costs are based on standard percentages, the process of estimating Direct costs requires some level of investigation, analysis, and determination of reasonableness from PSEG LI’s PMO Estimating Group.
  - PSEG LI uses R&C as an inflation factor that is added to the Base Cost actuals when each new cost estimate is developed. PSEG LI does not have a method of tracking R&C separately in its cost model.<sup>67</sup> The practice of transferring R&C to the Base Cost distorts estimating accuracy.
  - An input used for calculating the T&D-36 metric is based on the last Definitive estimate
    - PSEG LI’s estimating accuracy report compares a project’s last Definitive estimated costs to a project’s final, actual costs. In other words, a comparison of all of a project’s Direct, Assessment, and R&C estimated costs versus all of a project’s Direct and Assessment final, actual costs.<sup>68</sup> Estimating accuracy should be based solely on costs that are traditionally estimated (i.e., Direct costs), not on the Assessments and R&C costs that are based on pre-determined percentage rates.
- Accurate and reasonable project estimates are critical to:
  - The objective review of alternative solutions to meet customer needs.
  - A robust project prioritization/optimization process that results in the greatest value of projects from the SOS platform,
  - A true cost comparison of non-wires alternatives (NWAs) versus traditional wires-based project solutions.

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<sup>66</sup> See Year-End Report on PSEG Long Island’s 2022 Performance Metrics, May 15, 2023.

<sup>67</sup> DR 774.

<sup>68</sup> R&C costs have been added to the Base Cost (i.e., Direct and Assessment costs) by the end of the project.

- Effective management oversight and control over capital programs and projects.
- All of these activities rely upon accurate and reasonable project estimates.

**7. Project estimates using Compatible Units are not accurate or useful. PSEG LI’s compatible unit library has not been updated by time studies.**

- A Compatible Unit (CU) is a template used by utility companies to estimate a project such as line construction, pole replacement, meter installation, etc. The structure of a CU is largely comprised of labor (using standard time that is measured in man-hours) and materials.
- The key component in the calculation is labor as that can be the most variable and is critical to both the work management and project estimates.
- PSEG LI’s use of CUs for estimating are not accurate or useful.<sup>69</sup>
  - The PSEG LI CU library provided to NorthStar only contained hours.<sup>70</sup>
  - PSEG LI does not perform a quarterly review of frequently used CUs as stated in its own documentation.<sup>71</sup>
  - No time studies were conducted for the 2022 CU library review.<sup>72</sup>
  - PSEG LI states that the 2022 review of the entire CU library was conducted to ensure the hours were accurately updated to reflect current work methods and standards used today.<sup>73</sup> PSEG LI’s method of review consisted of achieving “consensus” among CU Committee members is thereby subjective by its nature and not based on any supporting data or facts.
- An accurate CU library is critical to project estimating, that is, the calculation of the cost of work, determination of labor needs and costs, identification and cost estimation of the required bill of materials. Furthermore, an accurate and up to date CU library allows for the:
  - Enforcement of construction and maintenance standards
  - Crew scheduling
  - Material management
  - Efficient execution of work
  - Ability to analyze and correct issues and identify leading practices

**8. PSEG LI does not follow its own procedure for developing project life cycle cost estimates.**

- PSEG LI’s estimating procedure states that through the project life cycle, estimates will be created based on the current phase of the project. PSEG LI has a checklist or “stage

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<sup>69</sup> For more information see Chapter XI – Work Management.

<sup>70</sup> DR 1055 Attachment 1.

<sup>71</sup> DRs 1055 Attachment 2 and 996.

<sup>72</sup> DRs 1187, 1188, and 1189.

<sup>73</sup> DRs 771, 1187, and 1121.



gate” of recommended deliverables for each level of estimate. As these are recommended deliverables, not every estimate will contain each deliverable. The procedure further states that not all projects will go through every estimate level.<sup>74</sup> As stated earlier, a Conceptual Level estimate is not applicable for accelerated projects – C&R projects.<sup>75</sup>

- PSEG LI has a process to review project documents that results in a “Final Document Management Scorecard” however, this process occurs at the end of the project.<sup>76</sup>
- NorthStar reviewed PSEG LI’s completed and current, active projects and found there is no consistency for developing a project cost estimate. **Exhibit X-9** shows that for 78 projects with In-Service Dates (ISDs) from June 2017 to December 2022, PSEG LI does not develop a cost estimate for each project through each project life-cycle phase. For the 78 capital projects reviewed, only 49 percent had an “order of magnitude” cost estimate, few projects received a conceptual estimate, while 92 percent had a “definitive” cost estimate.

**Exhibit X-9.**  
**Estimates Completed for Projects with ISDs from June 2017 to December 2022 (n=78)**

Order of Magnitude	Conceptual	Design	Definitive
49%	29%	48%	92%

Source: DR 70 and 71

- The population of capital projects described as C&R with ISDs from June 2017 to December 2022 was 11. Contrary to the stated procedure, four C&R projects had a Conceptual estimate completed. Conceptual estimates were not developed for over 45 non-C&R capital projects.

**9. PSEG LI’s approach to schedule management lacks effectiveness as a project control tool.**

- PSEG LI’s project schedules do not include a critical path of activities that must be completed in order to achieve the project’s objectives.<sup>77</sup> A project’s critical path is the longest sequence of activities that determines the duration of a project and identifies flexibility (or “float”) for the completion of work.<sup>78</sup> Project schedules that lack critical path identification can result in project risks such as delays, resource constraints, and potential project timeline overruns resulting in increased costs and decreased project efficiency. In fact, the prior version of the Project Schedule Procedure (TD-PM-001-

<sup>74</sup> DR 64 Attachment 3.

<sup>75</sup> DR 64 Attachment 3.

<sup>76</sup> DRs 340-346.

<sup>77</sup> For example, see DR 340 Attachment 19, DR 341 Attachment 22 or DR 345 Attachment 10.

<sup>78</sup> A Guide to the Project Management Body of Knowledge (PMBOK), Project Management Institute, 7<sup>th</sup> Edition, 2021.

0002) included a Critical Path Gantt Chart as part of schedule reporting, however, this document does not exist in the current procedure.<sup>79</sup>

- PSEG LI does not use a WBS to support project schedule development. Certain project schedules were found to include hours, but did not include costs or WBS deliverables. Without linking WBS deliverables, project costs, and schedule, PSEG LI cannot estimate a project's completion costs based on the percentage of work completed.<sup>80</sup> PSEG LI calculates estimates to complete costs based on a year-to-date actual cost compared to PYE cost.<sup>81</sup>
- Project schedules are not being used to manage risk and contingency on capital projects. R&C is “absorbed” into the base budget when a new cost estimate report is requested, not released based on project deliverables.<sup>82</sup>
- PSEG LI reports progress through the achievement of Key Milestones (KMS) rather than a deliverable asset.
  - LIPA has instituted the T&D-35 Construction – “Project Milestones Achieved” metric. The metric is calculated by dividing KMS Met by KMS Planned. The 2022 OSA target for PSEG LI is 85 percent.
  - There are approximately 20 KMSs distributed across the six project phases (planning, design & engineering, licensing/permitting, procurement, construction, and close-out) that utilized project schedules for monitoring and control.<sup>83</sup>
  - KMSs are identified and defined to measure actual progress against the forecasted plan to meet project deliverables.
  - KMSs do not incorporate time-oriented “start” along with “end” dates, which makes them unsuitable for tracking and improving project progress. For example:
    - KMS 32 Start Construction – there is no KMS for “End Construction”.
    - On its own, “starting” an activity does not demonstrate progress.
    - KMS 5 Pre-Construction Public Outreach Complete – No KMS for “Construction Public Outreach Started”.
    - KMS 7 Design Level Estimate – There is no start or end for this KMS.
- The current Project Schedule Procedure does not require any analytical work product to support a KMS Change Request, rather, the only requirement is to submit a request prior to the 30-day deadline.
  - A schedule baseline is the approved and planned schedule for a project, which is established after obtaining approval from relevant stakeholders. It is the output of the schedule development process and becomes a component of the project

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<sup>79</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018, See DR 1 (DR 81 Attachment 3).

<sup>80</sup> DRs 340 to 346. See WBS and project schedule attachments.

<sup>81</sup> DRs 340 to 346. See Capital Project Status reports.

<sup>82</sup> DRs 543, 774 and 930.

<sup>83</sup> DR 544 Attachment 1.

management plan.<sup>84</sup> Together the schedule, scope and cost baselines form the measures of project performance.

- When a project's schedule is expected to deviate from the approved baseline and there is no mitigation/recovery to keep schedule on track, the Project Manager can initiate a KMS Change Request. A KMS Change Request must be submitted at least thirty (30) days prior to KMS Due Date. After approval of KMS change forms, the schedule is re-baselined.
  - KMS Change Requests are submitted without analytical support underlying the requestor's justification.<sup>85</sup> Specifically, KMS change requests are not supported by a schedule impact assessment, risk review, as well as any analyses with regard to resources, costs or stakeholders involved in the project. These types of analyses provide management and stakeholders with the appropriate information that changes are properly evaluated and considered before being incorporated into the updated project schedule.
  - The T&D-35 metric is assigned an OSA incentive of \$210,254 for attaining the 85 percent threshold for KMSs met.
  - Project managers are incented to prioritize the 30-day deadline, rather than adhere to a tightly managed change control process of a project's baseline schedule focused on improved schedule management. The absence of any thorough analysis and review for schedule changes, inhibits the overall effectiveness of the change control process and the ability to manage the project schedule effectively.
  - The Project Schedule Procedure does not identify who is responsible for or the criteria used in approving KMS Change Requests.
- The Project Schedule Procedure states that the project schedule will be structured according to the minimum required functional areas and project phases for project management and control purposes. Project schedules are structured on six phases as noted earlier. The phases do not conform with the five phases noted in the Project Management Playbook Procedure (TD-PM-001-0003).<sup>86</sup>

## **10. PSEG LI continues to focus on controlling spending within budget levels rather than project management performance.**

- PSEG LI focuses on budget to actual expenditures and not as much on the specific performance of individual programs and projects. The following provides a list of relevant reports and brief descriptions.
  - Finance Reports for Capital Projects: Cost reports for T&D specific capital projects are produced monthly and record prior annual actual expenditures along with current year monthly expenditures. Year-end projected expenditures versus budget amounts are highlighted. The focus is on controlling spending.<sup>87</sup>

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<sup>84</sup> A Guide to the Project Management Body of Knowledge (PMBOK), Project Management Institute, 7<sup>th</sup> Edition, 2021.

<sup>85</sup> DR 64 Attachment 5.

<sup>86</sup> DR 64 Attachment 5 and DR 64 Attachment 6.

<sup>87</sup> DR 73.

- Monthly Portfolio Review: Project Managers present their respective portfolio, consisting of specifics, programs, and blankets. The topics covered at these presentations include the forecasted yearly spend amount which is reviewed against the LIPA and URB budgets. A high-level breakdown of spend focuses on the total value of the remaining funds in PSEG LI's WBS categories.<sup>88</sup>
- Monthly Challenge Sessions: PSEG LI's description of project performance monitoring occurs in monthly challenge sessions where projects are reviewed and analyzed. Forecast and actual amounts are reviewed for any variances to planned cost and work scheduled. Project management teams provide explanations for any cost variance between Projected Year End (PYE) versus LIPA budget and monthly cost variances +/- \$100k by project. During the Monthly Challenge sessions PYEs versus URB budgets are also reviewed. Any project that is forecasted to spend beyond its current URB funding is required to get approval from the URB with subsequent approval from LIPA.
- PSEG LI's explanations for capital budget variances don't lend themselves to developing strategies for improvement or actions to mitigate variances. The following are verbatim example variance explanations from a report:
  - The overrun is due to purchase of additional units that were not included in LIPA budget. Going to URB in October.
  - The underrun is due to resource constraints resulting in work being shifted to 2023.
  - The variance underrun is due to shift in budget from 2022 to 2023 due to design scope change. The in-service date has changed from June 2022 to June 2023.
  - The variance overrun is the result of a change in schedule of another project.
  - The overrun is due to Scope shift from prior year into current year (2021-2022) due to permits delays from Village of Garden City, Nassau County & LIRR.<sup>89</sup>
- Project Status Reports: the purpose of a project status report is to provide timely and accurate information about the current status of a project to stakeholders and other relevant parties. PSEG LI Project Status Reports don't have a consistent format and, in many cases, provide conflicting information.
  - Project Status Reports for the same capital project do not have the same format. One report has cash flow and variance information and the other does not.<sup>90</sup>
  - Project Status Reports include information regarding funding level for the LIPA BOT and a separate and different funding level for URB budget. PSEG LI states that the alignment of URB approval amounts, BOT approval amounts and project estimate acceptance can differ based on the timing and requirement for each approval. NorthStar review of project status reports notes that the LIPA

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<sup>88</sup> DR 540.

<sup>89</sup> DR 540 Attachment 1.

<sup>90</sup> DR 340 Attachments 30 and 31.

- BOT and URB funding amounts never align across the project life-cycle.<sup>91</sup> It is unclear what the purpose of listing LIPA BOT funding in the report.
- Project Status Reports contain missed KMSs and activities that are rated as “Critical/At Risk” yet the project status remained at “On Schedule”.<sup>92</sup>
  - There is no discussion of project risks.
- The PSEG LI project managers track and report project milestones achieved and missed in T&D-35 “Project Milestones Achieved”. The Project Controls group tracks and reports project spend amounts against forecast. Project milestones may be achieved but have no direct relationship to earned value for the dollars spent.
    - PSEG LI stated that projects are not required to report a numerical percent complete and therefore no formal calculation has been established. Projects are baselined, milestones are developed, and tracked on a monthly basis by Project Managers to validate that the projects are on target and/or require attention. This review includes budget versus cost analysis that assesses forecast accuracy and the estimate to complete.<sup>93</sup>
    - PSEG LI stated that no formal calculation has been established for “percent complete”, however the Project Cost Management procedure (TD-PM-001-0007) references percent complete for projects in both its Construction Management Monthly Forecast Report (Attachment 3) and Construction Management Monthly Accruals report (Attachment 4).<sup>94</sup>
    - It is unclear how PSEG LI determines project performance or earned value for expenditures.
  - NorthStar requested list of project managers in T&D line of business involved in delivery of capital projects and dates of project management certifications. PSEG LI provided a list of 13 employees with titles ranging from Associate Project Manager, Project Manager, Principal Project Manager, and Senior Project Manager in Construction Operations. Only 4 of the 13 project management resources (or 30 percent) are PMI certified Project Management Professionals (PMP).<sup>95</sup> This further demonstrates PSEG LI’s view of professionalism and professional development.<sup>96</sup>

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<sup>91</sup> DR 69 Attachments 1 and 2, DR 340 Attachments 30-32, DR 341 Attachments 52-66, DR 342 Attachments 26-28, DR 343 Attachments 27-33, DR 344 Attachments 27-30, DR 345 Attachments 36-38, DR 346 Attachments 9-11.

<sup>92</sup> DR 341 Attachments 53, 56-58, 60-61, DR 342 Attachment 28, DR 343 Attachments 28-30.

<sup>93</sup> DR 476.

<sup>94</sup> DR 476 and DR 64 Attachment 9.

<sup>95</sup> DR 778. Project Management Institute’s Project Management Professional certification is a globally acclaimed, industry-recognized program. The PMP certification program was created to ensure that project managers possess the industry standards for accepted project management skills and procedures. Participating in a certification program and associated continuing education demonstrates a level of professionalism that impacts project performance.

<sup>96</sup> Also see Chapter III – Governance.

**11. PSEG LI does not have control procedures in place for work directives (i.e., change orders) for capital projects. PSEG LI does not have the ability to easily generate reports for costs associated with work directives.**

- NorthStar requested change orders, known as “work directives”, for selected projects.<sup>97</sup> NorthStar found that PSEG LI does not manage the change order process. A number of work directives lacked:
  - Meaningful or analytical justification.
  - Appropriate approvals authorizing work and expenditures.
  - Documentation of cost or resource estimates.
  - Proper control, oversight and management with creation dates on the same day as or even days after the work was completed. In one case, a work directive listed work to be completed in the future.
  - NorthStar found work directives were created and approved on the same day (on weekends) as the work was assigned.
    - One instance of a work directive created on June 16, 2021 for work performed retroactively on May 22, 24, 25, 27, 28, 30, June 3, June 7, and approved prospectively on July 28, 2021.
    - In another instance, NorthStar found a work directive created on November 2, 2019 that listed future work directives that were supposedly completed on November 13, 2019 (for work performed on November 9) and November 16, 2019.
- PSEG LI states that the Work Directive process changed in 2022 to address the lack of supporting documentation and other deficiencies noted previously.<sup>98</sup> NorthStar requested list of projects with work directives to test the purportedly revised process. PSEG LI could not produce a list of projects with cost information on work directives due to the level of effort required in providing the information requested.<sup>99</sup> PSEG LI took 27 calendar days to respond to NorthStar’s request for information on Work Directives, information that should be readily accessible in a functioning Work Directive process.

**12. Similar to NorthStar’s prior audit, PSEG LI does not create quality management plans for capital projects. Furthermore, PSEG LI’s QA/QC procedures, audits, and activities focus on the process, not on the quality of the project work being performed.**

- PSEG LI’s Program and Project Management Playbook does not require the development of QA/QC plans by project managers for capital projects.<sup>100</sup> NorthStar reviewed the procedure and the only reference to QA/QC related to Key Control audits

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<sup>97</sup> DR 779.

<sup>98</sup> DR 870 and 1294.

<sup>99</sup> DR 1294.

<sup>100</sup> DR 64 Attachment 6.

that are performed during project close out phase. There is no mention in the procedure of Quality Management or developing a project quality plan.

- The Project Management Body of Knowledge (PMBOK) defines a Quality Management Plan as a component of the project or program management plan that describes how applicable policies, procedures, and guidelines will be implemented to achieve quality objectives.<sup>101</sup>
- PSEG LI did not develop any QA/QC plans for any projects during 2022.<sup>102</sup> NorthStar requested a comprehensive list of work products developed by the Projects & Construction group. The response did not include QA/QC plans.
- PSEG LI procedures state that Contractor Evaluation Forms are to be completed by the Construction Supervisor and approved by the Superintendent.<sup>103</sup> NorthStar reviewed Contractor Evaluation Forms for selected projects and found the following issues.<sup>104</sup>
  - Evaluations that varied in sufficient or meaningful information to describe why a contractor performed or did not perform tasks according to scope and contract requirements.
  - Lack of approvals and evidence of review by the Work Coordinator.
  - Evaluation comments were not oriented toward improving work execution and, in certain cases, evaluation scores do not reconcile with evaluator’s verbatim comments.

“This [entity] was lackluster with performing the clearing and grading of the work. This [entity] was incredible with water/sewer main relocation but mediocre in terms of UG Distribution manhole setting.” Score “4” out of 5.

“This [score] reflects [entity’s] inability to keep up with the SWPPP some points over the course of the large-scale project. This is a large-scale project and their team can be better equipped to deal with large-scale SWPPP requirements. It is not uncommon for [entity] to have laborers on site, but unable to perform SWPPP repairs due to actual civil work.” Score “4” out of 5.
  - Evaluation Forms were dated without any indication of when the work was completed.
- PSEG LI QA/QC activities were performed at the project close which prevents any corrective action as the contractor work is complete.

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<sup>101</sup> A Guide to the Project Management Body of Knowledge (PMBOK), Project Management Institute, 7<sup>th</sup> Edition, 2021.

<sup>102</sup> DR 961.

<sup>103</sup> DR 63 Attachment 2.

<sup>104</sup> DR 960.



- PSEG LI's Program and Project Management Playbook states that audits of compliance to applicable Key Controls are completed during the project close-out phase and references the QA/QC Procedure TD-PM-001-0008.
- PSEG LI also references the TD-39 Metric - Project Completion Consistent with Project Design that is performed to confirm construction is completed for Capital projects in accordance with the design reviewed and authorized under SEQR.<sup>105</sup>
- There are audits conducted on capital projects in accordance with the Playbook and the QA/QC Procedure. These audits are the Key Control Scorecard and the Document Management Scorecard.
- PSEG LI's QA/QC Procedure identifies the following individuals as responsible for performing the indicated QA/QC tasks:
  - Supervisor of PMO - QA/QC Program Lead
    - Develop, or review and approve an audit methodology
    - Communicate the requirements of this procedure to the affected individuals.
    - Review all audit finding summaries and address any action items and recommendations as applicable.
  - QA/QC Analyst
    - Conduct audits of P&C/PMO managed projects in order to measure compliance with applicable procedures, processes, and Key Controls as defined in this procedure.
    - Analyze the audit data and provide a summary of findings to the appropriate stakeholders and P&C/PMO Leadership.
    - Review the relevant procedures to identify gaps and inconsistencies in procedures and key controls and recommend changes.<sup>106</sup>
  - The Supervisor of PMO, the QA/QC Program Lead and QA/QC Analyst positions could not be found in PSEG LI's organization chart.<sup>107</sup>
- NorthStar reviewed Key Control audits for selected projects and found the following issues.
  - For the Ronkonkoma Switchgear project, audits identified missing documents and non-compliance with Asset Reporting.<sup>108</sup> Oddly, the Key Control audit indicates compliance with CWIP reporting, yet PSEG LI did not provide evidence to support this compliance. Rather, PSEG LI stated that the project did not have a CWIP balance.<sup>109</sup>

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<sup>105</sup> DR 961.

<sup>106</sup> DR 64 Attachment 10.

<sup>107</sup> DR 3.

<sup>108</sup> DR 340 Attachments 52 and 53.

<sup>109</sup> DR 873.

- The Lindbergh (Nassau Hub) project, audits identified missing Recommendation to Award documents and had issues with Asset Reporting and Environmental Permitting.<sup>110</sup>
  - The Woodmere Replace 69kV Control House project, no audits were provided in the response.<sup>111</sup> PSEG LI stated that no audit was conducted since this project was completed prior to the creation of the QA/QC Procedure on 12/31/18 which detailed the audit requirements.<sup>112</sup>
  - The 7J Sterling New Feeder project, there was no Contractor Requisition document and no values shown for Asset Reporting.<sup>113</sup> PSEG LI stated that this project was an Outside-Plant Distribution project and Asset Reporting compliance rating was not applicable. Assets for these types of projects are captured directly in SAP and/or on an Asset In-Service Form.<sup>114</sup> However, QA/QC procedures do not provide exceptions to audit requirements.<sup>115</sup>
  - On the Kings Point Conversion project, there were no approvals on Project Signature documents and no values shown for Asset Reporting.<sup>116</sup> PSEG LI stated that this project was an Outside-Plant Distribution project and Asset Reporting compliance rating was not applicable. Assets for these types of projects are captured directly in SAP and/or on an Asset In-Service Form. However, QA/QC procedures do not provide exceptions to audit requirements.
  - The MTA Beach 105th St Relocation project, audits identified missing documents and non-compliance with Asset Reporting.<sup>117</sup>
  - The Valley Stream Phase Angle Regulator project, there were no audits provided.<sup>118</sup> PSEG LI stated that no audit was conducted since this project was completed prior to the creation of the QA/QC procedure established on 12/31/18 which details the audit requirements.<sup>119</sup>
- NorthStar requested a comprehensive list of work products developed by the PMO. The list provided did not include any reference to audits as described in the QA/QC Procedure.<sup>120</sup>
  - PSEG LI's QA/QC procedures, audits, and activities focus on process, not on the quality of the project work being performed.
  - NorthStar requested information regarding QA/QC reflected in engineering work products.<sup>121</sup> PSEG LI provided no quality control processes. PSEG LI stated that QA/QC analyses of engineering work are part of the capital program. As stated earlier,

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<sup>110</sup> DR 341 Attachments 67 and 68.

<sup>111</sup> DR 342.

<sup>112</sup> DR 873.

<sup>113</sup> DR 343 Attachments 34 and 35.

<sup>114</sup> DR 874.

<sup>115</sup> DR 64 Attachment 10.

<sup>116</sup> DR 344 Attachment 31 and 32.

<sup>117</sup> DR 345 Attachments 51 and 52.

<sup>118</sup> DR 346.

<sup>119</sup> DR 873.

<sup>120</sup> DR 933 Attachment 1.

<sup>121</sup> Also see Chapter IX – Outside Services.

QA/QC in capital project procedures are minimal. PSEG LI provides evidence of QA/QC as:

- Soliciting feedback/critique from stakeholders on one-line diagrams.
  - Field Constructability meetings to capture considerations in the final design.
  - Construction meetings where engineering is present to solicit feedback or air concerns.
  - Construction standards are updated based on feedback from construction groups, material upgrades from manufacturers or code revisions that trigger changes in standards.<sup>122</sup>
- Meetings, critiques and feedback sessions do not demonstrate adequate or credible QA/QC processes.

**13. PSEG LI's procedures address many components of capital project delivery, however these documents are dissimilar, often lack recognition of related procedures, written at a high level and provide conflicting information.**

- Certain project management procedures lack a sufficiently clear purpose, some procedures do not have a purpose statement at all. Typical purpose statements are:
  - This document establishes the process by which invoices are managed throughout the lifecycle of a project.
  - This procedure defines how project funding is obtained and managed throughout the lifecycle of a project.
  - This procedure defines the methodology used to create and update project schedules.
  - To document the QA/QC plan established and maintained by P&C/PMO to help ensure quality standards across all projects managed by P&C/PMO.
  - This procedure defines how single and multi-year project costs are managed during the lifecycle of a project.<sup>123</sup>
- The examples above do not identify the necessity of the procedure, or the risk of not following the procedure in terms of what is to be prevented or controlled. The purpose of these procedures is to manage and control project costs, and schedule, and in an effective, professional manner to maximize value for customers.
- PSEG LI's Project Management Playbook defines a project as having five phases, while the Project Schedule procedure identifies six project phases.
- The Project Authorization Procedure specifies the PJD as a "required or generated" document. While listed as "required or generated" in the Project Authorization Procedure, the PJD is not mentioned in any of the steps for preparing URB documentation for initial funding or budget change requests.<sup>124</sup> Additionally, PJDs

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<sup>122</sup> DR 953.

<sup>123</sup> DR 64.

<sup>124</sup> DR 64 Attachment 4 and DR 376 Attachment 1.

were not noted as required submission for the URB review. PJDs are required for LIPA review during the annual budget process.

- The PSEG LI Project Cost Management procedure states that if a project’s year-to-date (YTD) spend is within 70 percent of the approved URB funding, it should be determined whether additional funding is required to meet the projected-year-end (PYE) spend. A PCR or URB document should be prepared if required. (Refer to Project Authorization Procedure TD-PM-001-0001). There is no mention of a 70 percent threshold in the Project Authorization procedure.
- The PSEG LI Invoice Management procedure provides a check point to verify that the quality of services reported on the invoice meets the requisite workmanship, condition, and other quality standards specified in a contract. The quality should be verified using methods and sources such as routine field surveillance and inspection and the review of daily logs, vendor and project quality reports, and other records used to track and confirm the quality of delivered and installed materials and installation workmanship. The PSEG LI QA/QC procedure does not mention any of these activities.
- The Invoice Management Procedure references the PSEG LI delegation of authority (DOA) – management levels of approval authority based on dollar limits.
- QA/QC Procedure mentions an audit of a project’s documentation using the Document Management Scorecard. This type of audit is not mentioned in the Document Management Procedure (TD-PM-001-0005), nor is the QA/QC Procedure referenced in the Document Management Procedure.

**14. PSEG LI’s capital project governance committees’ charters/written descriptions of responsibilities, oversight, sanctioning and control of capital projects differ in company procedures as well as what actually occurs in meetings. PSEG LI did not audit URB management processes and controls annually as recommended in 2018 management audit.**

- The Project Council charter does not provide guidance as to its role in project authorization process and it has not been updated since February 2018. PSEG LI states that the purpose of the Project Council is to:

“develop an open environment to introduce, screen, and gain consensus for all proposed new capital construction projects. In addition, it will provide a forum to address in-flight projects with issues that jeopardize meeting required in-service dates by developing proactive strategies to achieve desired outcomes. Consequences of missing required in-service dates, including feasibility of alternate contingency plans, will also be discussed.”<sup>125</sup>

- The Council’s Charter states it will gain “consensus” on proposed projects.<sup>126</sup> However, the Charter does not describe how this actually occurs, nor does the

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<sup>125</sup> DR 376 Attachment 3.

<sup>126</sup> Also see DR 57 Attachment 1. Describes PC to provide project acceptance.

Charter clarify what the consensus is for. The URB is not mentioned in the Charter, nor is the role of the Project Council mentioned in PSEG LI's Project Authorization Procedure (TD-PM-001-0001).

- The Charter does not outline clearly defined work products outside of opaque references to “strategy development” to achieve desired outcomes or performing “feasibility analysis” of alternate contingency plans for missed ISDs.
  - Roles and responsibilities of Co-Chairs is limited to the most basic elements such as scheduling meetings and resolving conflicts. Team member/Presenter responsibilities are rudimentary in nature - be clear, concise and cover all relevant topics/issues.<sup>127</sup>
  - The Co-Chair is the Director of Planning, Resource and Engineering, a position that does not currently exist at PSEG LI.<sup>128</sup>
- Project Council's Charter does not align to what actually occurs in meetings. Project Council meetings are largely updates to projects and its activities do not conform to the primary purpose of the Council, to gain consensus for all proposed capital projects and mitigate risk of missed ISDs. NorthStar observed two Project Council meetings on March 22, 2023 and April 5, 2023. No consensus vote was taken to advance any projects to the URB. The presentations provided by project sponsors at the Council appeared to be only a formality, and presenting at the URB was a foregone conclusion. One project sponsor stated that they were going to the URB meeting the next day to seek authorization.
  - The Transmission and Distribution Planning Coordinating Council (TDPCC) does not have a formal charter and its meetings are informational in nature.
    - TDPCC does not have a formal charter. PSEG LI provided a “description” of the committee.<sup>129</sup>
      - PSEG LI states the purpose of the TDPCC is to discuss studies and projects proposed on the LIPA T&D system. The primary purpose and objective of the meeting is to present and discuss proposed projects and studies with LIPA management in an open forum to encourage discussion and gain consensus between PSEG LI and LIPA on the direction and results of proposed projects and studies. Other relevant planning initiatives are also discussed, as needed.<sup>130</sup>
    - No discussion of how “consensus” is achieved on studies or projects to be recommended to the capital plan.<sup>131</sup>
    - The only work product described by PSEG LI are the meeting minutes.
    - It is unclear what the distinction is between the Project Council and TDPCC other than LIPA representation at meetings. PSEG LI states that project sponsors must

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<sup>127</sup> DR 376 Attachment 3.

<sup>128</sup> DR 3.

<sup>129</sup> DR 376 Attachment 5.

<sup>130</sup> DR 376 Attachment 5.

<sup>131</sup> DR 57 Attachment 1 – TDPCC is to make a decision on project acceptance.

present to either the Project Council and/or TDPCC but its unclear what the role of the TDPCC is or what action is expected.<sup>132</sup>

- The TDPCC description does not identify a meeting chair/facilitator, nor does it provide roles and responsibilities of the membership.
- NorthStar also observed TDPCC meetings on March 29, 2023 and April 12, 2023. Similar to the Project Council meeting, the TDPCC meeting was informational in nature. Most of the meeting time was devoted to PPTN and Interconnection updates. No clear TDPCC actions or resulting work products were noted during the meetings. It is unclear how any TDPCC outcomes could provide valued input to the URB.
- PSEG LI’s own documentation and audit responses regarding the URB lack pertinent details and includes conflicting information.
  - PSEG LI has not defined the purpose of the URB or the roles and responsibilities of the URB membership in the URB Charter.
    - The Charter lacks a sufficiently clear purpose of the URB.
    - The URB Charter identifies the membership, but does not define the roles and responsibilities for any of the members.<sup>133</sup>
  - Documentation requirements for URB project authorization often conflict between the URB Charter and T&D procedures.
    - PSEG LI states that all recommended capital construction projects are submitted for consideration for funding by way of a Project Justification Document (PJD).<sup>134</sup>
    - The PJD is a document that is not mentioned in the Charter.
    - The Project Authorization Procedure notes the PJD as a “required” document. While listed as “required” in the Project Authorization Procedure, the PJD is not mentioned in any of the steps used for preparing URB documentation for initial funding or budget change requests.
    - NorthStar’s review of URB meeting minutes did not find any PJDs being presented to the URB. URB project sanctioning uses the URB template.
  - The URB’s sanctioning authority to fund capital projects are unclear of, or at times conflicting with, T&D procedures.
    - The Charter states that any capital investment exceeding 10 percent of the previously authorized amount requires re-approval by the URB.<sup>135</sup> This is not mentioned in the Project Authorization Procedure or Cost Management Procedure.<sup>136</sup>

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<sup>132</sup> DR 546.

<sup>133</sup> DR 376 Attachment 1.

<sup>134</sup> DR 57.

<sup>135</sup> DR 376 Attachment 1.

<sup>136</sup> DR 64 Attachments 4 and 9.

- The Charter states that any capital investment that has a project increase within five to 10 percent of the original authorized funding will require a Project Change Request (PCR). There is no statement as to what action, if any, the URB takes regarding a PCR in its Charter.<sup>137</sup>
  - PSEG LI states that URB approval is required for use of R&C funds.<sup>138</sup> But, URB approval of R&C funds is not specified in its Charter or Project Authorization procedure.<sup>139</sup>
  - The Charter also describes the use of an “Emergency Capital Investment Request Form”.<sup>140</sup> This form is supposed to be used if circumstances necessitate immediate capital investment prior to URB approval and that the URB should be notified of an investment fitting this criterion at the earliest practical date. The Emergency Capital Investment Request Form is not mentioned in Project Authorization Procedure.<sup>141</sup>
  - The URB Charter states that the URB reviews and approves all PSEG LI T&D, Fleet, Facilities, IT and Customer Service blanket and specific project capital investments.
- NorthStar reviewed documentation and minutes from URB meetings as part of our assessment of selected capital projects completed between June 2017 and June 2022. Our review found:
    - PCRs submitted to the URB were provided without analysis as to why the budget variance, scope change, or ISD change occurred or whether there were management actions taken to mitigate or prevent issues.
      - The Ronkonkoma switchgear project team submitted a PCR on June 23, 2020 to the URB due to a funding increase of \$235k to remove old switchgear and move the ISD from June 2020 to October 2020. The PCR did not indicate any increase in budget due to the ISD change.<sup>142</sup> NorthStar notes that the Definitive Estimate developed in February 2019 specifies that SSM Civil was to remove the old switchgear.<sup>143</sup>
      - URB meeting minutes from June 23, 2020 (the same date as the PCR noted above) identifies the PCR for the funding increase to remove the old switchgear and the ISD change. No vote was required.<sup>144</sup>
      - The project team submitted a second PCR on December 8, 2020 for a funding increase for close-out activities in the amount of \$50k and with another ISD change from October 2020 to December 2020. The ISD change was due to

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<sup>137</sup> DR 376 Attachment 1.

<sup>138</sup> DR 73.

<sup>139</sup> DR 64 Attachment 4 and 376 Attachment 1.

<sup>140</sup> DR 376 Attachment 1

<sup>141</sup> DR 64 Attachment 4.

<sup>142</sup> DR 340 Attachment 45.

<sup>143</sup> DR 340 Attachment 3.

<sup>144</sup> DR 340 Attachment 41.



weather and feeder failure. No mention was made of any cost impact due to the ISD change.<sup>145</sup>

- URB meeting minutes from December 8, 2020 (the same date as the PCR noted above) identifies the PCR for \$50k of funding increase and ISD change. Again no vote was required.<sup>146</sup>
  - NorthStar’s review of the Project Estimate Accuracy Report identified a cost variance of \$303k (nearly 10 percent of the final project cost) due to increased Construction Supervision. PSEG LI’s response stated that the ISD extensions drove the need for additional supervision not accounted for in the Definitive estimate and that the additional costs and permission to spend were identified in a URB meeting.<sup>147</sup> However, Construction Supervision costs were not identified in the URB meeting minutes or any of the PCRs, nor was there any URB approval to spend. Furthermore, it is hard to believe any meaningful scrutiny by the URB could realistically be given to PCRs that are submitted the same day the meetings are held.
- Use of R&C funds are not consistently identified in URB meetings minutes. The URB does not approve the use of R&C funds.
- The Ronkonkoma switchgear project had a Definitive Estimate developed on February 27, 2020, that identified a \$942k increase in the Base Cost caused by engineering (\$354k), in-house construction (\$290k), materials (\$190k), and outside contractor costs (\$160k). There was also a cost savings attributed to in-house labor (-\$52k).<sup>148</sup> The URB voted to approve the net increase of \$942k on March 24, 2020.
  - The \$942k increase was partially offset by moving \$665k in R&C funds into Base Costs.
  - NorthStar’s review of the URB meeting minutes from March 24, 2020 did not identify the use of the R&C funds.<sup>149</sup>
  - When URB meeting minutes do identify the use of R&C funds, no analysis is presented as to how the use of these funds will address a project-specific risk (“known unknowns”) or a contingency (“unknown unknowns”).<sup>150</sup>
  - The URB meeting rules training document states that R&C amounts are NOT requested as part of actual capital funding and are NEVER approved by the URB.<sup>151</sup>
- NorthStar requested the opportunity to observe the URB meetings that were scheduled for March 23, 2023 and April 27, 2023.<sup>152</sup> NorthStar’s request to PSEG LI was made a day in advance for each meeting. NorthStar did not receive the information for either

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<sup>145</sup> DR 340 Attachment 46.

<sup>146</sup> DR 340 Attachment 42.

<sup>147</sup> DR 340 Attachment 5 and DR 585.

<sup>148</sup> DR 340 Attachment 37, 344 Attachments 21 and 22, 342 Attachments 20 and 23.

<sup>149</sup> DR 340 Attachment 39.

<sup>150</sup> DR 344 Attachment 24.

<sup>151</sup> DR 930.

<sup>152</sup> DR 376 Attachment 1.

meeting and was not able to observe the proceedings to further validate its findings or conclusions.

- PSEG LI did not comply with the 2018 Management Audit recommendation to audit URB management processes and controls annually. PSEG LI audits occurred in 2018, 2020, and 2022.<sup>153</sup>

**15. LIPA does not provide sufficient or meaningful oversight of PSEG LI’s capital program and project implementation.**

- LIPA’s T&D oversight roles, responsibilities and activities are recorded in three sets of documents. These are the 2nd A&R OSA, Section 4.4; the Board Policy on the Construction of Transmission and Distribution Projects, and the LIPA Policy CEO-POL-005, Oversight of Service Providers.
- LIPA’s T&D program and project level management oversight roles and responsibilities are established in its contract with the Service Provider under Section 4.4 of the 2nd A&R OSA which states that:

“As the owner, lessor, or controlling entity of the T&D System, LIPA retains the ultimate authority, responsibility, and control over the assets comprising the T&D System. In connection therewith, LIPA has continuing oversight responsibilities and obligations with respect to the operation and maintenance of the T&D System and the Service Provider’s provision of the Operations Services hereunder.”

- LIPA’s Board Policy on the Construction of Transmission and Distribution Projects (Resolution #1449, amended December 19, 2018) directs LIPA to make choices for the construction of the transmission and distribution system in a consistent manner that balances cost for all customers with local concerns.<sup>154</sup>
- LIPA policy CEO-POL-005 defines oversight, its purpose and establishes the framework for LIPA’s oversight activities.<sup>155</sup>
  - LIPA’s Oversight policy groups oversee activities in two categories called an “Oversight Universe” and a “Budget Universe”. There are LIPA Subject Matter Experts (SME) assigned to these two oversight categories.
  - Management activities defined in the Oversight policy comprise of monitoring and validating performance metrics, staying abreast of industry trends, developing information requests, attending meetings, reviewing reports from PSEG LI. Budget oversight activities include monitoring budgets monthly and annually for reasonableness and identifying variances, developing information requests, and meeting with the PSEG LI Finance Department. SMEs are to report any issues to

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<sup>153</sup> DR 1642.

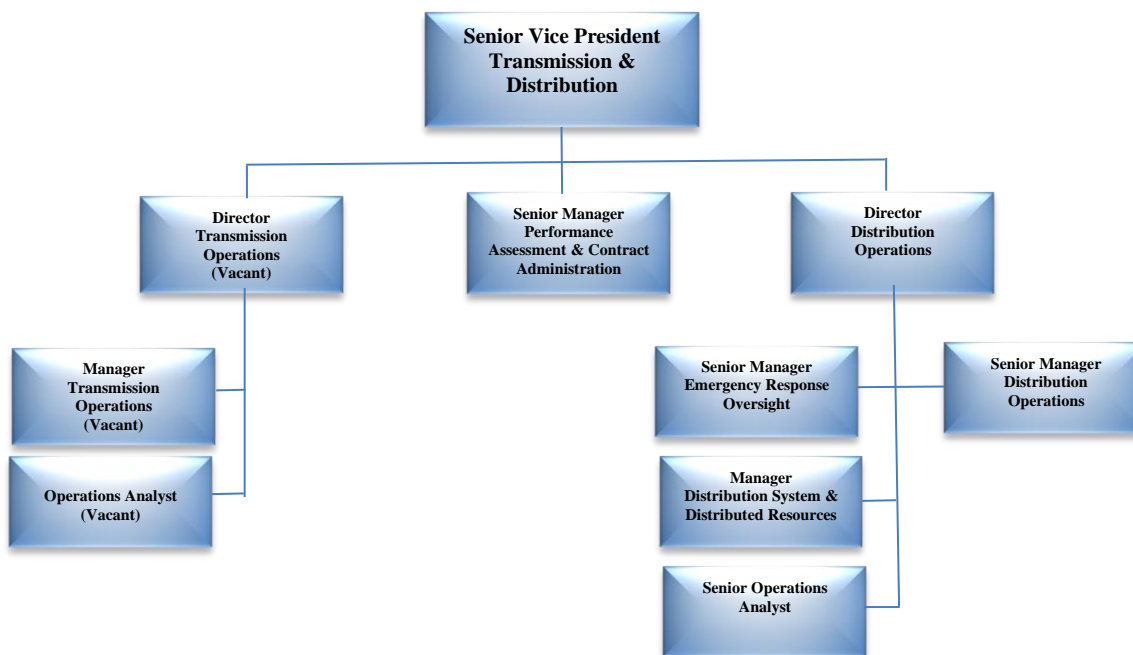
<sup>154</sup> DR 380 Supplement 4.

<sup>155</sup> DR 37 Supplement 3.

their respective Committee's, recommend changes to any performance metrics, as well as participate in Enterprise Risk Management and Internal Audit processes.

- SME oversight activities specific to programs and projects include the review of operating and capital budgets and investigating variances from approved budgets.
- LIPA personnel providing T&D oversight has changed since the prior audit.
  - As noted in the 2018 NorthStar Audit, LIPA's T&D system and capital program oversight was assigned to two professionals: the Director of T&D Oversight and the Manager of T&D Oversight.
  - The management structure and staffing level has changed since the prior audit and now includes a Senior VP, a Director of Distribution, three Senior Managers, one Manager, and a Senior Operations Analyst. There are also a Director of Transmission Operations, a Manager of Transmission Operations and another Operations Analyst position, each are currently vacant. LIPA's T&D organization structure is provided in **Exhibit X-15**.

**Exhibit X-15.  
LIPA T&D Organization.**



Source: DR 2

- NorthStar reviewed a selection of capital projects and requested work products demonstrating LIPA's oversight of these projects. LIPA's response demonstrates the level of oversight provided to T&D projects.

“The projects listed in the table above were completed/closed in the 2018 to 2021 timeframe. When these projects were active, LIPA's oversight activities consisted of reviewing and approving capital project budgets on a summary

basis. Since the Operations Service Agreement was revised and amended in 2022, capital project budget review and approval requirements have become more stringent.”<sup>156</sup>

- NorthStar requested evidence of LIPA’s “stringent” T&D oversight in a number of document requests.<sup>157</sup> The bulk of LIPA’s oversight “work products” are email correspondences, meetings, and analysis produced by PSEG LI and other third parties. LIPA itself produces little work product related to T&D oversight. Overall, LIPA continues to focus its T&D oversight efforts as specified in the Second A&R OSA - budget variances, monitoring metrics, and critiques of PJDs.
  - LIPA’s program and project oversight continues to emphasize the analysis of budget variances.<sup>158</sup> Reviewing budgets alone does not constitute meaningful project cost management as it lacks the determination of earned value of a project for the amount spent. The incorporation of earned value analysis into the oversight process enables informed management decision-making and the ability to take corrective action as needed.
  - PSEG LI T&D has approximately 40 metrics in 2022. LIPA monitors these metrics through reports provided by PSEG LI. Five metrics are associated with program and project management. None of these metrics provide insight into the earned value of a capital project.<sup>159</sup>
  - LIPA states that it reviews all capital projects, starting with the submission of PJDs by PSEG LI.<sup>160</sup> LIPA reviews of PJDs are not analytical work products, rather these represent a “line by line” critique of PJD documents.<sup>161</sup> Individual project reviews of PJDs lack any meaningful analysis of project merits, earned value, strategic alignment, or cost/benefit (as project benefits are simply generic statements). The approval of individual projects was a requirement included in the Second A&R OSA. LIPA does not keep a record of project rejections or its rationale for rejecting projects. Instead, LIPA may tentatively approve a project as part of PJD review process but then place the funds “on hold” pending a final approved PJD.<sup>162</sup>
- LIPA T&D oversight activities are dependent upon third parties.
  - LIPA’s T&D organization employs five “long-term” contractors to augment its organization.
  - LIPA T&D organization has spent over \$5 million from 2018 to 2022 on outside services. This represents an increase of over 80 percent from \$840k in 2018 to almost \$1.6 million in 2022.

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<sup>156</sup> DR 621.

<sup>157</sup> DRs 304, 402 to 406, 621, 748, 757, 772, and 955.

<sup>158</sup> DR 403, 772.

<sup>159</sup> DR 406 Supplements 4, 5, and 15.

<sup>160</sup> DR 757 and DR 772 Supplement 6 and 7.

<sup>161</sup> For example, see DR 772 Supplements 3 through 5.

<sup>162</sup> DR 757.

- In 2022, LIPA posted an RFP outlining its need for a wide variety of consulting services to support its oversight of PSEG LI. Services requested in the RFP included asset management, value analysis, planning, design criteria, planning criteria, probabilistic risk assessment, assets and system condition and performance monitoring, life cycle cost management, system losses reduction, design standards, protection and control, construction methods, maintenance programs and effectiveness, artificial intelligence, construction, engineering and technical services, emergency planning and response, storm restoration management, system performance measurement and benchmarking to best practices and comparisons among different utilities on T&D system performance metrics.<sup>163</sup> LIPA did not provide any meaningful economic justification or conduct a needs analysis for this RFP. Inquiries for LIPA’s explanation of whether these consulting resources would increase functions, replace or duplicate oversight were nonresponsive.<sup>164</sup>
- A further review of LIPA documents indicates this reliance on third parties. In the words of LIPA SMEs:

“I conditionally approve this project, subject to validation of the detailed estimate and budgeted contingency via a [third party consulting firm] review to be conducted prior to 12/31/2022. Please let me know if you have any questions.”<sup>165</sup>

“LIPA requests greater detail of the breakdown of CAPEX budgets for projects which were approved in 2022 and prior, and are being proposed for approval in 2023. This request is particularly (but not exclusively) to enable LIPA to understand the amount and nature of all “contingency” budgeted for each project. To this end, LIPA is in the process of engaging [a consulting firm] to perform a comprehensive, rapid audit of approved 2022 and prior, and proposed 2023 CAPEX project budgets, over the upcoming two (2) weeks.”<sup>166</sup>

**16. PSEG LI’s analysis and decision-making to use in-house workforce or contractor labor is ineffective due to weakness in work management practices.**

- PSEG LI states that the use of in-house workforce versus contractor labor is typically driven by three factors:
  - The type and duration of the work;
  - The use of leveraging economies of scale resulting in overall savings of delivering the service; or
  - The necessary skills and capabilities were not found in the organization.<sup>167</sup>
- For the T&D business unit, the IDA group compares the integrated work plan and the resource capacity to perform the work contained in the plan. This analysis is supposed

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<sup>163</sup> DR 252.

<sup>164</sup> DR 252, and 547

<sup>165</sup> DR 772 Supplement 18.

<sup>166</sup> DR 772 Supplement 25.

<sup>167</sup> DR 74.

to provide insight at a craft level as to how the volume of work aligns with each resource type capacity, the assumed overtime level, and available contractor capacity.

- NorthStar found that PSEG LI work management practices, reports and systems are not effective. Therefore, any decisions on regarding the use of in-house work force versus contract labor is not based on reliable information. See Chapter XI – Work Management for a further discussion.
- PSEG LI engaged a consulting firm in September 2022 to conduct a contractor performance management review of contracts valued at \$2M or greater. Numerous major firms including those that provide contracted services were identified, yet were ranked as less than acceptable performance. See Chapter XII – Outside Services.
- The only meaningful decision on the use of outside contractors is when there are recognized gaps in skillset and capabilities related to in-house resources.

**17. PSEG LI has a process for developing Requests for Proposals (RFPs) for Solar, Storage and other Non-Wires Alternatives. However, PSEG LI states that it did not develop any RFPs for these projects. PSEG LI did not provide information regarding the 2021 Bulk Energy Storage procurement.**

- The Second A&R OSA includes a number of PSEG LI procurement responsibilities including those related to power supply and clean energy contracts.<sup>168</sup> The OSA also includes LIPA’s rights regarding its oversight and approval of power supply procurements, wholesale contracts, as well as changes to the Small Generator Interconnection process.<sup>169</sup>
- PSEG LI is also subject to the procurement provisions provided in LIPA’s Board Policy entitled “Use, Awarding, Monitoring and Reporting of Procurement Contracts” # 1786.<sup>170</sup> PSEG LI states that all RFPs comply with the requirements of the LIPA Procurement Guidelines.<sup>171</sup>
- NorthStar requested information on PSEG LI’s process for developing various RFPs, including Distributed Energy Resource (DER) assets such as Solar, Storage, and other Non-Wires Alternatives. The process flow chart describes governance, responsible functions/parties, steps involved, decision points, and other details. The flowchart provides for processes based on the procurement approach (i.e., tariff or RFP-related).<sup>172</sup>

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<sup>168</sup> Responsibilities include general procurement activities as well as specialized procurements including power supply and clean energy programs, fuel, insurance, etc in accordance with applicable LIPA, New York State and federal procurement requirements, as necessary or appropriate. Examples include Section 4.2 (A) (2), (4), and (5).

<sup>169</sup> See Section 4.4(A).

<sup>170</sup> DR 871 Attachment 2.

<sup>171</sup> DR 871.

<sup>172</sup> DR 871 Attachment 1.



- NorthStar requested details on all RFPs issued and contracted to determine the effectiveness of PSEG LI’s RFP process since 2018. PSEG LI states that there were no such RFPs issued for Distributed Energy Resources (DER). The only procurements were under the Feed-in-Tariff (FIT) V Communities Solar program in 2020. Since the FIT V program is tariff related, the State Administrative Procedures Act (“SAPA”) governs the process.<sup>173</sup> PSEG LI did not acknowledge or supply information regarding any RFP, including the Bulk Energy Storage RFP issued in 2021.
- NorthStar requested procurement information related to the 2021 Bulk Energy Storage RFP process. LIPA responded that five projects were selected from the 2021 Bulk Energy Storage RFP. Contract negotiations with the specific counter parties for those projects continue. As required by Public Authorities Law, these types of procurements must be reviewed by the Office of the State Comptroller and the Attorney General’s Office. LIPA stated in their response that the information requested by NorthStar will be provided to those agencies after contract negotiations and State Environmental Quality Review Act (“SEQRA”) reviews are complete, and the LIPA Board approves the contracts. That is currently anticipated to be done in or around Q1 2024.<sup>174</sup>

## **D. RECOMMENDATIONS**

1. Continue to develop and implement the SOS capital program optimization model.
  - Expand the SOS optimization process to include projects from other business units (e.g., IT and Customer Operations) and programs (e.g., Utility 2.0)
  - Implement improvements such as:
    - Review the scoring criteria for each business area when setting up a new project in SOS.
    - Identify any biases toward certain types of projects.
    - Review the Strategic Objectives and the Success Criteria.
  - Share SOS output results with LIPA and the Board of Trustees.
  - Collaborate with Enterprise Risk Management on risk scoring capital projects
2. Review and address inconsistencies as well as the lack of integration in project management procedures.
3. Revise current procedures related to quality assurance and quality controls for capital programs and projects requiring project managers to develop a comprehensive quality management plan for each capital project.
4. Address the deficiencies in project estimating by making process improvements and adding controls.

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<sup>173</sup> DR 1105.

<sup>174</sup> DR 1213.



- Develop cost estimate reports for each stage of capital projects. Formally document project cost reviews at each level of estimate in detail and at various stages of project completion.
  - Integrate cost and schedule systems and ensure project master schedule is appropriately integrated with the approved project budget.
  - Continuously verify the accuracy of estimates versus the actual project cost and maintain a record of updates to the estimating database.
5. Utilize a WBS in the initial phases of the project justification and order of magnitude estimating, and continue their refinement as the project progresses.
- Develop well-defined work packages that can be used to track and measure project performance based on earned value.
  - Plan work in logical work groupings or packages and subdivide into smaller work groupings. Ensure that activities required to perform the work in each group are identified, defined, and dependent relationships established.
  - Formalize the use of WBS elements by all project participants in their respective areas of responsibility and as an identification tool for project management performance measurement.
  - Use the WBS in procurement/contracting activities and specify the WBS in contractor Requests for Proposals.
  - Use the WBS for project costing and as a means to assess the impact of programmatic changes in funding levels on work content, schedules, and contractual support.
  - Integrate the WBS with PSEG LI's accounting systems, project cost management systems and schedule management systems.
  - Integrate master work plans and detailed contractor schedules / activities to the WBS to permit integration of schedule information and to facilitate review of status reports and change proposals.
  - Refine detailed project estimates initially prepared by WBS element and follow the manner in which the project work was planned, scheduled, estimated, funded and executed.
6. Formalize and incorporate risk and contingency management in capital project cost estimating and cost management. Formally report the expenditure of risk funds and contingency funds separately from project estimates rather than inflate total project budget amounts. Risk funds should be assigned to specific project risks. Use of risk and contingency funds should be approved by the URB.
7. Define and report project management performance measures that focus on the effectiveness of cost estimation, earned value and schedule management. Project progress reports should contain all information which is pertinent for their target audience. Cost estimates and schedules developed for preliminary plans should be evaluated when a project is complete to determine where further enhancements to project estimating can be made.
- Have project managers actively monitor overall project progress against the baseline schedule and review cost versus progress and budget.

- Formalize project management performance reporting to LIPA and PSEG LI.
  - Integrate cost and schedule systems with the project master schedule and the approved project budget.
  - Develop a baseline schedule for every capital project showing the logical relationships, duration, and timing of the WBS elements for engineering and construction.
  - Establish processes for systematic schedule preparation, review and analysis.
  - Include critical path in project schedules.
  - Periodically, perform analyses of the initial establishment of operation/completion dates.
8. Review governance and processes for managing work directives to ensure information on change orders and costs is readily available.
9. Review the governance structure and processes for reviewing, screening, and approving capital projects. Develop formal charters for committees, clearly defined purpose, approval and oversight responsibilities, and deliverables. Integrate governance committees, responsibilities, capital project meeting documentation requirements, and stage-gate approvals with Project Management policies and procedures.
10. Develop meaningful LIPA oversight activities to determine the effectiveness of PSEG LI capital project planning and management and outcomes. This includes, but not limited to, an in-depth analysis of PSEG LI's scope development and management, risk analysis and management, cost and schedule management, project performance, and quality management practices.

# XI. WORK MANAGEMENT

This chapter provides the results of NorthStar's review of the work management processes of PSEG LI's Transmission and Distribution (T&D) Operations.

## A. BACKGROUND

Work management is the application of information systems and management processes which focus on increasing workforce performance through:

- Explicit work definition including quantification,
- Work planning and scheduling,
- Control and evaluation,
- Resource planning,
- Organization improvement, and
- Methods improvement.

An effective work management program provides a utility with a net positive benefit that can be directly related to improved performance and significant cost savings. Work management improves human resources efficiency and effectiveness so that a utility can either perform the same amount of work with fewer resources, or perform more work with the same number of resources based on the following:

- The utility is better able to align its workload with available resources and determine the optimum work force for each area or function, often translating into reductions in labor costs.
- Work management reduces overtime and other labor cost premiums.
- Work management supports the budgeting process by identifying and quantifying the workload requirements for planned activities. Work management also assists in the determination of the time frame for activities.
  - Employee utilization is improved because managers have the tools to monitor and direct resource distribution depending on the workload.
  - Efficiency is improved by getting more work or higher quality work done with the same number of people.
  - Effectiveness is improved by focusing available work-hours on higher priority tasks and delaying or eliminating less important or unnecessary work.
- Work management provides the tools needed to benchmark its efforts against other utilities. Benchmark data developed from consistent reporting also gives management the information needed to improve work rules.

The approach to assessing work management practices relies on standards set forth by the Project Management Institute (PMI) and the Institute of Asset Management (IAM).

- PMI standards include A Guide to the Project Management Body of Knowledge (PMBOK) and the Organizational Project Management Maturity Model (OPM3). OPM3 is an assessment framework for gauging the level of project management practice for Planning, Execution, and Monitoring and Control.
- IAM maintains the Asset Management Standard Publicly Available Specification 55 (PAS 55). PAS 55 describes organizational enablers as “structural, cultural, technological, and human resource practices.

The standards define the processes that comprise the work management program and processes are summarized in **Exhibit XI-1** below.

**Exhibit XI-1  
Work Management Processes**

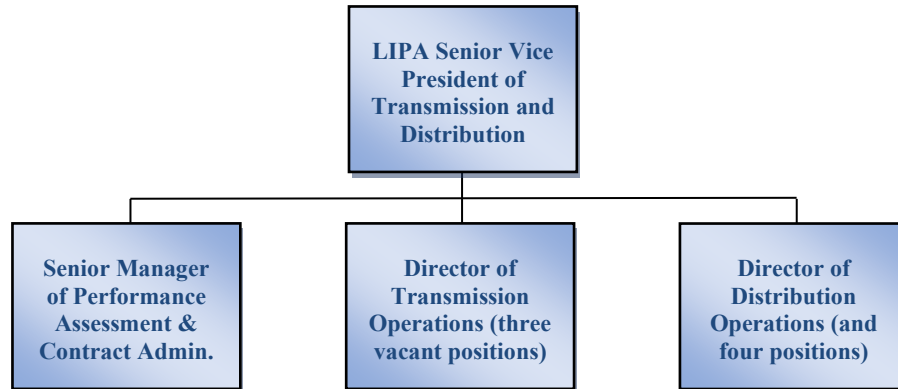
Process	Descriptions
1. Planning	Longer term processes that manage work initiation and assure availability of resources to perform that work. Planning horizons range from a month for near term work to multi-year for large capital projects. Forecasts and trend analyses are needed for unplanned work levels.
2. Work Preparation	Processes that define in detail what is to be done, prioritize the work, and dispatch needed resources like employee and/or contract work hours, access to the work site, material, equipment, vehicles, and other logistics. Time frames for this group vary from minutes (in the case of emergencies) to months or years for large projects.
3. Work Execution	Processes that execute work that meets customer expectations. The work is performed by employees and/or contractors.
4. Monitoring & Controlling	Includes scope change control, performance measurement, cost control, reporting, utilization reporting, and identification of actions to improve performance.
5. Enabling Processes	Processes that support the other work management process groups.
Processes 1, 2 and 4 are addressed in PMI standards; Process 5 is addressed by the IAM.	

LIPA outsources the work involved in operating its T&D system through a service agreement with PSEG LI – the Second Amended and Restated Operating Service Agreement (Second A&R OSA). The outsourcing of such a major portion of core services requires the organization to have in place contracts, controls, and reporting mechanisms to ensure the provision of quality, reliable service to its customers.

LIPA’s Sr. Vice President of Transmission and Distribution is responsible for oversight of the PSEG LI work in this area as shown in **Exhibit XI-2**.<sup>1</sup> The LIPA T&D organization is comprised of ten positions including three vacancies.

<sup>1</sup> DR 2

**Exhibit XI-2  
LIPA Transmission & Distribution**



Source: DR 2 – Transmission and Distribution

NorthStar examined the work management of PSEG LI groups which perform capital programs/projects, electric operations, and maintenance activities based on PSEG LI's organizational structure as of October 21, 2022.<sup>2</sup> Highlights of the organization include the following.

- Projects and Construction resources are part of Construction and Operations Services.
- A Project Management Office is also a part of Construction and Operations Services and includes:
  - Environmental Projects and Permitting
  - Government Funds Compliance
  - Project Controls
- The Manager of Project Management, reports to the Director of Projects and Construction within the Construction and Operations Services organization directing Project Managers and Engineering resources.

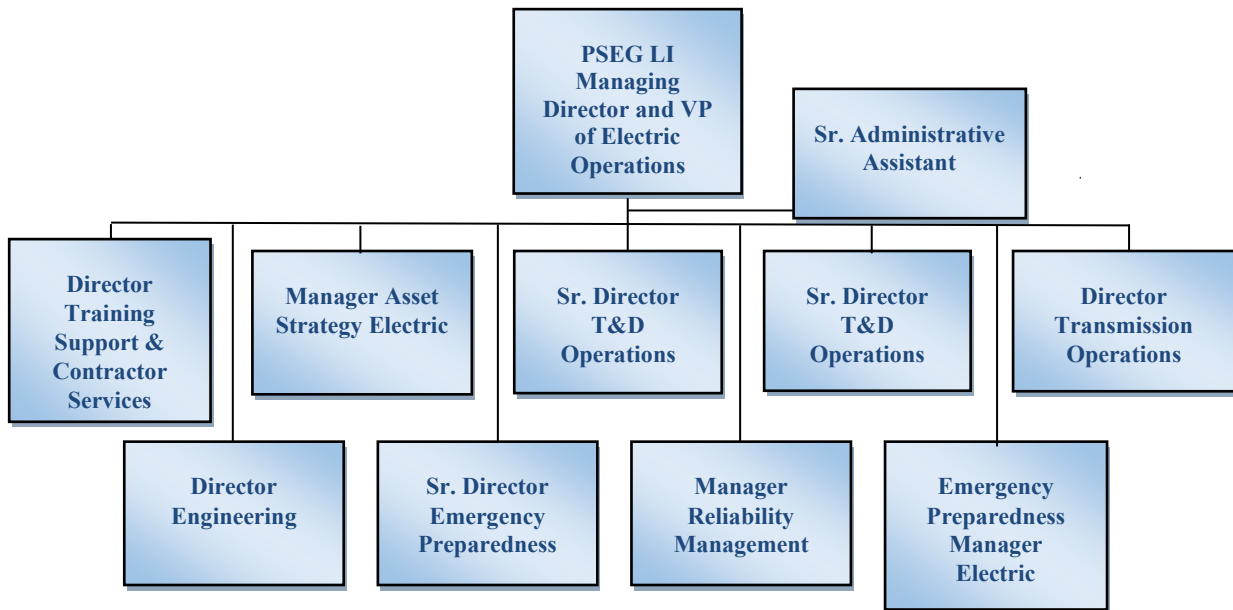
The organization structure of PSEG LI's Electric Operations function is shown in **Exhibit XI-3**.<sup>3</sup>

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<sup>2</sup> DR 3

<sup>3</sup> DR 3

**Exhibit XI-3  
PSEG LI Electric Transmission and Distribution Operations**



Source: DR 3.

Transmission Operations and Engineering, System Control and Substation Operations report to the Director of Transmission Operations.

Reporting to the Director of Asset Management, the work management group within Investment Delivery Assurance (IDA) ties staffing levels to work demand for each craft.<sup>4</sup> Staffing levels from the September 28, 2015 Department of Public Service Rate Recommendation in Matter No. 15-00262 (the 2015 Rate Plan) is used as a baseline.<sup>5</sup> Ongoing staffing requirements are managed by the managers within operational groups.

Functions under the Director of Training, Support and Construction Services include:

- Process and Operations
- Technical Maintenance
- Field Engineering and Line Academy
- Vegetation Management

PSEG LI's two T&D Operations groups perform construction and maintenance. Personnel are assigned to four divisions: Central/Nassau, Eastern/Suffolk, Queens/Nassau, and Western/Suffolk.<sup>6</sup>

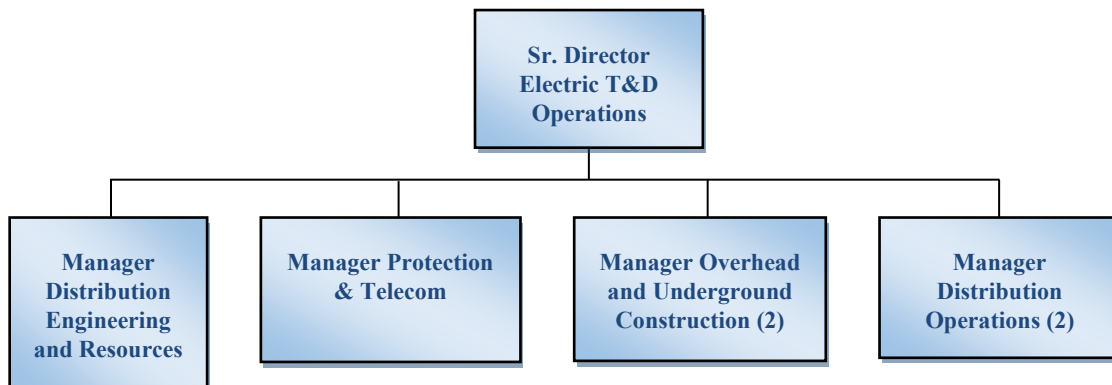
<sup>4</sup> DR 3

<sup>5</sup> DR 77

<sup>6</sup> DR 3 and 879

Each Division reports directly to a Sr. Director T&D Operations (East and West), as shown in **Exhibit XI-4**. These Sr. Directors report to the Managing Director and Vice President of PSEG LI Electric Operations were shown in **Exhibit X-3**.<sup>7</sup>

**Exhibit XI-4**  
**PSEG LI Distribution Engineering, Construction, Maintenance and Protection**  
**Departments**



Source: DR 3.

## B. WORK TASKS

- Determine how work management systems are used to schedule and manage maintenance and construction crews, including transportation, equipment, and materials supply. (Also addressed in Chapter XII – Outside Services)
- Determine how LIPA/PSEG LI measures and manages employee availability, utilization, efficiency, productivity, and effectiveness.
- Determine if workforce and work management systems are appropriately used to identify performance improvement opportunities.
- Review the utilization of work locations for maximizing productivity between teams.
- Determine whether there are adequate systems and procedures in place to provide pertinent historical data to be used in analyzing work volumes and staffing levels.
- Examine how planning and execution of programs and projects are converted into short-term and day-to-day work planning, task assignment, and control.
- Evaluate how work program and project schedules are managed on a day-to-day basis. (Also addressed in Chapter XI – Program and Project Management)
- Document existing decision-making processes and controls that set staffing levels (both in numbers and skills) for projects, day-to-day operations, and emergencies to meet customer service, service quality, and safety and reliability standards.
- Determine whether existing SCADA, work management and outage management systems are effective in identifying trends in workload levels, productivity, utilization and service levels.
- Determine the extent to which LIPA has made effective use of mobile technology for its field crews and the interface with existing systems.

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<sup>7</sup> DR 3



- Review PSEG LI’s oversight of costs associated with storm restoration, including the accounting for storm costs (e.g., salvaged materials). (Refer to Chapter XII - Outside Services, Conclusion XII-5)

## C. FINDINGS AND CONCLUSIONS

### 1. Work Management improvements have been recommended in the two previous management audits and progress has been limited.

- As of 2014, A&R Performance Metrics did not include work management.<sup>8</sup> Metrics used in 2017 also did not explicitly include work management.
  - National Grid did not use a work management system to effectively plan, monitor and control the work of major work groups.<sup>9</sup> A system or formal process to perform and integrate the work management processes described above in **Exhibit XI-1** was not used. Productivity, utilization of the workforce and comparisons of actual work to targets and goals was not done. Identification of performance improvement opportunities was not done.
  - The 2013 management audit recommended an integrated work management system to formalize planned work, support requirements, and provide continuous feedback on workforce effectiveness.<sup>10</sup>
- The prior management audit, completed in 2018, determined that PSEG LI work management continued to exhibit numerous deficiencies.<sup>11</sup> PSEG LI’s work planning, monitoring and control of major work force groups was largely the same as reviewed in the prior audit as shown in **Exhibit XI-5**.

### Exhibit XI-5 Summary of 2018 Work Management Process Deficiencies

Process	Descriptions
1. Planning	Lacking formal definition and work quantification. PSEG LI cannot assure resource availability to perform the work. Without workload quantification, analyses needed for analyses of planned versus unplanned work levels and backlog cannot be performed.
2. Work Preparation	Work quantification is needed to schedule resources like employee and/or contract work hours, access to the work site, material, equipment, vehicles, and other logistics.
3. Work Execution	Processes that support work assignment and completion expectations whether work is performed by employees and/or contractors.

<sup>8</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018. DR 4 A&R OSA Appendix 9, DR 6 Attachments, DR 25 Attachment, and DR 20 Attachment 2.

<sup>9</sup> Comprehensive Management and Operations Audit of Long Island Power Authority, Matter No. 12-00314, Final Report September 13, 2013. Finding 13.3.1.

<sup>10</sup> Comprehensive Management and Operations Audit of Long Island Power Authority, Matter No. 12-00314, Final Report September 13, 2013. Recommendation 13.4.1.

<sup>11</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018. Finding X.2.

4. Monitoring & Controlling	Scope change control, performance measurement, cost control, reporting, utilization reporting, and identification of actions to improve performance.
5. Enabling Processes	Processes that support the other work management process groups.

- The 2018 audit recommended an integrated work management system covering all PSEG LI operations, maintenance and construction resources that are based on engineered time standards and cover routine operations, repetitive maintenance activities, planned work, support requirements, and provide continuous feedback on workforce effectiveness.
  - PSEG LI stated that initiatives undertaken since the 2018 audit to improve work force effectiveness include the following:<sup>12</sup>
    - Improved Primavera/SAP reporting templates – ongoing.
    - SAP work packages can be moved from office to field mobile devices utilizing the CAD platform.
    - Improved asset health reporting via CMMS – ongoing.
    - Alignment of OT levels with metric targets.
    - Resource plans for next year budget requests covering all major workforce groups.
    - Implementation of processes, systems and organizational enhancements to align budget, work plan and short-term scheduling.
  - Audit Recommendation #27 directed PSEG Long Island to develop an integrated work management system covering all PSEG Long Island operations, maintenance and construction resources, and fill gaps in the current management information reporting and organizational reporting relationships to support such a system.<sup>13</sup>
    - PSEG LI’s status as of November 16, 2022 stated that “PSEG Long Island will identify and document existing and future management information/reporting and work management processes/systems, including potential near term and longer term enhancements. The overall objective is to achieve cost-effective improvements in efficiency. Our assumption is that efficiency improvements will allow us to complete required work at an overall reduced cost.”
    - Identifying and documenting improvements to work management processes is not implementation of the audit recommendation.
- 2. PSEG LI’s response to NorthStar’s inquiries regarding implementation of an integrated work management system included a variety of work management related functions. None of these satisfy the requirement or need for an integrated work management system:**
- NorthStar requested the project implementation plan and all revisions to the work management system from inception to current status.<sup>14</sup> PSEG LI stated that “With

<sup>12</sup> DR 80 and 84

<sup>13</sup> Oversight and Clean Energy Committee Status of Management Audit, November 16, 2022

<sup>14</sup> DR 538

respect to NorthStar’s request for a PIP [Work Management integrated system Project Implementation Plan], there are many PIPs related to the work management system.”<sup>15</sup>

- The Consolidated Tool Overview
  - New role and responsibility documentation
  - Outside plant T&D process flow charts
  - Inside plant T&D process flow charts
  - Outside plant 2022 Year End Report
- In its June 23, 2021 BOT meeting, eight work management recommendations were reported as in-progress. The Board adopted recommendations to improve work management and directed LIPA Staff and PSEG LI to provide implementation plans at its September 2021 meeting. This was not done in the July through October BOT meetings reviewed by NorthStar.<sup>16</sup> Implementation of the eight recommendations was reported as in-process in the Board’s November 17, 2021 meeting.
  - The Board directed LIPA Staff, together with PSEG Long Island, to implement the additional recommendations to improve work resource management, including the creation of a Project Implementation Plan related to these supplemental recommendations by April 20, 2022, to be presented at the Board’s meeting on May 18, 2022.<sup>17</sup>
    - There was no presentation of the implementation plan at the Board’s in May 2022.
    - In the November 16, 2022 Board meeting, LIPA noted that additional improvement is still needed in the work management audit recommendations and that nine performance metrics for 2022 address each of the Board’s work management recommendations.<sup>18</sup> Furthermore, the development of the work management process enhancements to optimize staffing levels, productivity, and overtime in support of scheduled work remained in progress and would continue into 2023.
  - Seven performance metrics covering “Work Management Enhancements” are shown in the LIPA 2023 Performance Metrics Table of Contents presented to and adopted by the Board December 14, 2022.<sup>19</sup> Upon review, none of these metrics individually or in combination demonstrate implementation of the prior audit work management recommendations.
    - T&D-17 – Short-Term Scheduling
    - T&D-18 – Workforce Management Plans

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<sup>15</sup> DR 538

<sup>16</sup> LIPA BOT Adoption of Recommendations to improve Work Management – June 23, 2021.

<sup>17</sup> Board of Trustees Adoption of Additional Recommendations to Improve Work Management, March 30, 2022.

<sup>18</sup> Management Audit Annual Report November 16, 2022.

<sup>19</sup> DR 19

- T&D-19 – Improve Planning and Tracking of Work
  - T&D-20 – Improve and Standardize Compatible Unit Estimating (CUEs)
  - T&D-21 – Work Management KPIs and Dashboards
  - T&D-22 – Clarify and Rationalize Work Management Roles
  - T&D-23 – Employee Overtime
- None of the initiatives, plans and performance metrics implemented to date demonstrate an integrated, enterprise-wide work management system covering all PSEG LI operations, maintenance, and construction resources.
  - Based on evaluation of the initiatives noted above, the common element among them is adherence to budget.

**3. Effective T&D construction and maintenance work management requires the explicit definition and quantification of work standards – a fundamental requirement for meaningful measurement of employee utilization, efficiency, productivity, and effectiveness.**

- Work definition is the description, documentation and communication of all activities needed to accomplish objectives, including a standard or estimate of resource requirements in man-hours. Work definition involves the determination of the work performed and allocation into discrete, measurable units.
  - T&D system planning and engineering workload quantification and backlog recognition, and final work products and services are not quantified.
  - PSEG LI stated that system planning workload and any potential conflicts are addressed and prioritized at management meetings. PSEG LI engineering functions perform many activities but do not quantify workload or work backlog. “From a system design perspective, engineering design managers meet and discuss the transmission and substation capital workload at Engineering Work Plan meetings. Project need dates, are input into the Primavera P6 program and loaded with milestone requirements.”<sup>20</sup>
  - PSEG LI operations and maintenance work in T&D and Substation includes work definitions (e.g., test and repair instructions) and historic time durations, but they are used as reference material.

**4. PSEG LI does not measure employee availability, utilization, efficiency, productivity, or effectiveness in an appropriate manner.**

- PSEG LI does not appropriately track the productivity and utilization of the workforce.
- Supervisory and department reports do not contain information regarding current workload levels, capacity, productivity, and utilization, nor do they properly identify and track improvements in processes and workforce performance. The reports do not include common, industrial work management measures such as:

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<sup>20</sup> DR 54

- Standard Time -- The labor (in man-hours) required to complete the assigned work. This is estimated or generated by the work order system.
  - Earned Value -- In larger projects, the estimated value of the work performed on a project task or phase expressed in man-hours.
  - Productivity -- The ratio expressed as a percentage between the Standard Time or Earned Value in man-hours and the Actual Time in man-hours.
  - Available Hours -- The capability to do work expressed. Includes straight time, over time, and available contractor resources.
  - Utilization -- The ratio expressed as a percentage of the Standard Times and Earned Value for completed work divided by the capacity expressed as Available Hours.
- Work definitions that have been defined to date do not include man-hours required to perform the core work activities. Without quantification of resource requirements, the fundamental processes of work management including scheduling, work order (WO) procedures, progress reporting against tasks, quality controls, or performance measurements such as productivity, utilization, lost/delay time and trend analyses cannot be adequately determined.
  - T&D operations and maintenance and construction workload quantification relies on institutional knowledge and historical relationships between budgets and resource levels. Discussion of the workload and any potential conflicts are addressed and prioritized at weekly management meetings.<sup>21</sup>
  - Workload quantification based on manager/supervisor estimates, historical relationships and discussions is insufficient to support continued improvement.
  - Comparisons of actual work to targets and goals are based on units of activities performed. This lack of accurate productivity measures results in:
    - Limiting the value of any analysis done to identify future productivity gains.
    - Reducing the value of estimates used for capital projects, operations and maintenance (O&M) planning purposes.
    - Making in-house versus contractor analyses and decisions ultimately subjective.
    - Impacting the ability to determine the optimum number of personnel for each area or function which may be more, less or the same as the current staffing level.
    - Although PSEG LI claims to use "...detailed measurement and focused distribution of numerous industry leading work planning and work management reports and KPI's, PSEG Long Island goes to great lengths to ensure that this business intelligence is incorporated into operations and performance analysis forums." workforce or work management systems are rarely used to identify meaningful performance improvement opportunities.<sup>22</sup>

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<sup>21</sup> DR 84

<sup>22</sup> DR 7, 8, 53, 85 and 917

**5. PSEG LI uses numerous systems for pieces of work management that are not integrated.**

- PSEG LI’s systems such as Oracle’s Primavera P6 and the SAP work management module, are used to support work management among the major construction and maintenance functions, but PSEG LI does not currently utilize their full capabilities.
- Primavera P6 is a scheduling and portfolio management software used throughout the construction and utilities industry. Its capabilities include portfolio management, program management, project management, planning and scheduling, resource management, budgeting and costs, and reporting and analytics. Projects are input into P6 and loaded with milestone requirements based on need dates. Project Managers and various contributors provide input to the scheduling process – largely based on individual experience. Conflicted resources are reviewed and discussed for options to align with system requirements.<sup>23</sup>
- SAP is currently used to manage new business and capital improvement work orders.<sup>24</sup> Crews are provided with work order documentation and dispatched to site(s) to complete. Data is shared across departments and business functions. The primary modules utilized for managing capital projects are the Project Systems module to track expenditures against the projects and the Materials Management module to track vendor information against the projects.

**6. PSEG LI’s Compatible Units used as work standards is ineffective, and as a basis for work management, is misleading and deceptive.**

- PSEG LI stated that its Compatible Unit (CU) estimating data allows a user to create a design estimate to determine labor and material costs for a project.<sup>25</sup> The CUs are task lists that contain labor hours (man-hours), operations, and material costs components based on the moving average price of the material in SAP.
  - “The estimating system is used against all work types: New Business, Capital/Expense Work (Major Projects, Minor Extensions & Changes, Public Works), OMS Referred work to design. Regardless of work type, the CUs remain the same to choose from.”<sup>26</sup>
  - “Capital project work is estimated for budgeting purposes, scheduling crews, contractor bidding, and comparing estimated vs. actual costs.”<sup>27</sup>
- “The original data used for CU’s came from legacy work management systems that had conducted time studies and carried over into SAP.”<sup>28</sup> As noted in prior management audits covering National Grid and PSEG LI, workload quantification

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<sup>23</sup> DR 84

<sup>24</sup> DR 880

<sup>25</sup> DR 771

<sup>26</sup> DR 771

<sup>27</sup> DR 771

<sup>28</sup> DR 996

data (CUs) was based on manager/supervisor estimates, work history and discussions – not engineered time standards.

- “The data was loaded into SAP when it went live for PSEG LI in 2015.”<sup>29</sup>
- “For the most recent update, an in-house team of Design & OH/UG Lines personnel reviewed the existing CU library in 2022.”<sup>30</sup> PSEG LI stated that a complete review and revision of the CU library was performed in 2022. This review was conducted with OH/UG Lines and Distribution Engineering to review the labor on CUs and have them adjusted and updated as needed.<sup>31</sup> However, this appears to be an embellishment of the activities actually performed and the process falls short of satisfying the performance metric: TD-20 Work Management Enhancements – Improve and Standardize Compatible Unit Estimating.
  - PSEG LI stated that “A review of the most frequently used CU’s is to be conducted every quarter. Most frequently used CU’s include installing poles, OH transformers, and wire. These CU’s are called for on approx. 80% of all CU estimates. A complete detailed review of the entire CU library is to be conducted every 4 years.” And, “The hours for a CU is identified by a 2-step process. The first step is using existing time studies that were conducted and performed for each CU task in the field and applying it. After that, the hours are verified for accuracy and updated if needed by being reviewed by the OH/UG Lines department in conjunction with Design, and the CU committee.”<sup>32</sup>
  - “The standards used during the most recent review involved having OH and UG personnel go thru each CU and determine if the data should be updated accordingly or remain the same.”<sup>33</sup>
  - PSEG LI reported that over 1,600 CUs were updated using the 2-step process.<sup>34</sup>
  - NorthStar requested what method was used to highlight CUs that needed revision. PSEG LI stated that “Each CU is looked at individually and if the man-hours stated is in-line with current practices and work methods it would not need a revision. If it needed an update, the man-hours value would be adjusted.”<sup>35</sup>
  - NorthStar requested the qualifications of resources that performed the time studies conducted in the 2022 update of the CU library. PSEG LI provided the names and titles of eight individuals but not their training, experience or qualifications to perform time studies.<sup>36</sup>
  - With respect to conducting time studies: “Several meetings were held throughout 2022 with the committee to discuss the labor hours (man-hours) associated with each CU.”<sup>37</sup>

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<sup>29</sup> DR 996

<sup>30</sup> DR 996 and IR 115

<sup>31</sup> DR 1055

<sup>32</sup> DR 1055 Attachment 2

<sup>33</sup> DR 997

<sup>34</sup> DR 997 Attachments 1 and 2 (column titled “Updated in SAP”)

<sup>35</sup> DR 1121

<sup>36</sup> DR 1188

<sup>37</sup> DR 1187



- Meetings are not time studies nor were time studies conducted in the field.
  - NorthStar requested documentation of time studies conducted. PSEG LI again presented its spread sheet with over 1,600 CUs marked “yes”.<sup>38</sup>
  - PSEG LI also stated that “Several combined meetings with the OH/UG Lines Construction Academy with an Area Supervisor and members from Distribution Engineering (Planner and Engineer) made up the team that reviewed the existing compatible units library and came to a consensus on the hours that needed revisions. This consensus was based on construction experience of doing the task in the past and technical knowledge of the work involved.”<sup>39</sup> This is not a verification for accuracy by the OH/UG Lines department in conjunction with Design, and the CU committee.
  - NorthStar again requested the method used to verify the accuracy of CU hours.<sup>40</sup> PSEG LI stated that “Each CU was reviewing by the OH/UG Lines dept. along with Design. If there was a value of 0.0 there was no previous data in the system and had to get updated to a new value. If there was a big gap between the existing hours and what the new hours were it was discussed if the changes made were reflected of current work methods and number of hours the crew would typically get the task completed in.”<sup>41</sup>
  - Seeing that CUs had, and continued to have values of 0, NorthStar requested an explanation. PSEG LI stated that “The CU’s with no values came from our previous legacy system and required an updated value as shown above. Previously the labor would be captured under misc. hours and added to the estimate.”<sup>42</sup>
  - And, “Many of the CU’s are material only CU’s where there is no labor value attached to them. Those make up part of the approx. 3000 CU’s that we have. The CU’s do not cover inside plant equipment and work.”<sup>43</sup>
  - A time study and evaluation method that results in zero, and therefore no man-hours would seem to be of little value to work management.
- The PSEG LI review appears to have been performed to satisfy performance metric TD-20: Compatible Units Library Revised.<sup>44</sup> However, there was no analytical methodology employed to identify specific CUs that warranted revision or how CUs were updated for over 3,000 records.<sup>45</sup> All CUs were coded as “updated”.
  - There are no records of “time studies” as described by PSEG LI.
  - “There are approximately 28,500+ Time based preventive maintenance plans defined in SAP for inside plant assets. These maintenance plans are created from OEM manuals and Asset strategy are periodically reviewed with maintenance groups and

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<sup>38</sup> DR 1189

<sup>39</sup> DR 1122

<sup>40</sup> DR 1190

<sup>41</sup> DR 1190

<sup>42</sup> DR 1191

<sup>43</sup> DR 1192

<sup>44</sup> DR 997 Attachment 1

<sup>45</sup> DR 987 and IR 115

updated. Resource estimates are defined on PM plans.”<sup>46</sup> “The Distribution group [alone] has 3,000 Compatible Units in SAP.” This is a contradiction of PSEG LI’s earlier statements that:

- PSEG LI stated that a complete review and revision of the CU library was performed in 2022. This review was conducted with OH/UG Lines and Distribution Engineering to review the labor on CUs and have them adjusted and updated as needed.<sup>47</sup>
- The CU’s do not cover inside plant equipment and work.”<sup>48</sup>
- “With current systems and practices, it is difficult to estimate work durations, resource efficiency, travel time, actual time to do the work, etc.” There is “No availability of standard job plans – with material requirements, equipment/tool to enable work planning process.”<sup>49</sup>
- Reports can be produced using the data from SAP to track productivity, backlogs, and planned vs. actual costs. However, reports on availability, utilization, efficiency, productivity, or effectiveness provide questionable value as they do not use standard industrial definitions and the crew Foremen determine productivity when Compatible Units are available.<sup>50</sup> For example:
  - “Productivity” that is calculated and reported includes “idle” time – which is not productive by its nature.
  - Wrench plus idle time is recorded by the Foreman. The result is that the Foreman determines reported productivity.
  - Compatible Units called “Output (Comp WO)” are historic estimates not standards, infrequently reviewed, and used for only a portion of the work performed.
- The SAP work management module is currently utilized to create, design, estimate, and complete electric work requests.
  - Jobs are generated within the system, capturing information including customer name, work location, type of work required, job status, constructing organization, internal and external contact information, and planned costs.
  - Users can query the system to identify work requests in their respective areas as well as pending items not yet assigned.
- The construction organizations can obtain their work by querying the backlogs and printing out documents. Backlogs are defined as units of maintenance such as Work Orders directly corresponding to the number of equipment units to be maintained or

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<sup>46</sup> DR 987

<sup>47</sup> DR 1055

<sup>48</sup> DR 1192

<sup>49</sup> DR 987

<sup>50</sup> DR 85 Attachments 1/1A, DRs 54, 879, 884 and 998

jobs to be performed. Backlog is not expressed in terms of resource requirements or man-hours of work.<sup>51</sup>

**7. PSEG LI describes a very broad IT landscape that includes work management “related” systems. These systems are largely stand alone and are not integrated.**

- PSEG LI’s systems that are related to various aspects of work management are shown in **Exhibit XI-6**.
- PSEG LI’s Supervisory Control and Data Acquisition (SCADA) system is not among the systems used for work management. None of the systems and their application descriptions are focused on identifying trends in workload levels, productivity, utilization, and service levels.

**Exhibit XI-6  
Current PSEG LI IT Landscape Related to Work Management**

#	Application	Description / Purpose
1	SAP	SAP is an ERP application used by PSEGLI. This is a shared application with PSEG New Jersey and Long Island, separated by Plant ID. Functional Areas covered by SAP are Finance, Procurement, Material Mgmt., HR, Plant Maintenance.
2	Ariba	Ariba is used to procure direct purchase items and services. Maintenance managers have access to Ariba to raise purchase orders within the approval limits, tools for non-inventory material and services sourcing and procurement. All POs created in Ariba are replicated in SAP. SAP is the system of record for all purchase transactions.
3	CLM	Contract Lifecycle Management – Used for managing contracts with suppliers. CLM is the product of SAP and integrated with Ariba for contract IDs. The contact and terms and conditions are defined on a hard copy and attached to contract record as a PDF file.
4	SMS	Supplier Management System – Portal used for supplier registration. After approval, the supplier record is created manually in SAP.
5	eRFx	Tool used for RFP and RFQ initiation and sending to the shortlisted suppliers. Standalone system and not integrated with Ariba or SAP.
6	Power Plan	Application used for asset investment optimization, capital planning, fixed asset management and project portfolio management.
7	Power Advocate	Tool used for highly contestable and competitive bidding process.
8	CAD	Computer Aided Dispatch is a mobile system and integrated with SAP. This is tightly integrated with OMS system Pragma from the CGI Group
9	OMS	Outage Management System, used to predict failure location, prioritising restoration efforts based on customer effected & size of impact, estimation of restoration and management of crews. The product belongs to CGI.
10	CMMS	CMMS system is an in-house developed analytics tool. Data gets updated through a script from SAP, CMMS gets updated by databases like DGA Analysis, T&D Pi data, doble Data, Substation Inspection, Other databases. CMMS system provides information like asset health/condition, maintenance, and failure history, DGA analysis, name plate information and historical operational data for analysis. CMMS is used by asset strategy groups. Transmission line data and line inspection data is planned to be pulled into CMMS for analytics purpose, but this initiative has not progressed as expected.
11	SaaS	SaaS database gets data from OMS and TOTS to analyze and present dashboard reports.
12	EGIS	EGIS system used to maintain Transmission and Distribution linear assets – poles,

<sup>51</sup> DR 998

#	Application	Description / Purpose
		overhead line, underground lines, maintenance history, etc. GIS is not integrated with SAP. EGIS is product from ESRI.
13	SOS	Spend Optimization Suit – used for budgeting process and funding approval.
14	Sage	Estimating tool for large work. It also includes substation large spends.
15	Pimavera-P6	Scheduling tool for all minor, major activities and project WBS activities.
16	PTS	Project Tracking System used to track project financials.
17	8-4	System used to log the service/ maintenance request. This is reviewed and prioritized by maintenance planner on daily basis to clear the backlog.
18	Abnormal	Used to log the service/ maintenance request. This is reviewed and prioritized by maintenance planner on daily basis to clear the backlog.
18	NEDLI	Database used to register the commissioned assets related to Substations. After confirmation from project, asset records are created manually in SAP.
19	TOPLI	Database used to register the commissioned assets related to Transmission. After confirmation from project, asset records are created manually in EGIS.
20	PI	PI Historian is a real-time data historian developed by OSIsoft. The PI Historian records data values over time in a proprietary time-series database.
21	TOTS	Transmission Outage Tracking System is used to track all the outages in transmission network where customer is not impacted.
22	Failure	Failure database is used to maintain the failure history by the reliability group for both inside and outside plant assets.
23	Tableau	Uses data from existing systems and databases to analyze and present dashboard reports.
24	Work Permit	Application built on MS Access database. Maintenance groups request work permit through this system.
25	AutoCAD	Application used for creating and managing network design and drawings.
26	DGA	MS Access Database used for capturing dissolved gas analysis results for transformers.
27	Doble	MS access database used for recording the field test results for substation assets
28	P-Card	Maintenance managers purchase non-stock items by using P-Card, within the limits assigned to them. P-card reconciliation is done on 10th of every month and work order reference is provided on a portal to reflect charges to correct account in SAP.
29	Osmose	External application maintained by Supplier to manage the wooden pole Inspection results.
30	HR	SuccessFactors is the HR system hosted on cloud.

Source: DR 987

## 8. PSEG LI describes a broad spectrum of work management related improvement initiatives many of which are projected to be included in the development of the Enterprise Asset Management System (EAMS).

- Elements of the EAMS system include the following:<sup>52</sup>
  - Work Management – planning, scheduling and dispatch, storm/emergency.
  - Asset Management – inspections, in-service, asset moves, retirement.
  - Crew Management – managing work, crew assignments (personnel), availability.
  - Routing – GIS-based route optimization, reassignment with routing.
  - Materials Management – reservations, pick, reordering, reconcile, issue, transfer, return.
  - Procurement – source to pay.
  - Mobility & Extended Mobility – true enterprise vision and strategy.

<sup>52</sup> DR 84

- Asset Performance / Health Analytics – predictive, capital planning, maintenance strategy.
- PSEG LI’s EAMS strategy and future state presentation as of September 2022 projected implementation in 2024/2025.<sup>53</sup>

**9. PSEG LI stated that “Going thru the process of reviewing all of the leading EAMS systems, it is clear that there is not one system that will manage all work planning and management data and reporting.”<sup>54</sup> Why then would PSEG LI and LIPA select one system – Maximo – for EAMS as well as numerous additional functional management areas?<sup>55</sup>**

- The EAMS scope as defined to date includes major dissimilar functions, all under the title of “asset management.” It is unlikely that any one existing system or the development and implementation of one integrated management system that automates all these functions will be successfully completed as currently projected.
- Currently, PSEG LI uses a Computerized Maintenance Management System (CMMS) for asset health data of inside plant assets. This system is used by PSEG LI in repair/replace decision making, and scheduling maintenance activities. CMMS will be replaced by EAMS.
- In the absence of a comprehensive work management system, there is limited interface with other key systems such CAS, dispatch, SAP finance and accounting functions, and the OMS. Data for routine reports is dispersed in multiple applications, and the compilation of data for analytic and reporting purposes is a multi-step process lacking integration.

**10. With the exception of some specific performance metrics, pass-through provisions of the Second A&R OSA, along with previous Agreements do not provide PSEG LI sufficient incentives to improve work management.**

- PSEG LI is responsible for management, operation and maintenance of the T&D system.<sup>56</sup> LIPA funds PSEG LI “Pass-Through Expenditures” for these services, including the cost of capital improvements, all goods and services including materials, supplies, spare parts, vehicles, purchased services, and other costs, and subcontractor costs.<sup>57</sup>
- Pass-through expenditures for labor costs are affected by work force utilization and productivity performance. If work force utilization and productivity are not controlled or improved over time, additional workload and labor costs cause higher expenditures and rates.

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<sup>53</sup> DR 84 Attachment 2

<sup>54</sup> DR 84

<sup>55</sup> DR 1359 – “Maximo” was the EAMS software selected by PSEG LI in 2023, prior to deferring the program.

<sup>56</sup> Second A&R OSA Section 4.2

<sup>57</sup> Second A&R OSA Section 5.2

- Within the T&D business unit where the work execution is carried out, the work management group within Investment Delivery Assurance (IDA) ties staffing levels to work demand for each craft.<sup>58</sup> The staffing levels set forth in the September 28, 2015 Department of Public Service Rate Recommendation in Matter No. 15-00262 (“2015 Rate Plan”) was used as the baseline and the go forward strategy is to meet work demands by developing long term staffing strategy plans for each primary construction resource. Ongoing staffing requirements are managed by the managers within the operational groups.
- The only Second A&R OSA Performance Metric that focuses on staffing levels is T&D-18 Work Management Enhancements – Enhancements to Short-Term Scheduling.<sup>59</sup>
  - Objective: Develop Work Management Process Enhancements that optimize staffing levels, productivity, and overtime in support of the scheduled T&D work.
  - Definition: Enhance work management process by developing an integrated work tool that will consolidate all work that is aligned with the annual budget and work plan and will provide the following functionality to improve the ability to create short term plans and schedules by December 31, 2022.
  - PSEG LI stated that as of April 24, 2023, all locations have transitioned to the short-term scheduling database.<sup>60</sup>
  - Demonstration of the Short-Term crew schedule revealed significant shortcomings in terms of producing a work “schedule.”<sup>61</sup> The schedule examples provided and presented to NorthStar did not have work start times, completion targets, time estimates were missing in some cases, and they did not cover all PSEG LI locations.
- NorthStar requested procedures that PSEG LI uses to establish staffing requirements for PSEG LI operational groups such as T&D maintenance and construction, field service, warehouse, workshops, fleet management/maintenance, purchasing, dispatch, including example forms and reports.<sup>62</sup> PSEG LI responded that staffing was proposed and ultimately recommended in the 2015 Three Year Rate Plan. The on-going staffing requirements are managed by the managers within the operational groups. When additional staffing is required, for example, for hiring above the rate of attrition because of long lead training requirements for key roles, the managers will make a request to their Directors. If the Directors determine that the additional staffing is required, the Director will seek approval from the Vice President of T&D Operations. Once approved by the Vice President, the Vice President reviews the staffing requirement with the President & Chief Operating Officer (COO). Upon Final Approval by the President & COO, the operational managers work with their Human Resources Business Partner to track the approval and follow the internal

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<sup>58</sup> DR 77

<sup>59</sup> LIPA / PSEG LI 2022 Performance Metrics.

<sup>60</sup> DR 913

<sup>61</sup> IR 111

<sup>62</sup> DR 77

processes for hiring. An excel file is used by the T&D Business Partner to track staffing. In summary, PSEG LI staffing is therefore subjective.

**11. Significant levels of overtime experienced over recent years have only recently become a critical management issue. Overtime metric performance targets inexplicably appear to be even greater than actual levels experienced – not an improvement.**

- Overtime is a practical necessity for utility services. However, industrial guidelines suggest that economic alternatives to overtime levels that exceed 15 percent exist and should be considered by management.<sup>63</sup>
- Historically, LIPA has been concerned with high levels of overtime but has set performance metrics only at targets previously achieved.
  - Overtime was highlighted as a significant work management issue in the two prior management audits.
  - The 2018 report noted that overtime was 23.8 percent of straight time in 2015 and increased to 30.3 percent in 2016.
  - The 2018 audit recommended that LIPA / PSEG LI develop overtime targets for PSEG Long Island operations and maintenance organizations based on economic analyses and verified industry norms.
  - Overtime was not included as an element of the 2018 through 2021 Balanced Scorecard.
  - LIPA Staff’s eight recommendations to the Board to improve work management dated June 23, 2021, did not address overtime.<sup>64</sup>
  - LIPA retained PA Consulting to assess overtime levels – providing a final report January 24, 2022.<sup>65</sup>
  - Approved overtime performance targets were established December 14, 2022, for 2023 Budget and Performance Metrics and included:<sup>66</sup>
    - Overhead/Underground Lines 31.0%
    - Distribution Ops 36.0%
    - Substation/Relay Maintenance 32.0%

**12. PSEG LI has continued to advance its use of mobile technology for field operations.**

- In 2018, the following organizations used Mobile Data Terminals (MDT) to help dispatch their work.<sup>67</sup>

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<sup>63</sup> As an example, US Bureau of Labor Statistics data, <https://www.bls.gov/news.release/empsit.t23.htm>

<sup>64</sup> Board of Trustees Consideration of the Adoption of Recommendations to Improve Work Management, June 23, 2021

<sup>65</sup> DR 539 Attachment 5

<sup>66</sup> LIPA Proposed 2023 Performance Metrics, T&D-23: Employee Overtime, page 153/207,

<sup>67</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018. DR 381



- Distribution Operations – to receive, update, and complete dispatched emergency/trouble work utilizing the Computer Assisted Dispatch (CAD) system.
  - Substation Operations – to document substation inspection data and manage Non-Reclose Assurance (NRA) switching requirements. Both utilize a web browser to capture data that is saved to an Oracle table.
  - Measurement Services – for daily work schedules for all Customer Office generated meter changes and upgrades and also Meter Engineering project work which includes Regulatory and special project meter installation and changes. Data is captured in CAD.
  - Collections & Meter Reading – for special reads and turn-on/turn-off orders utilizing CAD.
  - OH/UG Lines – to manage storm restoration work utilizing CAD.
  - Substation, Protection, & Telecommunications (SP&T) – to manage storm restoration work utilizing CAD.
  - Vegetation Management – to capture information on hazardous trees, damaged equipment and tree conditions found during transmission patrols, and to document vine issues for the Vine Management Program.<sup>68</sup>
- PSEG LI planned that all OH/UG Lines and Substation, Protection and Transmission work would be dispatched to those groups via MDTs by March 2019.<sup>69</sup>
    - The Emergency Planning group was working to finalize a major storm initiative to implement mobile technology to non-MDT equipped personnel (both internal and external) that would allow for the mobile assignment of work, provide the ability to remotely status work progress and allow for the electronic collection of data in the field via a smartphone, tablet, etc.
    - Emergency Service Specialists (Servicemen) and other single person crews had mobile data terminals in their trucks.
    - At that time, crews did not have data terminals, but were equipped with two-way radios and iPhones.
  - In the prior management audit, PSEG LI stated that all OH/UG Lines and Substation, Protection and Transmission work would be dispatched to those groups via Mobile Data Terminals (MDTs) by March 2019. However, during the current audit PSEG LI stated: “The effort to complete the MDT / Mobile integration with our work management systems was paused when a business decision was made to move to a new work management platform – Maximo. For this reason, there is limited benefit from using the mobile computers outside of storm dispatch; the long-term mobile solution for non-storm work will be part of the broader EAMS / Maximo project.”<sup>70</sup>

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<sup>68</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018. <https://www.esri.com/en-us/about/about-esri>

<sup>69</sup> Comprehensive Management and Operations Audit of Long Island Power Authority and PSEG Long Island, Matter No. 16-01248, Final Report June 14, 2018. DR 381

<sup>70</sup> DR 1359 – “Maximo” was the EAMS software selected by PSEG LI in 2023, prior to deferring the program.

- SAS reporting tools support real-time dashboards, monthly, weekly, daily, hourly scheduled reports, event-triggered alerting/reporting to on-demand user generated reports for situational awareness.<sup>71</sup>
  - The SAS functionality allows all reporting necessities from Blue Sky days to Storm events to Scorecard Metrics.
  - The SAS content is generated for and leveraged by hundreds of employees on mailing lists spanning many departments across the organization every day in real-time from repair crews out in the field requiring ETR update alerts sent to their mobile devices to senior leadership for hourly Storm Statistics.
  - With the SAS upgrade completed, all users now have access to view content relevant to their roles based on their active employee status.
- SAP work packages are sent from the office to field and displayed on mobile devices utilizing the CAD platform, allowing crews to create, assign, status and close out work packages remotely for non-storm work.<sup>72</sup>
- An ESRI based mobile application uses EGIS maps to automate, standardize and geocode patrol findings and results.<sup>73</sup>
- Currently, crews that are equipped with mobile devices are shown in **Exhibit XI-7**.<sup>74</sup>

**Exhibit XI-7**  
**PSEG LI Crews Currently Equipped with Mobile Devices**

Department	Manager	Personnel	MTDs	Device Type
OH/UG QN	A	50	8	MDT(Toughbook mobile laptop)
OH/UG CN	B	79	30	Tablets
Substation West	C	84	0	None
Dist Ops QN	D	40	40	Laptop Toughbook
Dist Ops QN	E	100	100	Laptops
OH/UG WS	F	72	26	Tablets
OH/UG ES	G	115	32	Panasonic Toughbooks
Substation East	H	31	31	Laptops
Dist Ops ES	I	31	31	MDT(Toughbook mobile laptop)
Dist Ops WS	J	36	36	MDT(Toughbook mobile laptop)
<b>Total</b>		<b>638</b>	<b>334</b>	

Source: DR 918

- The Board’s adoption of recommendations to improve work management (June 23, 2021) included improvements in the use of mobile devices and ergonomic transaction design to enhance field management of work and data collection and integrate the same to the new EAMS, to be completed by December 30, 2022. PSEG LI stated that “Since development and deployment of the Enterprise Asset Management System

<sup>71</sup> DR 80

<sup>72</sup> DR 80

<sup>73</sup> DR 80

<sup>74</sup> DR 918

(EAMS) is a precursor to completing this Board Adopted Recommendation, the referenced mobility improvements are incorporated into the larger EAMS project.”<sup>75</sup> EAMS functional requirements include 30 mobile-related items.<sup>76</sup>

## D. RECOMMENDATIONS

1. Develop an integrated a work management system covering all PSEG LI operations, maintenance and construction resources that are based on engineered time standards and cover routine operations, repetitive maintenance activities, planned work, support requirements, and provide continuous feedback on workforce effectiveness. The system should be in an easy-to-use format expressed in man-hours, along with the combined employee and contractor capacity available to perform the work, supported by real time reporting of capacity utilization. The system should include:
  - Documentation of work level versus resource histogram development and work plan process.
  - Enhanced methods to calculate workforce capacity and utilization.
  - Expanded workforce coverage in reports.
  - Documentation of processes for establishing workforce levels.
  - Documentation of criteria for adding contractor capacity.
  - Establish real time variance reporting for O&M and project costs.
  - Additional decision-making information to work plans.
  
2. Continue to fill gaps in the current management information reporting and organizational reporting relationships to support an integrated work management system.
  - Develop formal reports on trends in work load levels, workforce productivity and utilization. The analysis of these trends identifies areas that are performing well, where improvements are needed, and is a foundation for the development of strategies to improve work force performance.
  - Establish formal processes to use work management data for annual resource planning as part of the annual business planning activities of PSEG LI operations and maintenance.
  - Refine formal work management practices for PSEG LI engineering and design functions. The work management systems should have appropriate system tools to support the various individual and distinct engineering functional processes. Elements that should be formalized include:
    - Scheduling
    - Prioritization and planning
    - Resource allocation and leveling
    - Performance measurement

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<sup>75</sup> DR 1057

<sup>76</sup> DR 1057 Attachment 1

- Budget planning and control
  - Vendor tracking
  - Document/drawing control
  - Records management
  - Procurement management
  - Time reporting.
3. Refine overtime targets and performance metrics for PSEG LI operations and maintenance organizations that are based on economic analyses and verified industry norms.
  4. Review the design of monitoring and controlling reports to improve their usefulness.

## XII. OUTSIDE SERVICES

This chapter provides the results of NorthStar’s review of Outside Services (Scope Element C.2.7) including inventory management for the provision of materials in support of operations.

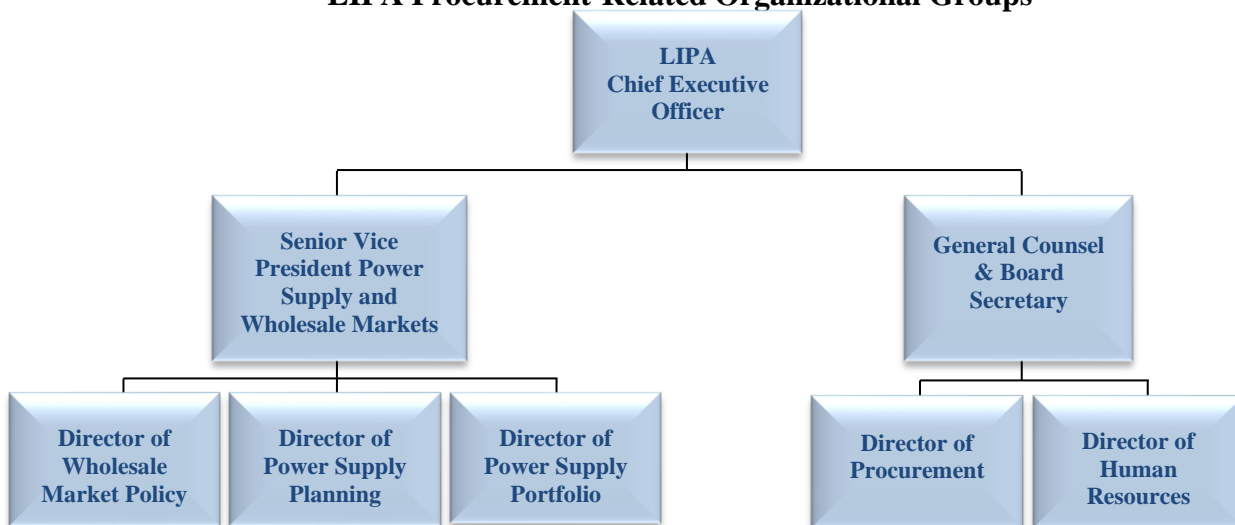
### A. BACKGROUND

LIPA accomplishes its mission by outsourcing the vast majority of work involved in running its transmission and distribution (T&D) system through various service agreements. This outsourcing of such a major portion of core services requires the organization to have in place current and legacy contracts, controls, and reporting mechanisms to ensure the provision of quality, reliable service to its customers.

Effective management of any outside service providers begins with execution of a strong contract that clearly specifies services to be provided, roles and responsibilities of both parties, performance requirements, and reporting requirements, along with clear responsibility for costs incurred in execution of the contract. Once a contract is in place, the contract terms are only as effective as the extent to which they are monitored and enforced. Consequently, there also needs to be established processes within the contracting agency to oversee performance of the contracts and to take rapid action should there be variance from contract terms or contract non-performance. The provision of essential services to LIPA customers increases the importance of effective contracting, monitoring and enforcement for these service providers.

The LIPA organizations that provide procurement and contracting for LIPA along with PSEG LI oversight are shown in **Exhibit XII-1**.

**Exhibit XII-1**  
**LIPA Procurement-Related Organizational Groups**



Source: DR 2

LIPA expended over \$6.1 billion in contracts, materials and services from 2018 to 2022. The majority of these procurements are related to securing reliable sources of energy for LIPA customers as shown in **Exhibit XII-2**. LIPA’s expenditure categories outside of power supply include the PSEG LI management fee, financial services and contracts (including swap agreements and letters of credit), consulting and other professional services, construction and maintenance, and other.<sup>1</sup>

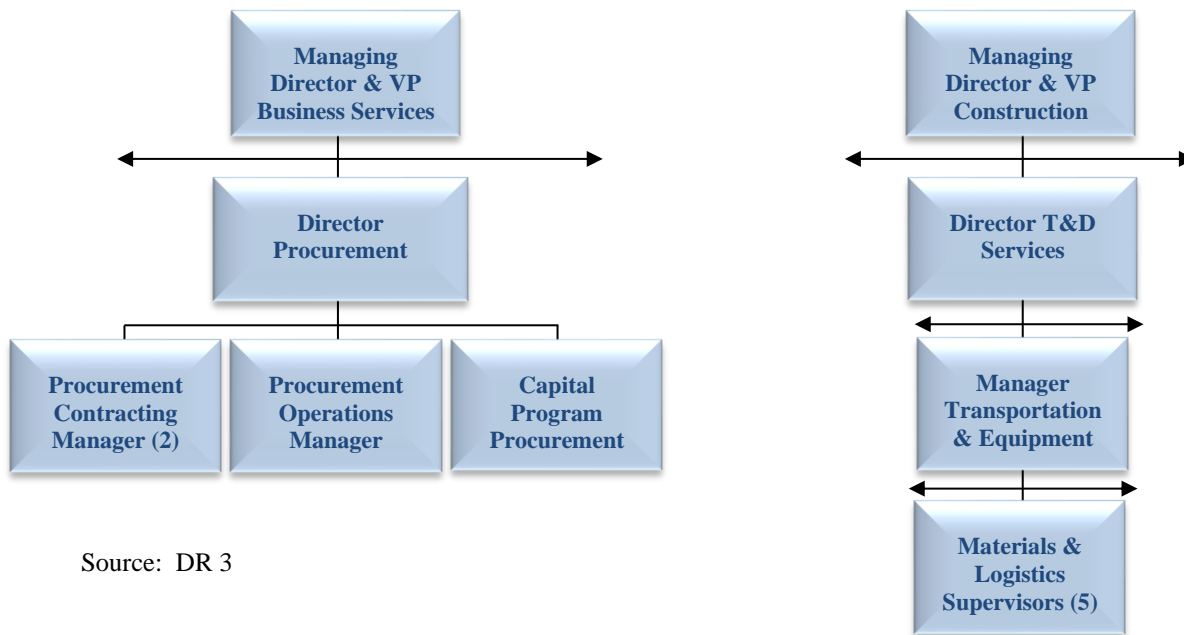
**Exhibit XII-2**  
**LIPA Procurement Expenditures from 2018 to 2022 (\$MM)**

Procurement Category	2018	2019	2020	2021	2022	Total
Power Supply	981	989	954	951	935	<b>\$4,810</b>
PSEG LI Management Fee	74	75	85	68	66	<b>\$368</b>
Commodities and Supplies	119	102	111	114	109	<b>\$554</b>
Financial Services	50	69	55	51	33	<b>\$258</b>
Consulting and Other Professional Services	14	12	16	17	18	<b>\$77</b>
Design, Construction and Maintenance	6	8	5	8	8	<b>\$35</b>
Other	4	4	5	4	5	<b>\$21</b>
<b>Total</b>	<b>\$1,249</b>	<b>\$1,259</b>	<b>\$1,230</b>	<b>\$1,211</b>	<b>\$1,173</b>	<b>\$6,123</b>

Source: DR 280 and NorthStar analysis.

PSEG LI organizational groups that provide procurement and inventory management shown in **Exhibit XII-3**, report to separate Managing Directors, who both report to the PSEG LI Interim President and Chief Operating Officer.

**Exhibit XII-3**  
**PSEG LI Supply Chain Organizational Groups**



Source: DR 3

<sup>1</sup> DR 280, Other procurement category consists of office leases, IT hardware and software, telecom, subscriptions and memberships among other ancillary expenditures.

PSEG LI expended almost \$4 billion in contracts, materials and services from 2018 to 2022 related to operating the T&D system on Long Island. The majority of these procurements are related to T&D services and equipment such as overhead line services, wood pole inspections, maintenance and repair, tree cutting, transformers, programmable meters and other related items as shown in **Exhibit XII-4**. PSEG LI’s expenditure categories outside of T&D services and equipment purchases include consulting and other services, IT and telecom equipment and services, temporary staffing, and other.<sup>2</sup>

**Exhibit XII-4**  
**PSEG LI Procurements from 2018 to 2022 (\$MM)**

<b>Procurement Category</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
T&D Services and Equipment	453	470	770	594	466	<b>\$2,753</b>
Consulting and Other Services	157	160	163	180	196	<b>\$856</b>
IT and Telecom Equipment and Services	48	31	36	40	40	<b>\$195</b>
Temporary Staffing	6	6	16	20	15	<b>\$64</b>
Other	9	7	4	7	4	<b>\$32</b>
<b>Total</b>	<b>\$672</b>	<b>\$675</b>	<b>\$989</b>	<b>\$842</b>	<b>\$721</b>	<b>\$3,899</b>

Source: DR 279.

## B. WORK TASKS

The audit scope of work included:

- Review and assess formal and informal processes within LIPA designed to monitor performance of PSEG LI and other key outside suppliers.
- Assess whether LIPA’s contractor management processes provide sufficient internal controls to manage and control levels and costs of service.
- Review the Second A&R OSA and a sample of other key outside supplier contracts (including construction contracts) to identify contractual terms designed to ensure performance and manage performance risk, and cost responsibilities, including authorizations, reporting requirements, penalties for non-performance.
- Ensure that operational policies and procedures, including cost allocation methodologies, are consistently followed and meet applicable legal, regulatory, and contractual requirements. Identify any gaps between policies and procedures. (covered in Chapter IV – Budgeting and Financial Reporting)
- Review cost allocation processes being developed related to the Second A&R OSA to determine that costs are properly allocated and meet applicable legal, regulatory, and contractual requirements. (covered in Chapter IV – Budgeting and Financial Reporting)
- Review and assess the contractual agreements regarding storm event definition, and payment for storm costs both within and external to the Second A&R OSA.
- Review and assess processes within LIPA that are designed to prevent abuses.

<sup>2</sup> Other procurement category consists of general building costs, office supplies and furniture, and training/education costs among other ancillary expenditures.



## C. FINDINGS AND CONCLUSIONS

### 1. LIPA processes to manage outside suppliers lack structure and formal oversight. Controls to manage and control costs of service are deficient in a number of areas.

LIPA's consulting services contracts are procured by issuing Requests for Proposals (RFPs). Responses to the RFPs are evaluated by LIPA's technical team which scores the responses based on quality, vendor's experience with electric utilities and overall industry knowledge. A procurement team scores cost, Minority/Women-Owned Business Enterprise (MWBE) and Service-Disabled Veteran-Owned Business (SDVOB) factors.<sup>3</sup>

- The LIPA technical team is composed of subject matter experts (SMEs) from the specific business groups. LIPA stated that SMEs are familiar with vendor performance under each contract for which they have responsibility.<sup>4</sup>
- The technical team, scoring vendor proposals, is focused on the selection of vendors but not the actual vendor performance.<sup>5</sup>
- LIPA subject matter experts (SMEs) oversee PSEG LI procurements and contracting in each of their subject areas. LIPA provided a list of 160 contracts and SME responsibility assignments. However, the assignment or ongoing responsibility connecting a LIPA SME and a contract appears to be its executive leadership team or the highest level resource within LIPA's functional organization unit.<sup>6</sup> Using the executive leadership team to manage LIPA's large contract portfolio is problematic due to limited number of executive resources, timing/availability, and detailed knowledge/familiarity limitations across the organization.
- While prior poor contract performance could be considered by the evaluation team when awarding subsequent contracts, there is no contract performance evaluation documentation recorded. "Members of LIPA's Executive Committee meet weekly for informal "huddles" where they discuss issues that would be of interest to most members of the Committee. There are no formal agendas for these meetings. Members raise topics as they see fit. One of the topics that gets discussed from time to time is experiences certain SMEs have had, either good or bad, with specific vendors." Those discussions are considered as background information when scoring future procurements.<sup>7</sup>
- LIPA's contracts are generally bid every five years. In addition, LIPA tends to award multiple firms for each scope of work procured for so, if a vendor performs poorly on

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<sup>3</sup> DR 36

<sup>4</sup> DR 36

<sup>5</sup> DR 36

<sup>6</sup> DR 1124

<sup>7</sup> DR 1125

a project, LIPA could select a different vendor within that scope for future projects.<sup>8</sup> However, NorthStar’s review did not surface any examples that this happens.

- There is no regular or formal feedback provided to LIPA or PSEG LI vendors as to their performance.<sup>9</sup>
- Additionally, in 2023, LIPA is in the process of determining whether a more formal system is needed to document vendor performance.”<sup>10</sup>
- LIPA did not respond to NorthStar’s request to provide contract terms and conditions that included KPI performance targets or performance measures for contracted services with the exception of the Second A&R OSA, PSEG ER&T contract, and National Grid Power Supply.<sup>11</sup> It does not appear that LIPA evaluates continued use of outside service providers nor does it address its own use of contracted service providers.
- It is the policy of the Authority to not assume any obligation to maintain any bidders list and to notify any firm of an opportunity.<sup>12</sup>
- The following examples of engagement activities with the market illustrate the best practices that are only partially or occasionally used by LIPA:<sup>13</sup>
  - Holding pre-bid briefing for potential vendors about requirements and sourcing process;
  - Developing mailing lists to communicate information to vendors;
  - Carrying out strategic market sector research and analysis;
  - Organizing vendor outreach events (i.e. Meeting with potential key vendors; pre-solicitation meeting with potential contractors, etc.);
  - Briefing vendors who have shown an interest to participate in a specific procurement; and
  - Conducting vendor performance evaluation reviews based on identified key indicators/criteria.
- PSEG LI utilizes PSEG New Jersey to supplement their in-house staff and/or third-party services in order to fulfill the requirements of the OSA. The use of “New Jersey” to support “Long Island” is referred to as Affiliate Services. LIPA monitors the Affiliate aggregate spending monthly by functional area.<sup>14</sup>
- LIPA’s power supply / fuel manager service vendor (PSEG ER&T) is measured contractually through performance metrics.<sup>15</sup> Additionally, a detailed set of procedures and policies serves as an operational manual as reference. LIPA provided a

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<sup>8</sup> DR 36

<sup>9</sup> DR 1124, 1125 and DR 1048 Attachment 2

<sup>10</sup> DR 1125

<sup>11</sup> DR 171

<sup>12</sup> LIPA Procurement Management Review and Recommendations Report, July 25, 2022.

<sup>13</sup> LIPA Procurement Management Review and Recommendations Report, July 25, 2022.

<sup>14</sup> DR 38

<sup>15</sup> DR 40

presentation covering the processes used to monitor ER&T's performance on a daily, weekly, and monthly basis.

## 2. NorthStar's review of LIPA and PSEG LI services and materials procurement during 2022 revealed the need for improved bidding, competition and cost reduction.

- LIPA stated that “The PSEG-LI procurement function is focused on supporting its obligation to operate the utility day to day by providing Operations Services pursuant to the Second A&R OSA. PSEG Long Island conducts procurements pursuant to its own procurement guidelines.” And “LIPA’s procurement function is independent from PSEG Long Island’s and supports LIPA’s needs related to its core responsibilities including financial, legal, and oversight.”<sup>16</sup>
- The response to NorthStar’s audit request for procurement KPIs and performance measures provided minimal insight. PSEG LI stated “The performance of the PSEG Long Island Procurement Group is monitored throughout the year and is captured in the annual performance evaluation process. Key metrics are adjusted each year depending on the goals of the business. Several key metrics include supplier diversity, client satisfaction, number of repeat audit findings, capital project milestones, cost reduction, and budget compliance. Targets are established at the beginning of the year and measured at year-end.”<sup>17</sup>
  - Internal goals were exceeded for M/WBE and supplier diversity.
  - Client satisfaction was not applicable in 2021 and 2022.
  - Cost reduction through negotiations did not meet targets.
  - Budget compliance and total spend compared to plan were mixed.
- PSEG LI’s competitive procurement reported over the most recent 5-year period is 66.3 percent of spend amounts shown in **Exhibit XII-5** below.<sup>18</sup> PSEG LI has numerous procurement methods that are not competitive.

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<sup>16</sup> DR 173

<sup>17</sup> DR 172

<sup>18</sup> DR 279

**Exhibit XII-5**  
**Level of PSEG LI Competitive Procurement from 2018 to 2022**

Method of Placement	2018	2019	2020	2021	2022	Annual Avg.
Emergency Order	4.0%	2.5%	18.9%	8.9%	1.4%	7.6%
Competitive Bid	62.5%	77.5%	55.0%	68.5%	67.1%	66.3%
Sole Source-No Approval Required	0.0%	0.2%	0.2%	0.2%	0.5%	0.3%
Single Source-No Approval Required	1.7%	3.4%	2.9%	5.3%	6.8%	4.1%
Discretionary Spend (LI Only)	0.1%	0.1%	0.2%	0.1%	0.3%	0.2%
Single Source	25.6%	14.0%	21.2%	15.1%	22.5%	19.2%
Sole Source	4.6%	1.4%	0.5%	0.9%	0.6%	1.3%
PO to Satisfy Invoice	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%
Local Order	1.4%	0.9%	0.9%	0.9%	0.9%	1.0%
Blank	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: DR 279 Attachment 2

- Major PSEG LI expenditures are for overhead and underground line work, vegetation management and consulting services.
- PSEG LI’s Procurement – Enterprise Practice 242LI-1, updated in November 2022, is a comprehensive document covering the mechanics of procurement, roles and responsibilities.<sup>19</sup> However, attention to competitive selection, cost/value selection and benefits are not emphasized. They are summarized by the expected benefits statement “Ensuring a competitive process is executed for purchasing and contracting for materials and services or ensuring the proper use of sole/single source justification.”
- In addition to power supply and PSEG LI management fees, LIPA reported its own procurement expenditures for:
  - Consulting services
  - Financial services
  - Legal services
  - Other and other professional services
  - Staffing services
  - Subscriptions
  - Technology hardware, development, consulting, and support services
  - Design, construction and maintenance
  - Telecommunication equipment and services.
- LIPA procurement materials and services competitive spend amounts are less than half of total spend. Non-competitive placements are greater than 50 percent of the total dollars spent as shown in **Exhibit XII-6**.<sup>20</sup>

<sup>19</sup> DR 962

<sup>20</sup> DR 280

**Exhibit XII-6**  
**LIPA Procurement Expenditures from 2018 to 2022 – Excluding Power Supply and PSEG LI Management Fee (\$000)**

Method of Placement Classified by LIPA	2018	2019	2020	2021	2022	Total
Competitive Bid	\$64,155	\$80,306	\$67,727	\$67,152	\$50,136	\$329,476
Non-Competitive Bid	\$126,332	\$110,133	\$116,856	\$124,190	\$115,384	\$592,895
Procurement expenditures that could not demonstrate competitive placement						
Non-Contract Purchase Orders	\$3,028	\$2,950	\$3,632	\$1,127	\$4,126	\$14,862
Purchased Under State Contract	\$0	\$1,357	\$3,219	\$909	\$2,481	\$7,966
<b>Total</b>	<b>\$193,515</b>	<b>\$194,747</b>	<b>\$191,434</b>	<b>\$193,377</b>	<b>\$172,128</b>	<b>\$945,200</b>

Source: DR 280. NorthStar analysis. Numbers may not add due to rounding.

- LIPA procurement policies require “best value” although this determination is subjective i.e., without formal analysis or documentation.<sup>21</sup>
- “Competitive procurement” levels reported by LIPA and PSEG LI are additionally questionable since both entities often place long-term contracts with multiple suppliers for the same products and services portfolio and then place purchase orders among those multiple suppliers without any apparent justification for their selection among a group of contracted suppliers.<sup>22</sup>

**3. NorthStar’s detailed review of PSEG LI purchasing revealed numerous control deficiencies.**

- PSEG LI provided annual purchase order and annual spend amounts by vendor from 2018 through 2022.<sup>23</sup> NorthStar selected over 30 purchase orders to review PSEG LI’s procurement sourcing, selection, and controls.<sup>24</sup>
- Like LIPA, PSEG LI uses multi-year contracts with multiple firms for the same or similar portfolio of products and services. LIPA and PSEG LI consider this practice competitive based on evaluations of technical, commercial and supplemental considerations. And, the purchase orders that are covered by these contracts are also considered competitive.
  - Multiple contracts for the same products and services provide LIPA and PSEG LI a broad array of purchase order placement options over an extended time period.
  - For example, PSEG LI awarded contracts to four vendors out of eight offers because four of the eight offers did not supply complete bids.<sup>25</sup>

<sup>21</sup> DR 252 and

<sup>22</sup> DRs 36, 38, 171, 252, 279, 283, 284, and 477-499.

<sup>23</sup> DR 171

<sup>24</sup> DRs 171, 252, 279, 283, 284, 477-499, 548, 829, 832, 833, 836, 837, 849, 850, 888-890, and 948.

<sup>25</sup> DR 496

- However, none of the purchase order transactions reviewed by NorthStar revealed a formal, quantified, cost/benefit analyses or price comparison among contracted vendors was performed by LIPA or PSEG LI.<sup>26</sup>
- None of the purchase orders reviewed showed KPI performance targets, requirements or management responsibility for their satisfactory completion.<sup>27</sup>
- PSEG LI does not require competitive purchasing for amounts less than \$100,000. “Per Section 5.2.1 within PSEG Long Island Procurement Instruction 242LI-1-1, previously provided in response to DR-962, for purchases less than \$100,000, the client could request a specific supplier by identifying the Desired Supplier in the Requisition. The Procurement Associate will determine the appropriateness of assigning the PO to the requested supplier and can move forward with the purchase without a Request for Non-Competitive Bid Form.”<sup>28</sup> While PSEG LI based this authority level on a PSEG NJ survey, one of the “peer utility” respondents noted in its results, that a \$1,000,000 threshold for competitive bidding, is hardly a benchmark example of effective cost management by a public entity such as LIPA and its agent PSEG LI.
- Numerous purchase orders selected were for the same materials/equipment/services revealed the same: volumes ordered, dollar amounts, delivery location, and same timing. In 2022, 759 PSEG LI purchase orders were used to split the exact dollar amount.<sup>29</sup> Splitting purchase orders directly circumvents the objective of authority/approval levels and financial controls and should be specifically prohibited. PSEG LI stated:<sup>30</sup>
  - This was for different projects and accounts. However, NorthStar’s review of purchase orders showed that they do not include project or accounting information.<sup>31</sup>
  - Purchase orders are “machine generated” i.e., produced from inventory management – apparently without human review/intervention.<sup>32</sup> PSEG LI stated “The purchase orders listed above<sup>33</sup> are system-generated orders released to auto replenish inventory. Min/Max thresholds drive the release of these orders.”
- Purchase order amounts often did not match spend amounts recorded.<sup>34</sup>
- A non-competitive/single source purchase was conducted for an M/WBE. PSEG LI stated “The procurement strategy for these purchase orders was single source. The purchase orders were not competitive as [the vendor] is a certified NYS MWBE that

<sup>26</sup> DRs 36, 38, 171, 252, 279, 283, 284, 477-499, 548, 829, 832, 833, 836, 837, 849, 850, 888-890, and 948.

<sup>27</sup> DRs 171 and 477-499.

<sup>28</sup> DR 978

<sup>29</sup> DR 171 and NorthStar analysis of 4,076 purchase orders in 2022.

<sup>30</sup> DRs 171 and 477-499.

<sup>31</sup> DR 487 and attachments 1-4.

<sup>32</sup> DR 499 and 829

<sup>33</sup> DR 499 and 829

<sup>34</sup> DRs 171 and 477-499.

- helps PSEG LI achieve MWBE utilization goals.”<sup>35</sup> While M/WBE goals are important, this particular vendor was simply a reseller of other vendor’s products and services and there was no additional justification or value added.
- Purchase orders do not always reference a vendor contract even for those vendors with a broad portfolio of contracted materials and services.
    - “One-off orders: such purchases support business requirements for non-inventory equipment and materials. Transactions of this nature are subject to PSEG Long Island’s standard purchase order terms and conditions.”<sup>36</sup> “One-off” purchase orders are not competitive.
    - Administrative / application errors: contract number was not applied to the order prior to execution of the purchase order.
    - “Funding review: orders placed on a one-off basis to ensure continuity of supply through the business while internal analysis of funding needs was determined and contract approvals were secured.” While this may be true, any “internal analysis” that was done was completed after the fact making it irrelevant to the decision. This is clearly a poor procurement practice and control weakness.
    - Interim transactions: one-off purchase orders were conducted during the period between the expiration of the old contract and the execution of the new contract.
  - Purchase order pricing, delivery dates, etc. are frequently edited/changed after their original execution.<sup>37</sup>
  - One of the purchases reviewed was split among two vendors for the same equipment and same amount. However, one of the vendors selected was in error and did not provide this equipment. PSEG LI stated that the payment released to the erroneous vendor was reversed.<sup>38</sup> However, this “reversal” was done six months after the purchase order was issued and payment for equipment to a vendor that did not provide the equipment ordered i.e., could not have been delivered by that vendor. This shows procurement/receipt/payment control deficiencies.
  - PSEG LI spent over \$100 million over a four-year period on two vendors for storm emergency work.
    - In 2018. PSEG LI conducted a bidding process for storm emergency restoration services. These two vendors did not participate in this process.<sup>39</sup> Their spend amount is recorded as non-competitive.
    - Tropical Storm Isaias struck Long Island on August 4, 2020, causing 650,000 LIPA customers to lose power.
    - One purchase order in the amount of \$44.4 million, was issued November 6, 2020, for work that began on August 4, 2020, and was completed September 15, 2020.

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<sup>35</sup> DR 487

<sup>36</sup> DR 481 and 492

<sup>37</sup> DRs 171, 477-499 833 and 835

<sup>38</sup> DR 890

<sup>39</sup> DR 980



Nearly two months later. The November purchase order was created after the fact to match invoices received and cover the final balance.

**4. PSEG LI’s inventory management practices are outdated and ineffective. The current initiative to implement an Enterprise Asset Management System (EAMS) has been proposed as a solution.**

- PSEG LI reported inventory performance that is significantly lower than comparable utilities. “Turnover rates are slightly below 1.0 per year at all locations with a slight trend downward. These levels have gone down slightly for two reasons: (1) after implementation of the Isaias storm inventory levels, turnover went down due to mostly increased storm inventory levels and (2) the reduced number and intensity of storms in 2022 caused a lower than expected inventory turnover.”<sup>40</sup>
- Inventory turnover performance is also reduced by multiple “system-generated” purchase orders released to replenish inventory are created within the same week for the same materials/equipment.<sup>41</sup> Min/Max thresholds which are static, manually entered quantities are used to drive purchase orders to replenish inventory. “PSEG Long Island has always used min/max thresholds and does not use “economic order quantities.”<sup>42</sup>
- NorthStar requested documentation to support inventory levels. PSEG LI provided “...excerpts from the 2022 ERM Final Report addressing the justification for the inventory strategy to which LIPA agreed.”<sup>43</sup> Specifically:
  - Inventory strategy: 100% Isaias storm level inventory, plus three or more months operating stock; Supplier orders placed through 2023 for all critical materials.
  - This will increase PSEG Long Island inventory value and associated carrying costs.
- Delivery dates for materials and equipment to replenish inventory are changed on purchase orders but are not reflected in the materials management system.<sup>44</sup>
- Elements of the EAMS system include an extraordinary scope of management functions that NorthStar has not yet seen in an integrated system platform:<sup>45</sup>
  - Work Management – planning, scheduling and dispatch, storm/emergency
  - Asset Management – inspections, in-service, asset moves, retirement
  - Crew Management – managing work, crew assignments (personnel), availability
  - Routing – GIS-based route optimization, reassignment with routing
  - Materials Management – reservations, pick, reordering, reconcile, issue, transfer, return
  - Procurement – source to pay

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<sup>40</sup> DR 831

<sup>41</sup> DR 493 and Attachments 1 and 2, and DR 499

<sup>42</sup> DR 831

<sup>43</sup> DR 986 and Attachment 1

<sup>44</sup> DRs 480 – 499, DRs 833 and 834

<sup>45</sup> DR 84

- Mobility & Extended Mobility – true enterprise vision and strategy
- Asset Performance / Health Analytics – predictive, capital planning, maintenance strategy.
- EAMS-specific system functional requirements exceed 500.<sup>46</sup> Of these functional system requirements 160 pertain to supply chain activities – these cover procurement, inventory management (over half of supply chain requirements) and accounts payable. EAMS functional system requirements include a number of fundamental inventory management capabilities that do not exist to date:
  - Ability to setup warehouses with unique financial control account so that correct accounting of all inventory transactions can be reported.
  - Ability to setup and manage satellite warehouses linked to central warehouse so as to support centralized warehouse purchasing.
  - Ability to build material description consistently based on the material classification so that user can search the material by specification attributes or description.
  - Ability to maintain inventory item status at warehouse level.
  - Ability to record the manufacturer, model, supplier, Lead time and other details for easy identification and informed decision making.
  - Ability to mark the material classified for storm needs.
  - Ability to define reorder parameters like min/max, reorder point, economic order quantity and safety stock so that these can be utilized for material forecasting and optimum replenishment of inventory.
  - Ability to revise the inventory reorder parameters based on the consumption trend and defined business rules.
  - Ability to track usage history details on each stock item.

**5. Storm event definition, and payment for storm costs have been addressed recently and yet continue to present control issues. LIPA’s oversight and PSEG LI’s management of storm restoration costs is ineffective.**

- The Second A&R OSA states that: For purposes of this Agreement, a “Storm Event” shall mean an event where (i) at least 15,400 customers are interrupted or (ii) at least 150 outage jobs are logged, in each case within a 24-hour period due to a storm. A Storm Event will end when “System Normal Status” is achieved. System Normal Status is a state in which fewer than 1,000 customers remain interrupted for a continuous period of eight (8) hours following a storm.<sup>47</sup>
  - Costs related to Storm Events (“Storm Costs”) shall be Pass-Through Expenditures and shall consist of costs incurred by the Service Provider as a result of (i) responding to a Storm Event and restoring the T&D System to System Normal Status; (ii) completing any related follow-up work performed within the five-day period commencing from the end of a Storm Event ((i) and (ii) collectively, the

<sup>46</sup> DR 987 - 2A3 RFP Attachment 2-A.3 Functional and Technical Reqts

<sup>47</sup> Second A&R OSA Appendix 5.3(B) and DR 984 Attachment 2

“Initial Storm Costs”), and (iii) completing all subsequent follow-up work approved by LIPA (“Follow-up Storm Costs”), which approval shall not be unreasonably withheld or delayed.

- Pursuant to Section 5.3(B) hereof, the Service Provider shall be entitled to withdraw funds from a storm reserve established by LIPA to pay for Storm Costs (the “Storm Reserve”). LIPA will initially fund the Storm Reserve in the amount of \$15 million. If during a Contract Year the Storm Reserve balance falls below \$3 million due to withdrawals by the Service Provider, LIPA will replenish the Storm Reserve to restore the balance in the Storm Reserve to \$15 million. The Service Provider may request that LIPA replenish the Storm Reserve or temporarily fund the Storm Reserve in an amount exceeding \$15 million if Storm Costs are anticipated to exceed the funds available in the Storm Reserve. The Parties may modify these amounts from time to time as circumstances warrant.
- During Storm Events, PSEG LI utilizes outside resources to perform storm restoration work. These resources are often ordered through pre-positioned storm contracts. In certain cases, LIPA may seek reimbursement from the Federal Emergency Management Agency (FEMA) for costs incurred from using such contracts during storms. To increase the likelihood that those costs will be reimbursed by FEMA, PSEG LI, on behalf of LIPA, must follow a strict set of ordering procedures that will allow for use of the proper outside resources prior to, throughout, and following a storm.<sup>48</sup>
- PSEG LI stated that it has recently addressed and strengthened many policies and procedures related to storm events. Nevertheless, the effectiveness of these actions will not be demonstrated until the next major storm.
  - Materials Distribution Protocols During Restoration Events – 8/10/2022.<sup>49</sup>
  - CAM-FI-H15 - PSEG Long Island Invoicing Procedure for Non-FEMA Storm Events – 2/7/2023<sup>50</sup>
  - Material Issuance from and Returns to Stock – 7/21/2022<sup>51</sup>
  - Training for Long Island materials check out and returns – 2022<sup>52</sup>
  - Recordkeeping Process for Issuing and Returning Stores Material – Training<sup>53</sup>
  - CAM-FI-H16 – PESG Long Island Invoicing Procedure for Federal Emergency Management Agency (FEMA) Declared Storm Events – 2/7/2023<sup>54</sup>
- Verification of emergency work actually performed and invoice approval presents challenging issues.

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<sup>48</sup> DR 980 Attachment 28

<sup>49</sup> DR 1049 Supplement 17

<sup>50</sup> DR 1049 Supplement 16

<sup>51</sup> DR 1049 Supplement 14

<sup>52</sup> DR 1049 Supplement 12

<sup>53</sup> DR 1049 Supplement 11

<sup>54</sup> DR 1049 Supplement 7

- Invoice reviews of emergency storm work are conducted in accordance with The Long Island Power Authority Guidelines for Storm Invoice Review dated October 26, 2015 and the revised document of the same name dated November 2021.<sup>55</sup>
- These guidelines cite federal regulations that apply:
  - Maintaining contractor oversight
  - Full and open competition for contracts, cost and price analysis
  - Using time and materials contracts with ceiling amounts if no other options are suitable
  - Written standards of conduct and records
  - M/WBE participation
- NorthStar reviewed purchase orders over recent years for two firms that provide storm restoration services that in aggregate exceed \$100 million.<sup>56</sup> PSEG LI's explanation for why these two firms did not have contracts was that they perform work under the contractual terms contained within the standard purchase order. PSEG LI's Procurement Practice 242LI-1 states: In the event of an Emergency, materials and services may be purchased without following the requirements outlined above. In emergency circumstances, the business unit / requestor shall notify Procurement of the emergency work authorized, as soon as practical (typically the next working day), via e-mail or voice mail if the Procurement associate is unavailable. The business unit / requestor shall, within three (3) business days after the conclusion of the emergency, initiate the appropriate procurement request. This relief is to be used infrequently, and is not intended as a substitute for effective planning or project oversight.<sup>57</sup> NorthStar does not believe that using purchase orders in this manner and exempting procurement requirements fully complies with LIPA procurement policies.<sup>58</sup>
- A "Storm Invoice Routing Slip effective 2/21 - under 500K" is used to approve some restoration work.<sup>59</sup> However, this form is applicable for invoices under \$500,000 and the review is somewhat superficial merely requires checking the box that applies to: hours verified, rates verified, job numbers listed, legible documents are included and under/over charges are corrected. There is no component of the invoice approval that addressed whether the work was actually performed or performed satisfactorily.
- Invoice routing for amounts over \$500k follow the same process, although approval levels follow PSEG LI's delegation of authority (DOA) policy (680-1).<sup>60</sup>
- NorthStar evaluated one major contractor used for storm restoration and invoice approval in greater detail related to this process.

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<sup>55</sup> DR 954, guidelines in DR-984 Attachment 1 and Attachment-2.

<sup>56</sup> DR 171

<sup>57</sup> DR 980 Attachment 27

<sup>58</sup> LIPA notes that PSEG LI is not subject to LIPA's procurement policies.

<sup>59</sup> DR 984 Attachment 3

<sup>60</sup> DR 1282

- The contractor selected for PO5000029415 provided storm restoration work from 2019 through 2022 with expenditures exceeding \$68MM.<sup>61</sup>
- Even though this contractor was used over the five-year period, PSEG LI did not utilize a formal contract in advance of storm restoration work and relied on purchase order terms and conditions.<sup>62</sup>
- However, establishing the cost for restoration work occurs after the fact. PSEG LI stated that “After receiving internal notice that contractor has mobilized, Procurement initiates the process of negotiating rates.”<sup>63</sup>
- Tropical Storm Isaias struck Long Island on August 4, 2020, causing 650,000 LIPA customers to lose power.
- Purchase order PO5000029415 was initially established at \$499,000 in August 2020, and was modified via change orders to over \$44.4MM on November 6, 2020.<sup>64</sup> “The storm event (20-13) began on August 4, 2020 and was completed September 15, 2020.”<sup>65</sup>
- The process for confirming that emergency work and amounts invoiced are correct, is documented in LIPA Guidelines for storm invoice review dated October 26, 2015, and revised November 2021.<sup>66</sup> These guidelines cover storm events, costs, and cost substantiation as defined in the OSA. They include event definition, invoicing procedures, pricing and timeliness. However, the guidelines do not address actual field work completed or the quality of work performed. Invoice reviews consist of checking boxes to indicate satisfaction of invoice content.
- NorthStar requested all documentation supporting PO5000029415 invoicing.<sup>67</sup> PSEG LI provided 54 invoice review and approval documents. The majority of the contractor invoices were submitted in November 2020, although some were submitted over the following year, possibly to address disputed amounts. Invoice approvals were dated many months later up to 11/2/2021.
- This purchase order was modified November 6, 2020, for \$44.4MM. PSEG LI stated that “It is common for emergency storm electrical restoration purchase orders to be submitted for final change order at the conclusion of invoice review and acceptance procedures.”<sup>68</sup> This “common process” does not appear to be the case for PO5000029415 based on the document dates, changing purchase orders based on invoice amounts is clearly a control weakness, and it does not support timely or effective financial control over expenditures.
- LIPA’s review, acceptance and supporting documentation supporting PO5000029415 was requested.<sup>69</sup> “LIPA retained a consulting firm to perform a review of 5% of the invoices under this category of costs.”<sup>70</sup> This review

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<sup>61</sup> DR 171 and 887

<sup>62</sup> DR 887

<sup>63</sup> DR 983

<sup>64</sup> DR 887 Attachment 2

<sup>65</sup> DR 983

<sup>66</sup> DR 984, Attachments 1 and 2

<sup>67</sup> DR 1283

<sup>68</sup> DR 983

<sup>69</sup> DR 1284

<sup>70</sup> DR 1284

highlighted over 20 percent of invoiced amounts that were unsupported but there was no information on expenditure adjustments.

**6. LIPA’s oversight of PSEG LI procurement has recently improved. However, NorthStar could not determine whether any improvements in this area have been effective.**

- During 2023, LIPA will be conducting two audits of PSEG LI that will cover select procurement processes:<sup>71</sup>
  - A comprehensive audit of PSEG LI Marketing and Advertising processes including a review of overall spending, budgeting, forecasting, contracts, and retainers with advertisement agencies (i.e., agency compensation and agency revenue).
  - An end-to-end lifecycle analysis for select IT projects that includes project estimation and contractor solicitation, proposal and selection review and approval, contract negotiation review and approval, project accounting process (change order review and approval, invoicing, and budget vs. actual analyses), and project oversight processes ensuring compliance and performance with contract terms.
- “LIPA is in the process of reviewing a sample of contracts either previously negotiated by PSEG Long Island as agent for LIPA or currently being negotiated. The purpose of that review is to determine whether the terms and conditions negotiated are commercially reasonable and consistent with LIPA’s expectations. That review is expected to be completed in Q4 2023.”<sup>72</sup>
- In September 2022, a PSEG LI consultant completed a contractor performance management review of contracts valued at \$2MM or greater.<sup>73</sup> Based on these results, PSEG LI plans to award and / or re-allocate work that results in the best-performing contractors being retained and to improve or replace non-performing contractors.
  - Only 78 percent of PSEG LI’s contractors were found to have acceptable or better performance.
  - Numerous major providers of materials, equipment and services were identified and ranked as less than acceptable performance. Various methods of performance mitigation and underperformance were highlighted.
- Most of PSEG LI’s implementation of procurement improvements highlighted: creating initial plans, an oversight committee, hiring resources, developing policies and processes, and regular management review meetings. It is premature to determine whether these actions will focus on control issues such as those noted above to be effective.

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<sup>71</sup> DR 836

<sup>72</sup> DR 1048

<sup>73</sup> DR 1048 Supplement 2

- LIPA Internal Audit completed an audit of PSEG LI’s Third-Party Risk Management (TPRM) process June 9, 2023.<sup>74</sup> Major audit findings are consistent with NorthStar observations and included:
  - Inadequate oversight of PSEG LI’s end-to-end TPRM process
  - Inadequate issue and risk management tracking
  - Inconsistent documentation maintained to support TPRM processes
  - TPRM policies and procedures are not published or adopted
  - Lack of centralized, comprehensive repository of supplier risk inventory
- Prompted by NorthStar’s review, LIPA’s request for documentation of PSEG LI’s procurement lifecycle referred to a website link known as “The Source” – developed approximately 6 years ago to standardize PSEG’s (corporate) procurement process.<sup>75</sup>

**7. Other than the Second A&R OSA Performance Metrics, contractual terms designed specifically to ensure performance and manage performance risk, cost penalties, and penalties are not employed.**

- NorthStar requested a description of the project quality control and technical requirements used for engineering and construction contractors. PSEG LI provided no quality control processes used and in terms of technical requirements and stated:<sup>76</sup>
  - “Technical requirements communicated to PSEGLI’s engineering and construction contractors have their genesis in PSEGLI’s Standards. These standards address everything from standard/approved equipment, configurations, calculation methodology, and have been developed based on the requirements set forth in IEEE and ANSI standards and NESC, NEC, ASCE, NFPA applicable requirements and EPRI guidelines, etc.”
  - “The specification contains a detailed scope of work, which is developed from an approved Planning One Line. The One Line goes through a rigorous vetting process conducted by subject matter experts from engineering, operations and maintenance to ensure that all stakeholders’ requirements are properly addressed.”<sup>77</sup>
  - “Upon award of the engineering/design contract to the A/E firm, a site visit is conducted.”<sup>78</sup> Therefore, it is only after a contract is awarded that a site visit is conducted.
- PSEG LI quality control is based on reviewing and approving engineering work products. “If a modification to the issued design deemed necessary, depending on the complexity, revised drawings, may be prepared and issued to the construction contractor. For minor changes, direction is provided and the changes will be captured in the as-built documentation. The construction contractor is required to submit a set

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<sup>74</sup> DR 1048

<sup>75</sup> DR 1048 Supplement 3

<sup>76</sup> DR 63

<sup>77</sup> DR 63

<sup>78</sup> DR 63



of the as-built drawings, clearly marked to indicate any field changes. A drawing list identifying the drawings that do have changes shall also be included.”<sup>79</sup>

- Contracted construction quality control is minimal – basically lack of performance. “Quality control performed during construction includes adherence to all safety requirements, environmental and license and permitting adherence, schedule management, issue resolution, cost management, customer and community coordination, and quality control.” “Quality Control – Drawings, specifications, construction standards and all other technical documents issued by Engineering and/or Distribution design define the required deliverables for the construction contract. The technical documents include the testing requirements for the work, such as cable testing, concrete testing, etc., that are used to ensure the quality of critical deliverables. The contractor performs the work in accordance with the technical requirements and the PSEG LI supervisor assigned to oversee the project full time on site observes the construction activities to field verify the work is being performed in accordance with the technical requirements and all required testing is being performed and recorded.”<sup>80</sup>

**8. Based on the timing of LIPA’s recent attention to evaluate procurement and materials management, NorthStar cannot determine whether improvement actions have been effective.**

- Both entities often place long-term contracts with multiple suppliers for the same products and services portfolio and place purchase orders among those multiple suppliers.<sup>81</sup> As these contracts span multiple years, it will take time to observe improvements in current practices. Additionally, improved responses to major storms cannot be demonstrated until actually experienced.
- In late 2022 LIPA Internal Audit performed a vendor contract review associated with storm response vendors under contract to PSEG LI. The overall objective of the audit was to review the adequacy and effectiveness of the process and controls employed by PSEG LI associated with the monitoring of vendor contracts to determine whether PSEG LI invoiced costs are accurate and in compliance with vendor contracts, terms of the Second A&R OSA, LIPA Guidelines for Storm Invoice Review and applicable PSEG LI ERIPs and identify areas for improvement.<sup>82</sup> Internal audit found that:
  - Some storm costs were not invoiced in accordance with the storm charging period and that labor rates charged did not agree with the contract terms;
  - Some outside services invoices were paid without complete supporting documentation;
  - There were instances of work that were charged to the storm work order were not found in the Outage Management System (ESD numbers); and,

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<sup>79</sup> DR 63

<sup>80</sup> DR 63

<sup>81</sup> DRs 36, 38, 171, 252, 279, 283, 284, and 477-499.

<sup>82</sup> DR 836

- Regular monitoring of labor and equipment rates for outside services contractors did not occur and lead to non-uniform rates charged by contractors for the same work.
- In response to NorthStar’s current management audit, LIPA requested an action plan follow-up on support for the 2022 Internal Audit of storm processes and controls.<sup>83</sup> PSEG LI cited a number of the actions taken, similar in response to the 2018 EY evaluation and noted that:
  - Storm accounting protocols for storm events were updated February 4, 2022.
  - Storm cost accounting reminders and links were updated.
  - Invoicing details were updated.
  - As of 1/31/2023 all areas of T&D operations with responsibilities to review storm charges have received a review of the requirement that storm work performed by contractors (construction and vegetation management) must reference valid OMS incidents (ESD numbers) that are associated with damage that resulted from the storm.
  - Contractor storm labor and material costs were reviewed.
- In November 2022, in a response to NorthStar’s initial data request list, LIPA stated: “In 2022, LIPA engaged an outside consultant to assess LIPA’s procurement policies and practices. That consultant is in the process of finalizing their report and recommendations. Once finalized, LIPA plans to develop a project implementation plan to begin implementing the recommendations in 2023 which will include specific KPIs and other performance measures.”<sup>84</sup>
- LIPA’s response to NorthStar’s request to provide work products from the 2022 consultant’s assessment of procurement policies and practices was provided in June 2023.<sup>85</sup>
  - The consultant’s Final Report was dated July 25, 2022.
  - The main objectives of the LIPA Procurement Management Review, as reflected in the Scope of Work, was to perform an analysis of LIPA’s current procurement management, processes and practices as well as provide recommendations to assist in improving and streamlining procurement procedures and policies of the Authority. Key challenges highlighted in the consulting report included:
    - The procurement function is not perceived as a strategic function within the Authority and has limited key resources;
    - Procurement is not perceived as a high priority by Departments which causes delays in processing essential process tasks; and
    - Contract management and vendor performance practices need to be further strengthened.

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<sup>83</sup> DR 989

<sup>84</sup> DR 172

<sup>85</sup> DR 970

- The report provided 18 recommendations in the areas of procurement organization, policy, processes and practices, and capacity development.<sup>86</sup>
- NorthStar requested progress as of mid-2023, roughly one year from the Final Report.<sup>87</sup> Of the 18 recommendations, LIPA provided progress on only 12.<sup>88</sup> Five were shown as complete, five in process and 2 were not started. LIPA did not provide an explanation, as requested for why the remaining recommendations were not addressed.<sup>89</sup>
- LIPA’s implementation effort to date appears minimal, remains “under consideration” in many cases, and lacks complete coverage as shown in **Exhibit XII-7**.<sup>90</sup>

**Exhibit XII-7**  
**LIPA’s Procurement Improvement Action Plan**

Recommendation	Mapped to Specific Lines in LIPA’s 2023 project plan or otherwise addressed
<b>2.1</b> Consider hiring ad hoc temporary procurement expertise (under \$50,000) during demanding times to meet Departments needs effectively and in a timely manner and allow the senior LIPA senior procurement staff to focus on strategic aspects of procurement management.	Resource needs for LIPA’s procurement department are currently under consideration by the department head (GC) and the CEO.
<b>2.2</b> Restructure the procurement function to ensure procurement gets a higher priority and a more strategic role within the Authority proportionate to LIPA’s annual procurement transaction value.	Resource needs for LIPA’s procurement department are currently under consideration by the department head (GC) and the CEO.
<b>2.3</b> Assign two new resources to the current procurement team, a Procurement Buyer with experience in public procurement to support purchasing processes and a Procurement Data Analyst to support the optimization of procurement strategies and goals.	Resource needs for LIPA’s procurement department are currently under consideration by the department head (GC) and the CEO.
<b>2.4</b> Develop a corporate procurement strategy reflecting LIPA’s procurement vision, strategic aims and objectives, and including performance targets and indicators to measure the efficiency of procurement operations.	Identified by the consultant as a long-term recommendation therefore deferred to 2024.
<b>2.5</b> Consider setting up an internship program for graduate college or university students studying business administration, procurement management, or other procurement-related fields.	LIPA did not agree with this recommendation and therefore elected not to implement it. Resource needs for LIPA’s procurement department are currently under consideration by the department head (GC) and the CEO.

<sup>86</sup> DR 970 Supplement 1 Executive Summary

<sup>87</sup> DR 970 Supplement 2 and DR 1288 Attachments 1 - 4

<sup>88</sup> DR 1288 Attachment 2

<sup>89</sup> DR 1288

<sup>90</sup> DR 1288 Supplement 1 and 2

<p><b>1.1</b> Streamline the policy management process to keep policies and procedures harmonized, accurate and updated, especially when they originate from different Departments but deal with similar procurement topics.</p>	<p>Review and revise existing procurement Policy Documents with the assistance of Legal to ensure that the "Procurement Policy" is consistent with related Financial Policy. Completion estimate: 50%</p>
<p><b>1.2</b> Develop more internal guidance to document specific topics, procedures, or processes and process timelines to build an institutional knowledge and support procurement activities understanding as well as capacity building in LIPA's Departments.</p>	<p>Conducted informational sessions for employees covering procurement topics, such as purchase requisitions, Microsoft Dynamics Completion estimate: 100%</p>
<p><b>3.1</b> Develop annual procurement plans to be published online to give the vendor community advance notice of what contract opportunities will be coming up and allow vendors time to adequately prepare good quality bids or proposals.</p>	<p>Post known upcoming procurements to LIPA's website. Completion estimate: 100%</p>
<p><b>3.2</b> Develop a strategy on vendor engagement documenting processes, initiatives and communication approaches to support effective vendor categories participation in procurement processes.</p>	<p>Execute vendor marketing plan, including reach out to potential vendors to encourage them to register in the Bonfire Portal to capture new vendors and ensure they learn about upcoming opportunities. Deliverable scheduled for Q4 2023. Not started, completion estimate: 0%</p>
<p><b>4.1</b> Review and finalize the draft procurement processes flowcharts to be integrated into operational guidelines and communicated to Departments.</p>	<p>Review the Purchase Order process and the roles of procurement, accounts payable, and reporting to the Executive Committee on expiring POs. LIPA is in the process of developing a dashboard to track all procurement activities including upcoming deadlines. Completion estimate: 50%</p>
<p><b>5.1</b> Consider requesting LIPA's General Counsel legal opinion on the use of piggyback procurement contracts in compliance with NYS laws and policies.</p>	<p>Under consideration.</p>
<p><b>5.2</b> Consider proposing an amendment to LIPA's procurement policy to include piggyback contracts as an additional procurement vehicle for BOT's approval.</p>	<p>Under consideration in connection with 5.1 above.</p>
<p><b>6.1</b> Develop project contract management guidelines or policy to assist Departments' contract owners at the operational level in better managing the execution of contracts in order to improve risk management, track milestones and vendors' performance, and support strategic contract decisions (extension, renewal, etc.).</p>	<p>Evaluate whether use of SupplyHive module would be productive for LIPA to manage and evaluate existing contractors. Not started, completion estimate: 0%</p>
<p><b>6.2</b> Optimize the contract management process by leveraging technology and implementing the Contract and Performance Management module to LIPA e-procurement solution.</p>	<p>Implement Bonfire pre-RFP intake management module. Completion estimate: 100%</p>
<p><b>6.3</b> Conduct regular vendor performance evaluation based on identified key indicators/criteria to ensure that vendors are meeting requirements and monitor performance in order to reduce costs and mitigate risks.</p>	<p>Evaluate whether use of SupplyHive module would be productive for LIPA to manage and evaluate existing contractors. Not started, completion estimate: 0%</p>

<p><b>6.4</b> Expand the usage of the bids and RFPs evaluation module and tools of LIPA e-procurement solution to streamline and speed- up the scoring process and complete evaluations in a timely manner.</p>	<p>LIPA has implemented Bonfire’s pre-RFP intake management module. In addition, LIPA believes the dashboard referenced in 4.1 above will help streamline the RFP scoring process.</p>
<p><b>6.5</b> Support and encourage Departments’ contract owners to seek professional development online training in project contract management and administration to improve their skills.</p>	<p>Engage a consultant to train procurement staff and SMEs from each department on how to write statements of work. Completion estimate: 75%</p>
<p><b>6.6</b> Consider using external expertise to assist Departments in performing procurement-related tasks in a timely manner in order to issue RFPs and submit contract award recommendations within the appropriate or required time.</p>	<p>Resource needs for LIPA’s procurement department are currently under consideration by the department head (GC) and the CEO.</p>

Source: DR 1288 Supplement 1 and 2

## D. RECOMMENDATIONS

1. Improve LIPA and PSEG LI competitive procurement levels to significantly exceed previous levels of performance.
  - Edit and modify procurement policies and procedures to establish a stronger competitive bias.
  - Provide formal value analysis of all bid evaluations and selections to record competitive placement with an emphasis on materials and services cost.
  - Increase approval levels for any non-competitive transactions.
  - Competitively re-bid contracts or formally re-confirm competitive basis instead of providing funding extensions, renewals and selections among multiple existing contracted suppliers.
  - Perform a verifiable benchmarking study of large utility purchasing functions to establish best in class performance levels. Use this information to establish stretch targets for future competitive performance goals.
  - Adopt competitive procurement KPIs and OSA performance metrics.
  - Develop an improved competitive approach to contractors, their geographic coverage and staggered strategy for multi-year procurement contracts.
  - Remove end-users from participation in the selection of multiple service providers for similar services or provide specific guidelines to be followed and report these results to senior management.
  - Revise purchasing analytical processes to improve performance reporting clarity and consistency.
  - Reduce variations in terminology among LIPA and PSEG LI.
  - Provide greater management attention to competition.

- Formally commit to a timetable for acquiring competitive procurement levels based on stretch targets and industry demonstrated performance levels.
  - Report improvement progress to the Board of Trustees and to DPS on a quarterly frequency until these levels are reached.
2. Conduct an independent audit of LIPA and PSEG LI supply chain functions directed by DPS to address each of the control deficiencies noted in this chapter to determine whether they have been addressed and effectively resolved.
  3. Demonstrate that all of the EAMS functional requirements pertaining to supply chain activities (including procurement, materials management and accounts payable) are presently used, operating as planned and are effective at another utility using the software platform obtained by LIPA/PSEG LI before proceeding with the EAMS initiative.

## XIII. CUSTOMER OPERATIONS AND COMMUNICATIONS

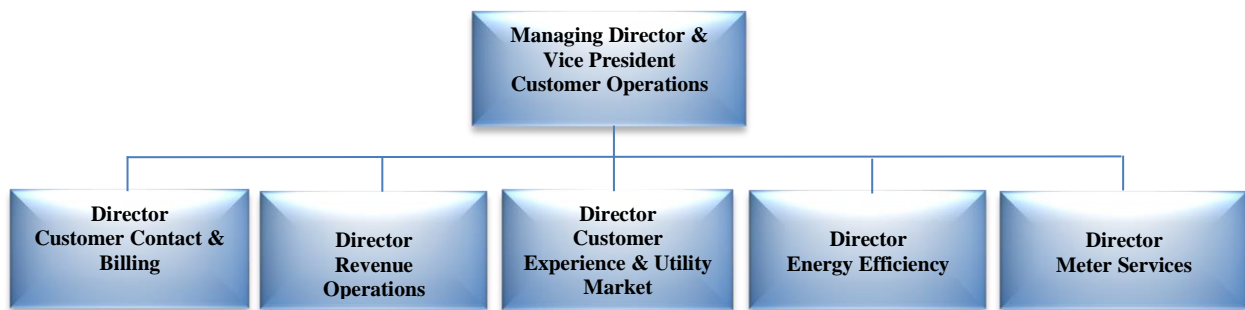
This chapter covers the following RFP Scope Areas:

- Customer Services – a) Customer Complaint Handling and b) Customer Support Systems and Processes
- Customer Call Center and Operations – a) Call Center – System Improvements and Performance and b) Call Center – Customer Operations
- COVID-19 – Impacts
- Customer Outreach and Communications

### A. BACKGROUND

Customer operations are managed by PSEG-LI's Customer Operations organization shown in **Exhibit XIII-1**.

**Exhibit XIII-1**  
**PSEG LI Customer Operations**



Source: DR-3.

The VP of Customer Operations oversees the Meter to Cash processes, Customer Contact, Utility Marketing and Sales, Energy Efficiency (EE) programs and is responsible for overall Revenue SOx controls for the Utility.<sup>1</sup>

- The Director of Customer Contact & Billing oversees the 24/7 operations of PSEG LI's approximately 150 call center associates. Significant operational areas of direct responsibility include: 24/7 Call Center Operations, Multi-Site Walk-In Customer Offices, Call Center Planning, Forecasting, and Analysis, Exception Bill Processing, and Special Billing Departments.<sup>2</sup> Customer Contact and Billing function is tasked with transforming the customer experience to achieve top quartile customer satisfaction.<sup>3</sup>

<sup>1</sup> DR 4 Attachment 3.

<sup>2</sup> DR 4 Attachment 8.

<sup>3</sup> DR 4 Attachment 8.



- The Director of Meter Services oversees all meter-related functions including the engineering, test, installation, read and repair of electric meters on Long Island. Meter Services oversees the daily operations of 200+ field, technical and professional personnel, managing \$30M in O&M and \$7M capital budgets. Meter Services also oversees the operation of the Company's Advanced Metering Infrastructure (AMI) of 1.1 million advanced meters with remote operational functionality in homes and businesses across Long Island, to ensure delivery of all program support functions including meter testing, programming, and installation. Meter Services oversees coordination of all field collections activities, field investigations such as high bills, rate verifications, shared metering, and tampering or theft of service referrals.<sup>4</sup>
- Customer Experience and Utility Marketing function manages all activities involving Utility Marketing, Customer Satisfaction Management, Quality Assurance, Large Customer Support (LCS), Economic Development, Customer Systems and Change Management. The group directs and leads customer satisfaction improvement efforts including the execution of marketing research and customer intelligence data-gathering and analysis, quality improvement research, customer complaint analysis and associated improvement efforts. Customer Experience and Utility Marketing manages customer facing systems including, web/my account, monthly billing and exception process, bill presentment, payment processing, and collections.<sup>5</sup>
- Revenue Operations leads the PSEG LI's Revenue Cycle Processes (Bill Print, Credit & Collections, Revenue Integrity, and Payment Processing) and Business Operations Support.<sup>6</sup>
- The EE function is responsible for the entire EE and Renewable portfolio including Large C&I, Commercial Efficiency, Small Business, Home Performance Direct and Home Performance with Energy Star, Residential Energy Affordability Program (REAP), Home Comfort, Energy Star New Homes, HomeEnergy Reports, Solar PV, Battery Storage (behind the meter battery storage), Electric Vehicles, Solar Thermal, Demand Response and other efficient and renewable technologies. Leads the Company's annual Utility 2.0 filing in accordance with the OSA. Support customer transition to time of use (TOU) pricing plans to improve system load factor.<sup>7</sup>
- **Exhibit XIII-2** provides target and actual performance for key customer operations metrics for the period 2018 to 2022.

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<sup>4</sup> DR 4 Attachment 9.

<sup>5</sup> DR 4 Attachment 10.

<sup>6</sup> DR 4 Attachment 11.

<sup>7</sup> DR 4 Attachment 17, Fact Verification

**Exhibit XIII-2**  
**Customer Operations Performance 2018-2022**

Metric	2018		2019		2020		2021		2022	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
Average Speed of Answer (ASA) - seconds	26	15	19	15	19	25 [Note 1]	19	12.5		183
After Call Survey – Residential (%)	90.0	94.5	91.5	95.0	91.5	94.7	91.5	95.1		
After Call Survey – Business (%)	90.0	94.2	91.5	95.4	91.5	96.0	91.5	96.3		
Long-Term Estimates (LTE)	2,190	1,623								
Active Accounts Long-Term Estimates									700	623
Inactive Accounts Long-Term Estimates									861	535
AMI Installations	52,000	66,488	250,000	304,932	250,000	319,210	336,000	361,219		
Non-Product Billing (%)	33.0	6.4								
Personal Contact Survey (%)	90.0	95.9	92.0	96.5	92.0	96.7	92.0	97.6		
First Call Resolution (%)			82.8	81.4 [Note 2]	82.8	82.4 [Note 2]	82.8	83.0	80.0	79.4
Contact Center Svc Level – Live Agent (percent within 30 seconds)				76.6		75.1		80.3	80	29.2
Customer E-Mail Closure Rate (percent within 24 hours)									70	58.8
Billing Exception Cycle Time (%)									95	98.6
Billing Canceled Rebill (%)									0.50	0.23
Social Media Engagement and Following – Blue Sky (%)									90	98.2
Social Media Engagement and Following – Major Storm Event (%)									80	98.6

Note 1: Tropical Storm Isaias increase in call volume.

Note 2: Stretch goals not achieved.

Source: DR 92, DR 676 Attachment 1, DR 1375

- PSEG LI ranked in the fourth quartile in both residential and business customer satisfaction for 2022 as measured by the JD Power and Associates Annual Electric Utility Customer Satisfaction Studies for the “East Region, Large Segment”.<sup>8</sup>
- The Home Energy Fair Practices Act (HEFPA), set forth in Public Service Law (PSL) Article 2 and implemented in 16 NYCRR Part 11 and Part 13 provides comprehensive consumer protection to residential and non-residential customers for electric and natural gas utility service. **Exhibit XIII-3** lists the provisions of 16 NYCRR Parts 11

<sup>8</sup> PSEG Long Island OSA Performance Metrics, December 2022 (provided by DPS LI).

and 13 (the Code). Selected provisions are described in further detail later in this Chapter.

**Exhibit XIII-3  
Title 16 NYCRR Parts 11 and 13 Provisions**

<b>Part 11 (Residential Customers)</b>		<b>Part 13 (Nonresidential Customers)</b>	
11.1	Purpose		
11.2	Applicability of rules	13.1	Applicability of rules and definitions
11.3	Applications for residential service	13.2	Applications for service
11.4	Termination or disconnection of residential service	13.3	Termination of Service
11.5	Residential service--special procedures		
11.6	Voluntary third-party notice		
11.7	Service to entire multiple dwellings		
11.8	Service to two-family dwellings		
11.9	Reconnection of service	13.4	Reconnection of service
11.10	Deferred payment agreements	13.5	Deferred payment agreements
11.11	Budget or levelized payment plans	13.6	Levelized payment plans
11.12	Residential service deposits	13.7	Security deposits
11.13	Meter readings and estimated bills	13.8	Meter reading and estimated bills
11.14	Backbilling on residential accounts	13.9	Backbilling
11.15	Late payment and other charges	13.10	Late payment and other charges
11.16	Contents of bills	13.11	Contents of bills
11.17	Notification requirements	13.12	Notice requirements
11.18	Emergency disconnections of residences	13.13	Disconnection without notice
11.19	Inspection and examination of utility apparatus	13.14	Inspection and examination of utility apparatus
11.20	Complaints to the utility	13.15	Complaint-handling procedures
11.21	Emergency hotline		
11.22	Waiver	13.16	Severability
11.23-11.29	(Reserved)		
<b>Shared Meter Regulations</b>			
11.30	Definitions		
11.31	Commission's designee		
11.32	Service to shared meter account		

Source: 16 NYCRR.

- When a customer registers a complaint with the DPS, other external agencies, or PSEG LI/LIPA executive management, a PSEG LI Customer Relations Representative is assigned the complaint and enters the complaint into a Complaint Tracking System (CTS). Complaints are categorized as follows:

### Exhibit XIII-4 Customer Complaint Tracking

Category	Options
<b>Complaint Type</b>	DPS, Better Business Bureau (BBB), Executive/ Government Official
<b>Original Source of Complaint</b>	Rate Consultant, Shared Meter, DPS, Customer, Executive Correspondence, The Public Utility Law Project (PULP)
<b>Received Source</b>	Email, Phone, Letter
<b>Complaint Category</b>	Collections/Service-related Executive Correspondence Consultant Complaints All other issues
<b>DPS Case Type and Case Number</b>	Quick Resolution System (QRS), Standard Resolution System (SRS), inquiry, etc.
<b>Storm or Safety-Related</b>	Check box

Source: DR 86 Attachment 2.

LIPA holds PSEG LI to an annual performance standard for the number of complaints registered with the DPS. The 2022 performance target is less than or equal to 4.2 (complaint total per 100,000 customers). While LIPA does not formally hold PSEG LI to a complaint response time standard, LIPA does monitor the response rate for complaints sent to DPS. LIPA’s expectation is for PSEG LI to be within top quartile for complaint response rates in the state.<sup>9</sup>

A “shared meter”, also referred to as Diversion of Service, occurs when a utility meter that measures gas, electricity, or steam service to a tenant’s dwelling also measures service to areas outside the dwelling, with the tenant paying for service to both areas.<sup>10</sup> Section 52 of the New York Public Service Law (i.e., NY Shared Meter Law) enacted on October 24, 1991, details the tenant’s rights and the responsibilities of the property owner and the utility if a customer believes they are involved in a shared meter condition. Utility responsibilities include:

- Notification to the owner – a utility must notify the owner that a complaint was received and what the owner’s responsibilities are.
- Investigation – a utility must conduct an investigation of the premises to evaluate the complaint.
- Determination – within 30 business days of the date of the complaint or receipt of information of the owner’s request, a written determination shall be completed.
- Change in billing – change of the responsible party to the owner if the owner does not cooperate with the investigation or does not correct the shared meter condition.
- Repairs – billing the owner for past shared meter costs.

PSEG LI has three organizations responsible for receiving, investigating, and closing shared meter inquiries.<sup>11</sup>

- The Customer Contact Center

<sup>9</sup> DR 87 (LIPA).

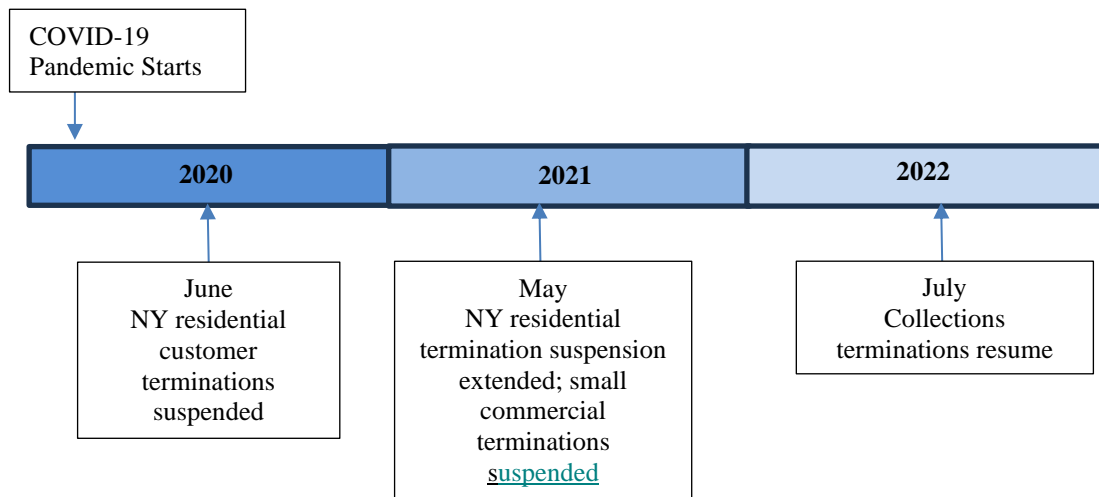
<sup>10</sup> NY Shared Meter Law.

<sup>11</sup> DR 453 Attachment 6.

- The Special Investigations Team of Meter Services
- The Customer Relations Team of the Customer Experience and Utility Market Organization.<sup>12</sup>

Utility call center performance can be affected by numerous operational or external events affecting call volumes and the length of calls. These include major storms and larger scale service interruptions, seasonal changes as gas and electric bills become higher due to increased usage (i.e., electric bills when air conditioning load rises, and gas bills during the heating season), weekly variations in call volume based on the day of the week, changes in rates and/or changes in bill formats, increases in collections activities, and the introduction of new programs. COVID-19 had a significant effect on call centers and customers throughout the industry as call volumes, wait times, and time spent on a call increased. For New York, statewide collections moratoriums and the resumption of collections activities had a potential effect on call volumes. **Exhibit XIII-5** provides a timeline of NY events.

### Exhibit XIII-5 NY Collections Timeline



Source: DR 1177 Attachment 1, SB 1453-A, SB 1453-B.

Call Center Representatives have goals and targets based around the amount of appeals they enter as shown in **Exhibit XIII-6**. Call Center Supervisors monitor four calls for each team member per month, and the Quality Assurance team monitors two calls per representative, per month and provides feedback on all monitored calls to help ensure customer satisfaction and teach ways to de-escalate customer complaints.<sup>13</sup>

<sup>12</sup> DR 3 – Neither Special Investigations nor Customer Relations can be found on the Organization Chart. NorthStar found the organizations based on the individuals interviewed.

<sup>13</sup> DR 87 Attachment 1.

**Exhibit XIII-6  
PSEG LI Call Center CSR Appeal Performance Targets**

<b>Performance Levels</b>	<b>Performance Requirement</b>	
Excellent	< .25% of all calls (YTD)	Fewer Calls Transferred to a Lead/Supervisor are Better
Very Good	.25% - .49% (YTD)	
Satisfactory	.50% - .80% (YTD)	
Marginal	.81% - .99% (YTD)	
Unsatisfactory	>.99% of all calls (YTD)	

Source: DR 87 Attachment 1.

**COVID-19**

At the start of the COVID-19 (COVID) emergency, PSEG LI implemented the Pandemic Response Plan. Under the guidance of LIPA and PSEG LI implemented protocols and procedures following CDC guidelines and federal, state and local requirements, including New York City vaccination requirements for employees working within New York City. Throughout the pandemic, job tasks and potential exposures were reevaluated and Job Hazard Analysis’ (JHA) were created for various aspects of the business. These JHA’s were based on the level of exposure within various job functions and were modified as community rates and CDC guidelines changed.<sup>14</sup>

There were also significant changes to customer operations and customer access during the COVID pandemic. These changes included:<sup>15</sup>

- Customer office locations were closed for in-person services. Billing, payment, and customer support options were made available through the app, website, email, and telephone. Select customer offices reopened in a limited capacity in July 2022.
- Suspension of certain non-essential inside services for residential and commercial customers as a precautionary measure. Non-essential inside services included reading indoor meters, certain investigation activities, in-home energy efficiency visits, etc.
- Access restrictions were implemented for high-transmission locations including healthcare facilities, hospitals, nursing homes, etc.
- Vaccination restrictions applied to personnel performing work in the part of New York City (the Rockaways).
- Priority was given to job tasks involving low to moderate exposure potential, specifically those involving outside work and/or limited customer interactions. This included projects such as AMI deployment.

LIPA disclosed the financial impact of the ongoing pandemic to their operations and finances in the 2020 annual report. LIPA also included descriptions for how they planned to address the financial impacts during an uncertain and evolving situation. The annual report stated that a decline in business activity in LIPA’s service area resulted in lower commercial sales and revenue.

<sup>14</sup> DR 182.

<sup>15</sup> DR 182.

LIPA's revenue decoupling mechanism (RDM) will recoup revenues for this lower consumption. The RDM compares actual revenues with authorized revenues and credits (or collects) any differences to (or from) customers. However, to aid its commercial customers from a high bill impact, the Board elected to limit the RDM rate to a maximum of 5 percent of delivery service revenues for any customer class. Any RDM amounts not collected will be carried forward to subsequent periods. In addition, the economic impact of the pandemic has also resulted in increased arrears balances. LIPA increased its allowance for expected write-offs and LIPA's Board approved a modification to the Delivery Service Adjustment (DSA) to recover write-offs above amounts budgeted in 2021.

LIPA's annual report provided an update on the financial impacts of COVID in 2022. In response to the COVID pandemic, LIPA's tariff for electric service was temporarily modified to provide for the suspension of normal collections activity. As a result of the economic impact of the pandemic and delay of service terminations, LIPA has incurred increased customer arrears balances. LIPA increased its allowance for expected write-offs and, effective in 2021, the Board approved a modification to the Delivery Service Adjustment (DSA) electric rate mechanism to capture budget variances related to uncollectible expense during periods affected by a government-ordered or Board-authorized moratorium on service disconnections and up to two years following the end of such moratorium.

### **Deferred Payment Agreements (DPA)**

16 NYCRR §11.10 Deferred Payment Agreements establishes the requirements for deferred payments agreements (DPA) for residential customers, including the utility obligations, eligibility requirements, terms of the agreement, form of the agreement, and requirements related to broken agreements. Key elements are described below;<sup>16</sup> additional details are provided in **Exhibit XIII-7**.

- A distribution utility must make reasonable efforts to contact eligible customers or applicants by phone, mail or in person for the purpose of offering a deferred payment agreement and negotiating terms tailored to the customer's financial circumstances, prior to making the written offer of a deferred payment agreement. The written offer is generally referred to as the "standard offer".
- A utility must negotiate in good faith with any customer or applicant with whom it has contact so as to achieve an agreement that is fair and equitable considering the customer's financial circumstances.
- A utility must make a written offer of a payment agreement by providing two copies of the payment agreement form setting forth the specific terms for payment and signed by the utility to an eligible residential customer not less than seven calendar days (10 days, if mailed) before the earliest date on which termination, disconnection or suspension may occur.
- A payment agreement shall either contain: the specific terms mutually agreed upon by the utility and the customer after negotiation; or a down payment up to 15 percent of the amount covered by the payment agreement or the cost of one half of one month's average usage, whichever is greater; unless such amount is less than the cost of one

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<sup>16</sup> 16 NYCRR §11.10 Deferred payment agreements.



- half of one month's average usage, in which case the down payment may be up to 50 percent of such amount; and monthly installments up to the cost of one half of one month's average usage or one tenth of the balance, whichever is greater.
- A utility may require that a customer or applicant complete a form showing assets, income and expenses, and provide reasonable substantiation of the information on that form, provided that all such information shall be treated as confidential.
  - A payment agreement must provide for installments as low as \$10 per month and no down payment, when the customer or applicant demonstrates financial need for such terms, but need not provide for monthly installments of less than \$10.
  - A payment agreement may provide for any size or no down payment, and installments on any schedule over any period of time if mutually agreed to by the parties.

16 NYCRR § 13.5 sets forth the requirements for non-residential customers. Non-residential customer requirements are generally more restrictive than those for residential customers.<sup>17</sup>

- A utility shall provide a written notice offering a deferred payment agreement in accordance with this section to an eligible customer not less than five calendar days before the date of a scheduled termination of service for nonpayment of arrears, as indicated on a final termination notice, or eight calendar days if mailed.
- Non-residential customers are eligible for a deferred payment agreement unless the customer owes any amounts under a prior deferred payment agreement, failed to make timely payments under a prior deferred payment agreement in effect during the previous 12 months, or other exclusions as specified in 16 NYCRR § 13.5.
- A deferred payment agreement shall obligate a non-residential customer to make timely payments of all current charges.
- A deferred payment agreement may require a non-residential customer scheduled for termination to make a down payment of:
  - Up to 30 percent of the arrears on which an outstanding termination notice is based, or the cost of twice the customer's average monthly usage, whichever is greater,
  - Up to 50 percent of the arrears on which an outstanding termination notice is based, or the cost of four times the customer's average monthly usage, whichever is greater, in the event a field visit to physically terminate service has been made.
- A deferred payment agreement may require a non-residential customer scheduled for termination to pay the balance in monthly installments of up to the cost of the customer's average monthly usage or one sixth of the balance, whichever is greater.
- A deferred payment agreement may provide for a greater or lesser down payment, a longer or shorter period of time, and payment on any schedule, if mutually agreed upon by the parties.

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<sup>17</sup> 16 NYCRR § 13.5 - Deferred payment agreements.

**Exhibit XIII-7**  
**16 NYCRR Residential Customer Payment Arrangement Requirements [Note 1]**

**HEFPA § 11.10 Deferred payment agreements**

**(a) Utility Obligations**

(1) A distribution utility must make reasonable efforts to contact eligible customers or applicants by phone, mail or in person for the purpose of offering a deferred payment agreement and negotiating terms tailored to the customer's financial circumstances, prior to making the written offer of a deferred payment agreement required under paragraph (a)(4) of this section<sup>1</sup>

(i) A utility must negotiate in good faith with any customer or applicant with whom it has contact so as to achieve an agreement that is fair and equitable considering the customer's financial circumstances.

(ii) A utility may require that a customer or applicant complete a form showing assets, income and expenses, and provide reasonable substantiation of the information on that form, provided that all such information shall be treated as confidential.

(iii) A payment agreement must provide for installments as low as \$10 per month and no down payment, when the customer or applicant demonstrates financial need for such terms, but need not provide for monthly installments of less than \$10.

(iv) A payment agreement may provide for any size or no down payment, and installments on any schedule over any period of time if mutually agreed to by the parties.

(4) A utility must make a written offer of a payment agreement by providing two copies of the payment agreement form setting forth the specific terms for payment and signed by the utility to an eligible customer or applicant at the following times:

(i) not less than seven calendar days (10 days, if mailed) before the earliest date on which termination, disconnection or suspension may occur, which is either the date stated in a final notice of termination, disconnection or suspension or a date, up to 10 days thereafter, to which the utility has postponed the termination, disconnection or suspension of service while negotiating a payment agreement pursuant to paragraph (a)(3) of this section;

(ii) when payment of outstanding charges is a requirement for acceptance of an application for service, in accordance with section 11.3 of this Part;

(iii) when payment of outstanding charges is required in accordance with section(s) 11.9(a) and/or 11.9(b) of this Part; and

(iv) as required after a broken payment agreement in accordance with paragraph (e)(3) of this section.

(5) A utility must renegotiate and amend a payment agreement if the customer or applicant demonstrates that his or her financial circumstances have changed significantly because of conditions beyond his or her control.

(6) A utility must develop written payment agreement procedures and forms for evaluating the financial need of a customer or applicant, for assuring the confidential handling of such information, for arriving at fair and equitable payment terms and for training its personnel, which procedures shall be filed with the Office of Consumer Services.

**(b) Eligibility**

(1) A customer or applicant is eligible for a payment agreement and must be offered one in accordance with subdivision (a) of this section, unless:

(i) the customer has broken an existing payment agreement except as provided in paragraph (e)(3) of this section; or

(ii) the commission or its designee determines that the customer or applicant has the resources available to pay the bill.

**(c) Terms of agreement.**

(1) A payment agreement shall obligate the customer to make timely payments of all current charges.

(2) A payment agreement shall either contain:

(i) the specific terms for payment of the amount covered by the agreement mutually agreed upon by the utility and the customer or applicant after negotiation pursuant to paragraph (a)(1) of this section; or

(ii) a down payment up to 15 percent of the amount covered by the payment agreement or the cost of one half of one month's average usage, whichever is greater; unless such amount is less than the cost of one half of one month's average usage, in which case the down payment may be up to 50 percent of such amount; and monthly installments up to the cost of one half of one month's average usage or one tenth of the balance, whichever is greater.

(3) The cost of one month's average usage shall be calculated by averaging the cost of service over the prior 12 months.

**(d) Form of agreement [not included here]**

**(e) Broken agreements**

(2) If by the 20th calendar day after payment was due, the utility has neither received payment nor negotiated a new payment agreement, the utility may demand full payment of the total outstanding charges and send a final termination, disconnection or suspension notice in accordance with section 11.4(a) and/or 11.4(b) of this Part...

(3) Any final termination, disconnection or suspension notice sent because the customer has broken an agreement negotiated pursuant to paragraph (a)(1) of this section and which required payment over a shorter period than the subparagraph (c)(2)(ii) of this section standard agreement for that customer would allow, must also be accompanied by a written offer of a new agreement to pay the outstanding balance in monthly installments calculated in accordance with subparagraph (c)(2)(ii) of this section.

Note 1: Does not include all provisions of 16 NYCRR § 11.10.

Source: HEFPA Part 11.10 Deferred Payment Agreements.

## **Voluntary Time of Use (VTOU) Rates**

LIPA/PSEG-LI's 2018 Utility 2.0 Filing included the following:<sup>18</sup>

- Three residential rates structures, each with three time-of-use (TOU) rate periods. The three periods consist of a three-hour or four-hour peak rate, an off-peak rate and a super-off-peak rate.
- One residential rate structure, with a two-period rate design, is primarily for customers who own or lease an electric vehicle and for customers who are not able to manage around the peak periods of the other proposed residential TOU rate options.
- One Small Business rate structure with a short peak (four hour) TOU Rate.

**Exhibit XIII-8** provides the details of the rates:

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<sup>18</sup> DR 732, PS&CE-8 (CE-6) SmartSheet metric 8.1 Q1 and 8.2 Q1 deliverables.

**Exhibit XIII-8  
VTOU Pilot Rates**

Rate	Rate Block	Time	Energy Charge per kWh		
			Summer	Winter	Shoulder
<b>Residential – Service Classification No. 1-VTOU Service Charge per Day: \$0.4800</b>					
190 (3-hour peak)	Peak	4 pm - 7 pm	\$ 0.2336	\$ 0.1925	\$ 0.1470
	Off-Peak [1]	6 am-4 pm, 7 pm-10 pm	\$ 0.1002	\$ 0.1002	\$ 0.1002
	Super Off-Peak	10 pm - 6 am	\$ 0.0601	\$ 0.0601	\$ 0.0601
191 (4-hour peak)	Peak	4 pm – 8 pm	\$ 0.2013	\$ 0.1613	\$ 0.1270
	Off-Peak [1]	7 am-4 pm, 8 pm-11 pm	\$ 0.1002	\$ 0.1002	\$ 0.1002
	Super Off-Peak	11 pm - 7 am	\$ 0.0601	\$ 0.0601	\$ 0.0601
192 (4-hour peak)	Peak	3 pm – 7 pm	\$ 0.2024	\$ 0.1707	\$ 0.1366
	Off-Peak [1]	6 am-3 pm, 7 pm-10 pm	\$ 0.1002	\$ 0.1002	\$ 0.1002
	Super Off-Peak	10 pm - 6 am	\$ 0.0601	\$ 0.0601	\$ 0.0601
193 (night/day)	Daytime	6 am – 11 pm	\$ 0.1246	\$ 0.1246	\$ 0.1246
	Nighttime	11 pm - 6 am	\$ 0.0601	\$ 0.0601	\$ 0.0601
<b>Non-Residential – Service Classification No. 2-VMRP Service Charge per Day: \$0.4800</b>					
292 Small Commercial (4-hour peak)	Peak	3 pm – 7 pm	\$ 0.2210	\$ 0.1785	\$ 0.1253
	Off-Peak [1]	6 am-3 pm, 7 pm-11 pm	\$ 0.1119	\$ 0.1119	\$ 0.1119
	Super Off-Peak	11 pm - 6 am	\$ 0.0671	\$ 0.0671	\$ 0.0671

Note 1: Off-peak includes Saturdays, Sundays and Federal Holidays (includes the peak hours that occur Monday through Friday).

Source: DR 732, PS&CE-8 (CE-6) SmartSheet metric 8.1 Q1 deliverables, Electric Service Tariff (www.lipower.org).

- The residential VTOU rates were subsequently approved by the LIPA Board of Trustees on December 16, 2020, and went into effect on February 1, 2021.<sup>19</sup> Each of the rates has three seasons: Summer Season: June 1 through September 30 inclusive; Shoulder Season: October 1 through November 30 and April 1 through May 31 inclusive; Winter Season: December 1 through March 31 inclusive.<sup>20</sup>
- Under the Rate Modernization Program, LIPA proposed to introduce two additional TOU rates: (1) Residential Space Heating TOU Rate and a (2) Large Commercial TOU Rate.<sup>21</sup> Ultimately DPS did not recommend moving forward with the space heating rate, but the Large Commercial rate went into effect in 2022.

**Customer Outreach and Communications**

In accordance with the Second A&R OSA, PSEG LI is responsible for external affairs and communications, government relations, and branding and customer public communications.<sup>22</sup> Specifically, the OSA details the following scope:

- Staffing public events and presenting workshops, seminars, and similar activities during normal business hours, evenings, weekends, and holidays.

<sup>19</sup> DR 732, PS&CE-8 (CE-6) SmartSheet metric 8.1 Q1 deliverables.

<sup>20</sup> Electric Service Tariff (www.lipower.org).

<sup>21</sup> DR 732, PS&CE-8 (CE-6) SmartSheet metric 8.1 Q1 deliverables.

<sup>22</sup> Second Amended and Restated Operations Services Agreement between LIPA and PSEG Long Island, LLC, December 15, 2021.

- Keeping LIPA informed in advance of significant public statements, positions, and events, to allow LIPA to assess any business risk; and
- Conducting government, community, and media relations with respect to the management, operation, and maintenance of the T&D System in accordance with such policies and procedures as the Service Provider may from time to time adopt.
- Government Relations. PSEG LI is responsible for coordinating, conducting, and formulating communications with municipal, local, state, and federal representatives and organizations relating to operation and maintenance of the T&D System and provision of utility-related services by PSEG Long Island, and keeping LIPA apprised in advance of major releases and initiatives, in each case in accordance with such policies and procedures as PSEG LI may from time to time adapt.<sup>23</sup>

The PSEG LI External Affairs department is the lead group for all project-related public and government outreach on Long Island. The PSEG LI External Affairs staff conducts government and community relations with respect to the management, operation and maintenance of the T&D System. They also present at public events, workshops, seminars and similar activities. Throughout all the work and conversations, the goal is to gather feedback from stakeholders and subject matter experts to ensure the community perspective and customer voice are present and help shape the project's lifecycle.<sup>24</sup>

## **B. WORK TASKS**

- Assess PSEG LI's shared meter investigation process including field investigations, billing analysis and compliance with the NY Shared Meter Law.
- Determine the extent to which PSEG LI and LIPA have incorporated any known deficiencies/issues with the current Customer Information System (CIS) in the requirements for the new CIS and whether controls over diary entries in the new system will be adequate.
- Determine the status of the new billing system.
- Assess PSEG LI's/LIPA implementation of the new Time of Day (TOD) rate and rate assignment.
  - Review PSEG LI's and LIPA's recent TOD rate implementation.
  - Review processes for customers to opt out of the TOD rate.
  - Assess the clarity of the eligibility requirements for commercial rates (280/281) in marketing materials and the tariff.
  - Review the training for customer facing personnel.
  - Assess PSEG LI's/LIPA's plan for future Time of Use (TOU) rate implementation.
- Assess the Call Center's average speed of answer and call abandonment rate in comparison to other IOUs.
- Assess the adequacy of call center staffing levels relative to performance.
- Assess the Household Income Assistance program/eligibility requirements, application process, eligible customer enrollment, and promotion by the call center.

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<sup>23</sup> DR 99.

<sup>24</sup> DR 1128 Attachment 1.

- Assess the PSEG LI's process for establishing financial need and qualifying for assistance programs relative to those of other NY utilities.
- Assess the Call Center's ability to address energy efficiency programs and other clean energy program offerings.
- Determine whether the call center is empowered to work with delinquent customers in making payment arrangements, within the requirements of 16 NYCRR Parts 11 and 13.
- Review Deferred Payment Agreement (DPA) processes relative to the requirements of 16 NYCRR Parts 11 and 13, including income qualification documentation requirements and use of standard agreements.
- Assess the actions taken by PSEG LI/LIPA to work with customers with arrearages during and after the COVID-19 collections moratoriums.
- Determine whether PSEG LI has identified any improvements to ongoing or future customer operations practices as a result of COVID-19 lessons learned.
- Address potential financial implications of COVID-19 in areas including revenue, receivables, uncollectibles/bad debt.
- Evaluate PSEG LI's outreach efforts related to the CLCPA and associated changes. Determine how PSEG LI targets disadvantaged communities. (Moved to Chapter VIII - System Planning.
- Evaluate PSEG LI's external affairs program for addressing key stakeholders, elected officials, municipalities, and customers on complex infrastructure projects with substantial public impacts.
- Evaluate the effectiveness of PSEG LI's communications with customers about its clean energy (EE, DER, and related) programs. Determine whether PSEG LI conducts a self-assessment of its outreach efforts for these programs and evaluate this assessment.
- Assess PSEG LI's communications regarding the new Time of Day Rate.
- Determine whether PSEG LI is expanding installation contractor and customer awareness of its energy efficiency programs (incl. heat pumps). (Also see Chapter VIII – System Planning)
- Assess PSEG LI's communications with low-income customers and community-based agencies about its low-income, energy efficiency, and arrearage forgiveness programs and determine how PSEG LI evaluates the effectiveness of its communications.
- Assess PSEG LI's efforts to educate consumers about financial assistance opportunities including special rates available for eligible customers such as the winter-heating rate tied to heat pumps or the Household Assistance Program tiered rates.
- Evaluate PSEG LI's process to plan, organize, and execute its outreach programs, and the extent of LIPA input.
- Determine how PSEG LI evaluates the success of PSEG LI's outreach programs and how it determines whether timely and effective on-going communication has an impact on addressing communications focused on these projects. Evaluate PSEG LI's efforts to assess their Return on Investment (ROI) for outreach spending.
- Assess controls over Utility 2.0 outreach budgets and use of outreach funds.
- Review PSEG LI's processes for informing customers of planned projects and determine the availability of up-to-date customer information to contact customers.

## C. FINDINGS AND CONCLUSIONS

### 1. Shared Meter Investigators lack appropriate field investigation tools and methods. Investigators are not provided check lists, standardized forms, or other tools in the field, resulting in inaccurate and inconsistent field reports and findings.

- PSEG LI has eight union employees trained to perform shared meter investigations.
- PSEG LI provides hands-on specialized training in how to detect shared meters and the amount of energy shared.<sup>25</sup> However, a review of PSEG LI training and procedures found them limited as to how to perform a detailed shared meter investigation.<sup>26</sup> The training and procedures are specific to the customer's apartment and measuring the loads before and after the disconnection of electrical appliances but do not provide instructions on how to proceed when access is provided to the premises around the apartment. There is the potential for loads in use in common areas such as photosensitive lights, laundry equipment, convenience outlets etc. that won't register unless in use.
- Investigations are completed Mondays through Thursdays using paper notepads.<sup>27</sup> On Fridays, investigators transfer their handwritten notes to a standardized word document and a load information form. There are as many as four days between handwritten notes and completed field reports.
- NorthStar's review of the field investigation reports found:
  - Discrepancies in the outcome between the report write up in word and the results on the load information form.<sup>28</sup>
  - No calculations supporting the load table.<sup>29</sup>
  - No clear conclusion in the summary.<sup>30</sup>
  - Incorrect conclusions that were appealed by the customers to DPS.<sup>31</sup> In 2022 there were eight shared meter cases appealed to DPS. Three cases are still open. Four cases had material errors by PSEG LI. One case involved a customer's inability to schedule an appointment, that was subsequently scheduled.<sup>32</sup>

### 2. There is a lack of sufficient supervisory controls in the shared meter investigation process. There is no formal review of investigation results prior to sending it to the property manager/owner of record.

- **Exhibit XIII-9** provides a flowchart of how shared meter investigations are completed.

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<sup>25</sup> IR 72.

<sup>26</sup> DR 453 Attachment 7 and DR 454 Attachment 16.

<sup>27</sup> IR 72, DR 569.

<sup>28</sup> DR 856 Attachment 1.

<sup>29</sup> DR 856 Attachments 4, 5 and 6.

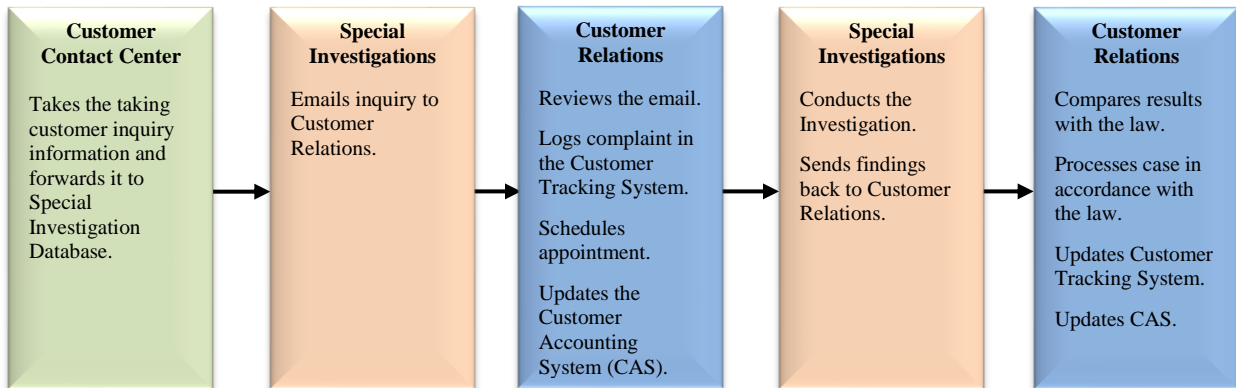
<sup>30</sup> DR 856 Attachment 6.

<sup>31</sup> IR 106 DR 856 Attachment 9.

<sup>32</sup> November 15, 2023, 10:00 am telephone call between NorthStar and DPS.



### Exhibit XIII-9 Shared Meter Investigations



Source: DR 453 Attachment 6.

- PSEG LI’s Shared Meter Process requires supervisory review of field investigations.<sup>33</sup>
  - CSRs receive the shared meter investigations and process them as referenced in **Exhibit XIII-9**. Based on NorthStar’s review of shared meter investigation files, there appears to be inadequate supervisor review of a shared meter investigation outcome before the CSRs process and send investigation results to the property manager/owner of record.<sup>34</sup> Shared meter investigations can result in thousands of dollars in fines and fees.
- 3. PSEG LI complied with the mandated timeline specified in the Shared Meter Law in the majority of cases. When PSEG LI did not comply, it was largely due factors outside the Company’s control to complete an investigation such as customer/landlord “no show” or inability to access a secured area.**
- NorthStar reviewed the Customer Tracking System (CTS) data file. PSEG LI met the thirty business-day requirement to notify customers by letter of the determination the of their inquiries (30-day letter) seventy-five percent of the time.<sup>35</sup>
  - In cases where PSEG LI did not comply with the 30-day requirement, NorthStar reviewed a sample of the observations and found it was largely due to inability to access the premises or the customer/landlord not appearing at the appointed time.<sup>36</sup>

<sup>33</sup> DR 435 Attachment 16.

<sup>34</sup> DR 567 Attachment 1, IR 102, DR 568, and DR 856.

<sup>35</sup> DR 567 Attachment 1.

<sup>36</sup> DR 567 Attachment 1 and IR 102

**4. The extent to which PSEG LI and LIPA have incorporated any known deficiencies/issues into the new CIS requirements cannot be determined as the business requirements were not provided.**

- NorthStar’s data requests for PSEG LI to provide its vendor’s work product on documented CIS requirements was nonresponsive.<sup>37</sup>

**5. The CIS modernization project is on hold until after successful execution of the system separation, TOD work completion, confirmation of organizational readiness, and project evaluation.**

- The postponement of the RFP for the CIS modernization project from 2022 to 2023 was based on insufficient/incomplete requirement evaluation.<sup>38</sup>
- As part of the 2023 scope PSEG LI and LIPA agreed on the need to assess organizational readiness to execute the project scope and complete an evaluation of the proposed RFP by a trusted advisor to ensure we were ready to take on a project of this effort.
- “Late summer 2023, PSEG LI notified LIPA that the organizational readiness and trusted advisor work was not going to be completed due to budget constraints. During 2023, LIPA observed significant delays in the major customer projects and observed that other major IT projects like system separation projects and time of day efforts would require critical attention and focus. Given these factors, LIPA verbally informed PSEG LI that we would delay the CIS modernization project until after successful execution of the system separation, time of day work, confirmation of organizational readiness and evaluation by the trusted advisor.”<sup>39</sup>

**6. Although PSEG LI met the 2022 performance metric for enrollment in the VTOU rate, the metric goal was achieved by offering a bill credit to select customers who enrolled in the program, thus impacting LIPA revenue. It is unclear if LIPA realized the impact of the bill credit incentive.**

- LIPA/PSEG LI launched four residential VTOU rates and one small commercial VTOU rate in December 2021.
- In 2022, the Power Supply & Clean Energy (PS&CE)-9/CE-7 TOU Pricing Pilot – Year 1 Marketing metric was established to engage and enroll a significant number of customers in the new TOU pilot optional pricing plans. The potential PSEG LI incentive ranged from \$100,000 to \$200,000 based on the number of customers enrolled on the five TOU rates: \$100,000 for at least 8,000 customers enrolled, \$150,000 for 10,000 customers and \$200,000 for at least 12,000 customers enrolled.<sup>40</sup>

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<sup>37</sup> Nonresponsive defined as insufficient material provided or not provided during the audit period.

<sup>38</sup> DR 448.

<sup>39</sup> DR 1516.

<sup>40</sup> LIPA/PSEG LI 2022 Performance Metrics ([www.lipower.org](http://www.lipower.org)).

- Marketing and outreach initiatives enrolled customers on the VTOU rates. The customer engagement focus included a communication campaign to create overall awareness of the new TOU rates and allowed the customer the option to choose the rate that best suits how and when they use energy.
  - The communication campaign included letters, postcards as well as promotional and educational emails followed up with an email “drip campaign”. A drip campaign is a series of pre-written, pre-scheduled emails sent to customers over an extended period.<sup>41</sup>
  - The timing of each email in the campaign is based on predefined triggers. The email campaign was broken up into 11 Blocks.
  - Blocks 1 to 3 were a testing phase which included a one-click enrollment solution in Block 2. Blocks 4 to 7 included the one-click in every email. Blocks 8, 10, 12 & 13 introduced the \$25 bill credit incentive with an October 31<sup>st</sup> enrollment deadline.<sup>42</sup> Over 7,200 customers enrolled as part of that specific campaign – approximately \$180,000 in bill credits.
- By the end of 2022, PSEG-LI had enrolled 13,434 customers, exceeding the metric goal of 12,000 customers enrolled.<sup>43</sup>
- Extensive analysis of the VTOU email campaign was performed by a PSEG LI vendor. A summary by campaign block and target group is shown in **Exhibit XIII-10**.

**Exhibit XIII-10**  
**Voluntary TOU Conversion by Email Block**  
**Email Activity**

Block	Date Range sent to Customer	Target Group	Total Customers Targeted	Reached	Converted	Conversion Rate
Block 1	12/9/2021-1/13/2022	Generic	1,126	1,119	52	4.6%
Block 2	2/17/2022-3/17/2022	Savers - \$30 to \$2000 per year	15,000	14,837	552	3.7%
Block 3	6/2/2022-7-7-2022	Block 3A Savers: \$30 to \$2000 per year  Block 3B Savers: \$30 to \$12000 per year	15,001	14,923	489	3.3%
Block 4	6/23/2022-7/28/2022	Block 4A Savers: \$100 to \$230 per year	76,202	54,666	3,329	6.1%

<sup>41</sup> DR 1348 Attachment 1 and DR 741 Attachment 1.

<sup>42</sup> DR 1132 Attachment 1 and 2 and DR 1348 Attachment 2, DR 1343 Attachment 2.

<sup>43</sup> DR 734 Attachments 2 and 3, May 15, 2023, Year-End Report on PSEG Long Island’s 2022 Performance Metric, prepared for the Long Island Power Authority Board of Trustees. Note: Active customers, plus open requests for conversion. As of YE 2022, open requests accounted for 166 “enrollments”.

Block	Date Range sent to Customer	Target Group	Total Customers Targeted	Reached	Converted	Conversion Rate
		Block 4B Savers: \$50 to \$100 per year				
Block 5	7/14/2022-7/28/2022	EV savers: \$50 to \$2000 per year	3,806	3,053	591	19.4%
Block 6	7/21/2022	EV non-savers: (\$100) to \$0 per year  EV low savers: \$0.01 to \$50 per year	3,858	3,000	64	2.1%
Block 7	7/28/2022-8/11/2022	Group 1 savers: \$0 to \$5 per year  Group 2 savers: \$5.01 to \$20 per year  Group 3 savers: \$20.01 to \$40 per year  Group 4 savers: \$40.01 to \$50 per year	124,000	98,862	509	0.5%
Block 8	9/15/2022-10/6/2022	Group 1 savers: \$30 to \$2k per year  Group 2 savers: \$30 to \$2k per year  <b>\$25 bill credit</b>	121,707	100,434	2,386	2.4%
Block 9		No emails sent				
Block 10	9/29/2022-10/13/2022	Savers: \$0 to \$2k per year <b>\$25 bill credit</b>	3,932	3,050	226	7.4%
<b>Subtotal:</b>			<b>364,632</b>	<b>293,944</b>	<b>8,198</b>	<b>2.8%</b>
Block 12 & 13	10/6/2022, 10/13/2022, 10/20/2022	Rate M188 Savers  Messaging: Get a better rate and <b>\$25 bill credit.</b> Switch by October 31.	Data not provided. +5236 customers converted.			

Block	Date Range sent to Customer	Target Group	Total Customers Targeted	Reached	Converted	Conversion Rate
		Target: Rate M188 customers savers. [Note 1]				
<b>Total:</b>					<b>13,434</b>	

Note 1: Rate M188 rate customers are part of the 2017 “Super Savers” Pilot program or are customers outside of North Bellmore who have AMI installed.<sup>44</sup>

Source: DR 1348 Attachment 1 and 2, DR 1343 Attachment 2 (Confidential & proprietary for internal use by client only).

**7. PSEG LI plans to automatically transition customers from the 180 Flat Rate to the new standard TOD Rate in phases throughout 2024 and 2025.**

- Alongside VTOU new rate offerings, TOD rate offerings were in the development phase. In December 2021, LIPA and New York State Solar Energy Industries Association (NYSEIA) agreed to develop a roadmap to make TOD rates the standard rate for electric customers on Long Island and the Rockaways.<sup>45</sup>
- Starting in the Fall of 2023 (pending), customers will have the option to either voluntarily opt into the TOD Rate and Super Off-Peak Rate early or opt out entirely and remain on the current Flat Rate.<sup>46</sup>
- New TOD Rates will be available in 2024.<sup>47</sup> At the time PSEG LI will move residential accounts from the 180 Flat Rate to the new standard TOD Rate (automatic opt-in), making the new TOD Rate the primary rate offered to customers. The TOD Rate will not be mandatory, and customer can request to change to a Flat Rate or Super Off-Peak Rate at any time.<sup>48</sup>
- LIPA/PSEG plans to migrate residential customers to the TOD Rate in several phases, beginning in 2024 and continuing through 2025.<sup>49</sup>
- 
- PSEG LI created a special queue to transfer customer calls internally for escalated/complex TOU questions. Reporting of queue data began October 13, 2021.<sup>50</sup>

<sup>44</sup> <https://www.lipower.org/wp-content/uploads/2020/09/September-Tariff-Proposal-TOU-Rates.pdf>

<sup>45</sup> DR 1337 Supplement 1 PIP.

<sup>46</sup> [https://www.flipsnack.com/lipower/lipa\\_timeofday\\_factsheet/print-pdf.html](https://www.flipsnack.com/lipower/lipa_timeofday_factsheet/print-pdf.html)

<sup>47</sup> <https://www.psegliny.com/en/TimeOfDay>

<sup>48</sup> [https://www.flipsnack.com/lipower/lipa\\_timeofday\\_factsheet/print-pdf.html](https://www.flipsnack.com/lipower/lipa_timeofday_factsheet/print-pdf.html)

<sup>49</sup> Fact Verification

<sup>50</sup> Fact Verification

**8. From a performance standpoint, PSEG LI’s call center was comparable to other New York utilities between 2018 and 2021, before dropping to the lowest performance of its NY peers in 2022.**

- Case 15-M-0566 (issued and effective August 4, 2017) standardized customer performance metric reporting for select utilities: Consolidated Edison Company of New York, Inc.; Niagara Power Corporation, dba National Grid; Central Hudson Gas and Electric Corporation; Orange & Rockland Utilities, Inc.; Rochester Gas and Electric Corporation; New York State Electric & Gas Corporation; National Fuel Gas Distribution Corporation; The Brooklyn Union Gas Company dba National Grid NY; and, KeySpan Gas East Corporation dba National Grid. All utilities, except for National Fuel Gas are subject to a customer service performance incentive mechanism.
- As part of this requirement, each of the select utilities is required to report four Telephone Answer Response Metrics monthly. The four metrics are defined in the Customer Service Metrics Manual as follows:
  - Total incoming calls received: All incoming calls, without exclusion.
  - Percent of calls answered: All answered calls (by any means, including interactive voice responses (IVR) or a CSR.
  - Total incoming calls requesting a representative: All calls that have requested to speak to a representative, excluding calls that are abandoned before 30 seconds have lapsed.
  - Percent of calls answered by representative within 30 seconds: The percentage of total incoming calls requesting a representative that were answered by a representative within 30 seconds.
- The percent of calls answered within a certain time period is a standard call center metric and is referred to as a service level. The service level is largely driven by the call center’s target, which may be a regulatory requirement. Achieving increasingly higher service levels is costly. In general terms, most utilities staff to meet their targets.
- **Exhibit XIII-11** shows the percentage of calls answered in 30 seconds and regulatory-required service level standard for each utility required to report pursuant to Case 15-M-0566 as well as PSEG LI.

**Exhibit XIII-11  
New York Utility Call Answer Rate and Service Level Requirement  
(Percent of Calls Answered by a Representative within 30 Seconds)**

NY Utility	2018	2019	2020	2021	2022	Service Level Requirement
PSEG LI	77.5%	76.7%	78.8%	80.3%	32.4%	80% within 30 seconds
Central Hudson Gas & Electric (CHG&E)	74.4%	75.3%	69.6%	72.4%	66.5%	67% within 30 seconds
Consolidated Edison Company of NY (CECONY)	67.1%	67.4%	68.1%	66.9%	62.5%	65% within 30 seconds (2021) Joint Proposal [Note 1] RY 1: >/=66.0% RY 2: >/=67.0% RY 3: >/=67.5%

NY Utility	2018	2019	2020	2021	2022	Service Level Requirement
New York State Electric & Gas (NYSEG)	65.2%	65.2%	69.5%	71.1%	44.2%	>70% within 30 seconds (2021) 70.5% within 30 seconds (2022)
Rochester Gas & Electric (RGE)	76.5%	74.6%	78.6%	77.4%	42.8%	>70% within 30 seconds (2021)
Orange & Rockland (O&R)	20.0%	64.2%	71.6%	82.2%	62.0%	60.3% within 30 seconds
KeySpan (dba National Grid (KEDLI))	67.0%	67.9%	78.7%	83.1%	76.5%	KEDLI: > 62.2% within 30 seconds
Brooklyn Union Gas (dba National Grid NY (KEDNY))	61.9%	61.7%	84.0%	65.0%	67.7%	KEDNY: > 60.6% within 30 seconds
Niagara Mohawk Power Corporation (dba National Grid)	79.2%	80.0%	80.7%	81.4%	80.7%	≥ 79.2% within 30 seconds
National Fuel Gas	82.4%	84.1%	88.6%	87.0%	60.6%	n/a (does not have)
<b>Average</b>	<b>67.1%</b>	<b>71.7%</b>	<b>76.8%</b>	<b>76.7%</b>	<b>59.6%</b>	

Note 1: Case 22-E-0064 and Case 22-G-0065 Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans with Additional Requirements, July 20, 2023

Source: Case 15-M-0566 Performance Indicator Filing, Case 20-E-0380/20-G-0381, DR 91, DR 801

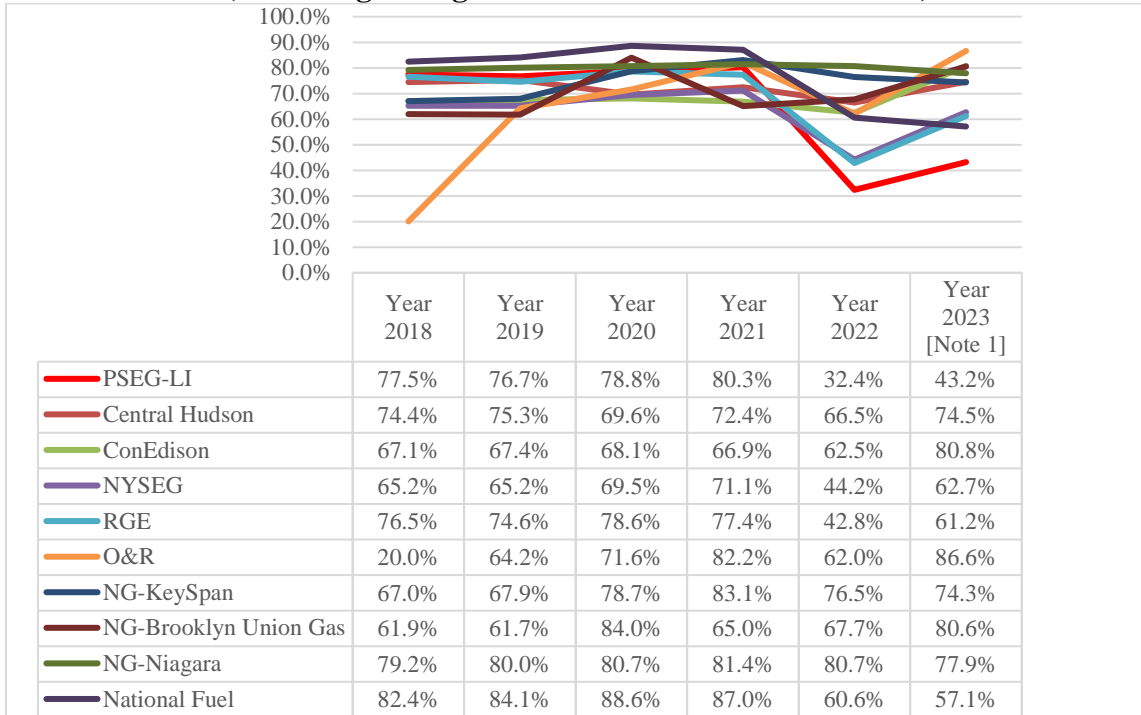
- In 2022 PSEG LI Call Answer Rate (percent of calls answered by a representative within 30 seconds) had the lowest performance of the select NY utilities benchmarked with 32.4 percent as shown in **Exhibit XIII-12**.<sup>51</sup>

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<sup>51</sup> DR 91, DR 801.



**Exhibit XIII-12**  
**NY Utilities Calls Answered in 30 Seconds**  
**(Percentage of Agent Calls Answered in 30 seconds)**



Note 1: Data range includes Jan-July 2023.

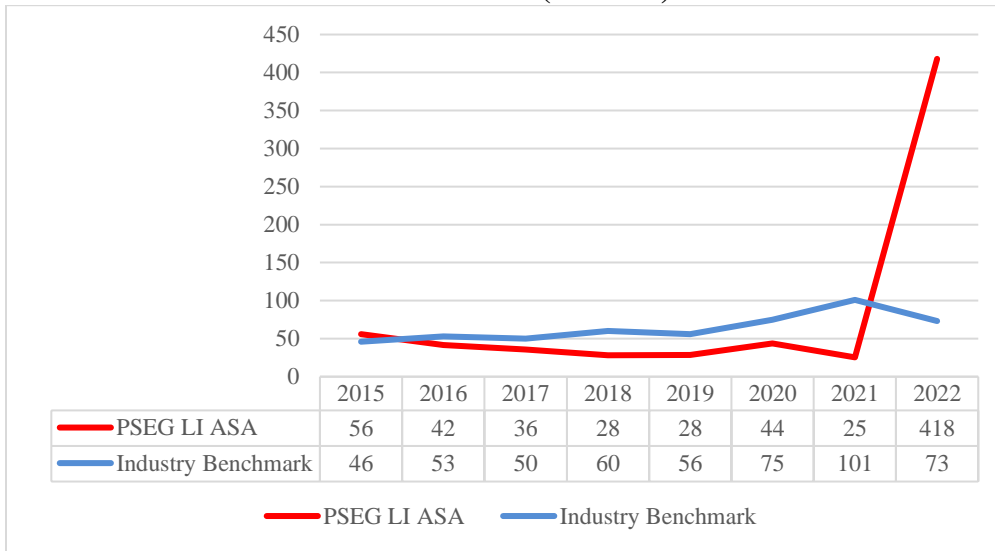
Source: DR 91, DR 801, DR 1264, Case 15-M-0566 utility submissions

**9. PSEG LI Call Center average speed to answer (ASA) and call abandonment rate exceeded industry standards between 2016 and 2021. The ASA performance is slightly below industry standard in 2015 and significantly below industry standard in 2022. The call abandonment rate is significantly below industry standards in 2022.**

- NorthStar utilized US Call Center industry benchmark research for evaluating PSEG LI performance of ASA and call abandonment rate as New York Utilities do not have a regulatory requirement to report average speed of answer or call abandonment rates.<sup>52</sup>
- PSEG LI’s Average Speed of Answer (ASA) vs industry is shown in **Exhibit XIII-13**. The data indicates:
  - Between 2015 and 2022 PSEG LI ASA) varied between 25 and 418 seconds. The industry ranged between 46 and 101.
  - Between 2021 and 2022 PSEG LI ASA increased drastically reaching over 418 seconds. The industry benchmark increased in 2021 to 101 seconds but began correcting in 2022 at 73 seconds.

<sup>52</sup> “The 2023 US Contact Center Decision-Makers’ Guide (15th edition)”, © ContactBabel 2023.

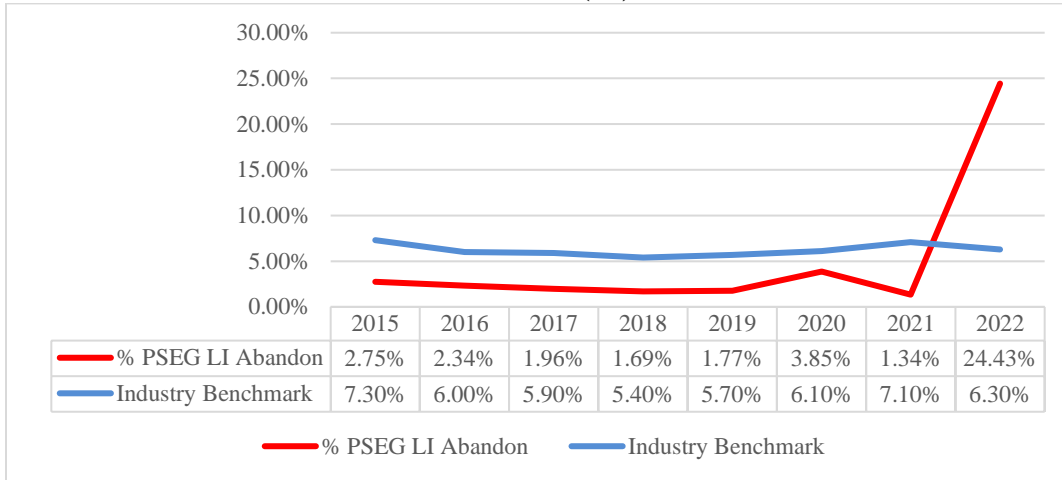
**Exhibit XIII-13**  
**PSEG LI Call Center Representative Average Speed to Answer (ASA)**  
**versus Industry Benchmark**  
**(Seconds)**



Source: Daily Call Center Reports (DR 91 Attachment 1 and DR 801 Attachment 1), The 2023 US Contact Center Decision-Makers' Guide, NorthStar Analysis

- PSEG LI Call Abandonment Rate vs Industry Benchmark is shown in **Exhibit XIII-14**.
  - Between 2015 and 2021 the average call abandonment rate (calculated based on annual mean) varied between 1.69 percent and 3.85 percent annually, performing better than the industry benchmark.
  - The call abandonment rate for PSEG LI spiked in 2022 at 24.43 percent, performing significantly worse in 2022 than 2021 while the industry benchmark saw better performance in 2022 than 2021.

**Exhibit XIII-14**  
**PSEG LI Call Center Representative Abandonment Rate versus Industry Benchmark**  
**(%)**

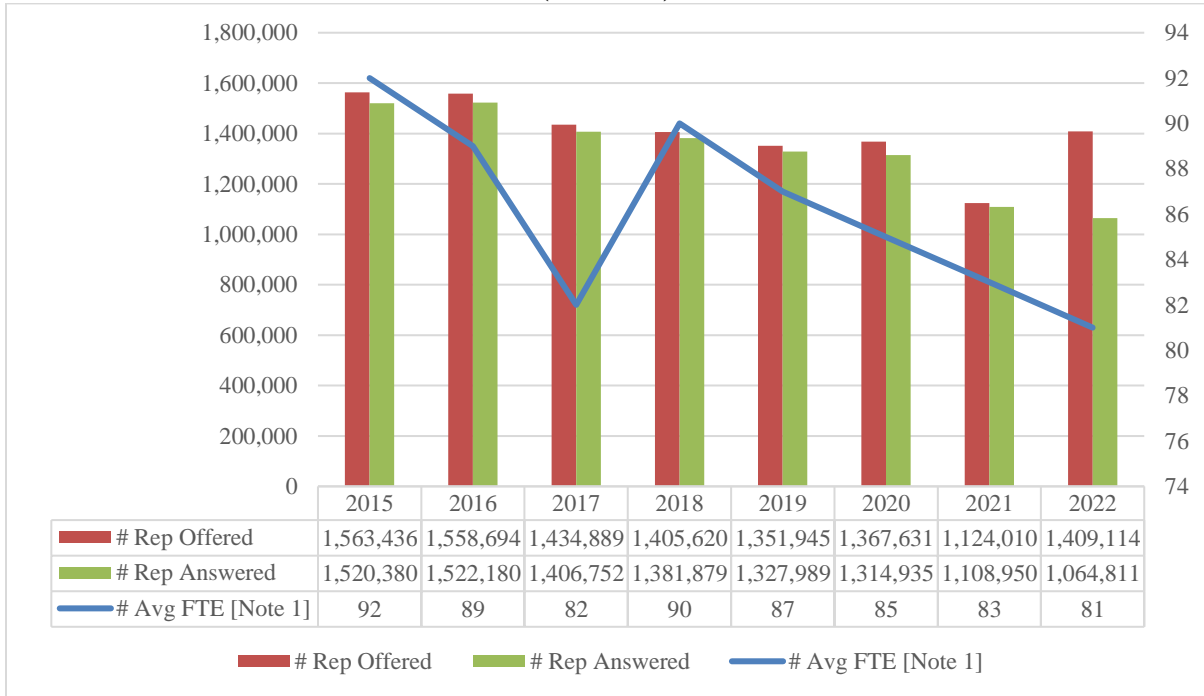


Source: Daily Call Center Reports (DR 91 Attachment 1 and DR 801 Attachment 1), The 2023 US Contact Center Decision-Makers' Guide, NorthStar Analysis

**10. The number of CSR's taking calls steadily declined between 2018 and 2022, whereas the number of calls requiring assistance stayed relatively steady in the same timeframe (with the exception of a decrease 2021). The decrease in CSR's correlates to degradation of service level performance for percent calls answered in 30 seconds, call abandonment rate, and ASA.**

- The number of PSEG LI call center representative's vs the number of calls offered and answered by customer service representatives is shown in **Exhibit XIII-15**.

**Exhibit XIII-15**  
**PSEG LI Call Center Representative Volume vs # FTE**  
**(Number)**

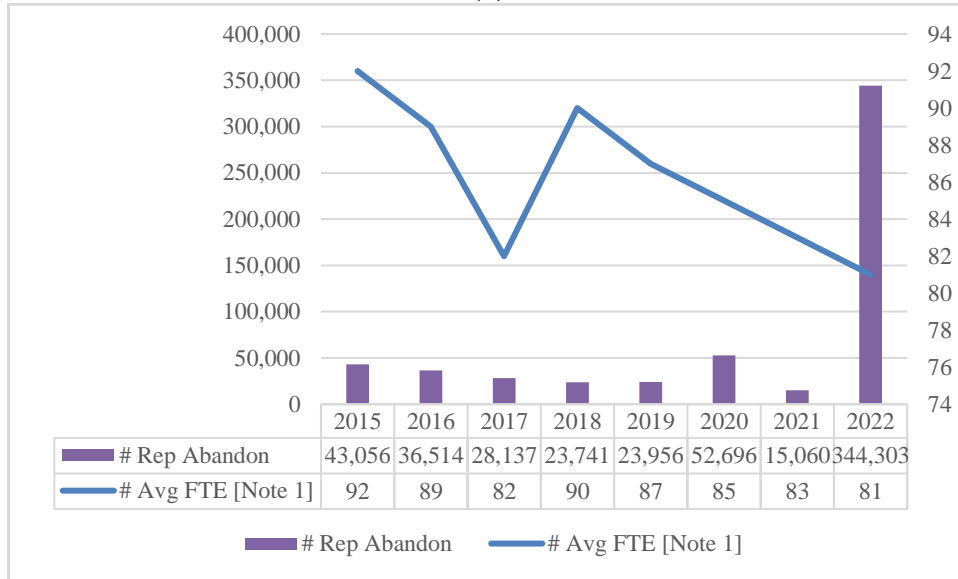


Note 1: #Avg FTE in this context is based on annual average monthly FTE numbers reported in the Daily Call Center Reports.

Source: Daily Call Center Reports (DR 91 Attachment 1 and DR 801 Attachment 1)

- Comparing call center representative volume vs number of FTE’s indicates the following:
  - The number of calls requiring representatives (# Rep Calls Offered) decreased between 2015 and 2019 and increased slightly in 2020. In 2021 calls decreased significantly (less customers calling during COVID) and in 2022 the volume returns to 2017-2018 levels.
  - During the same timeframe of 2015 to 2018, the average annual number of FTE’s ranged between 81 and 92.
- The comparison of PSEG LI call center representatives to the number of calls abandoned is shown in **Exhibit XIII-16**.

**Exhibit XIII-16  
PSEG LI Call Center Abandonment vs # FTE [Note 1]  
(#)**



Note 1: #Avg FTE in this context is based on annual average monthly FTE numbers reported in the Daily Call Center Reports. Source: DR 91

- Comparing call center representative abandonment volume to number of FTE’s indicates the following:
  - The number of abandoned calls decreased between 2015 and 2018, increasing slightly in 2019 and doubling in 2020.
  - The number of abandoned calls decreased in 2021 (fewer customers calling during COVID, therefore less abandonment).
  - The number of abandoned calls spiked in 2022 with over 300k.

**11. PSEG LI’s call center forecasting model is not a true staffing model. The call center model attempts to achieve a monthly service level and does not model day-of-week call volumes, planned marketing initiatives, or recognize supplemental support from other departments (i.e., billing agents).**

- The call center forecasting model calculates the number of “Phone FTE” staff required to support service level requirements. Variables such as number of contacts (calls requiring a representative), average handling time, service level (30 seconds), ASA, FTE availability factor, and shrinkage (to account for leave of absences, etc.), and actual FTE are considered. It is based on monthly volume and is not day of week specific. Therefore, the model is set to meet the service level on an overall monthly basis and not day of week. A summary of the output is shown in **Exhibit XIII-17**.

**Exhibit XIII-17**  
**Call Center Forecast Model Annual Summary [Note 1]**

	2018	2019	2020	2021	2022	2023
Calls Requiring a Rep (Annual) [Note 2]	1,416,403	1,338,289	1,383,822	1,347,783	1,238,781	1,449,912
AHT	334	353	362	395	394	466
Service Level %	70	70	75	75	80	80
Rep ASA	52	52	48	“n/a” in model	“n/a” in model	“n/a” in model
Occ % [Note 3]	85	85	85	88	85	85
Shrink [Note 4]	28	31	31	38	42	40
Phone FTE Required	113.6	124.1	123.4	131.5	145.6	182.3
Actual FTE	121.1	122.8	106.3	115.8	112.1	134.3
FTE +/-	+7.5	-1.2	-17.1	-15.7	-33.6	-47.9

Note 1: Number displayed in are as provided by PSEG LI.

Note 2: Based on January annual forecast for each year.

Note 3: Occupancy is calculated as the percentage of time that advisors take on call-related activity compared to the logged-in time.

Note 4: Shrinkage can be planned, e.g., agents being scheduled for staff meetings and trainings, or unplanned, an agent calling out sick, FMLA, STD etc.

Source: DR 1175 Attachment 1

- The Call Center Forecast Model does not account for initiatives that increase call volume or increase call-handle time. Examples of initiatives include:
  - Campaigns for VTOU/TOD enrollment. The email campaigns further impacted an already understaffed call center - call volume increased ~38 percent in the May to September 2022 time frame.<sup>53</sup>
  - Restarting of collection activities after the pause due to COVID-19.
  - Promotion of various programs and services.
  - Launching and promotion of customer tools such as neighbor to neighbor energy use comparisons.
- Between 2019 and 2023, the planned budgeted headcount remains relatively flat, whereas the call center forecast model indicates a need for more staff as shrinkage and service values increase.<sup>54</sup>
- Except for a low attrition rate in 2021 with just eight departures the call center attrition rate has held relatively constant at an average of 33 annually between 2018 and 2023. This number includes terminations, resignations, retirements, and employees that move to other positions within the company.<sup>55</sup>

<sup>53</sup> DR 217 Attachment 1.

<sup>54</sup> DR 1175 Attachment 1.

<sup>55</sup> DR 971 Attachment 1.

- A higher-than-average attrition rate is noticed regarding agents that were working in customer office locations. Of the 59 bargaining units (BU) and seven management, administrative, supervisory and technical (MAST) employees, only 22 BU (63 percent attrition) and five MAST (29 percent attrition) remain.<sup>56</sup>
- The Call Center Recovery Get Well plan did not discuss the following impacts to the call center staffing plan and call volume:
  - The call center is supplemented by 39 billing agents on Mondays and a half-day on Friday. The billing group absorbs this expense. The resource pool was not mentioned as part of the Call Center Get Well Recovery Plan initiative.<sup>57</sup>
  - The impact of PSEG LI closing customer offices (walk-in customer service locations) beginning March 2020. With 393,000 visits made to the offices in 2019, these customers would be looking for customer service elsewhere.
  - Rationale as to why staff from customer walk-in offices that were closed were not transferred to positions to support the call center was also not discussed.<sup>58</sup>

**12. Although call center performance was generally on par with other NY utilities between 2018 and 2021, overtime spend increased substantially in 2019 (and beyond) indicating a staffing shortfall as early as 2019. Although the call center forecast model indicated a need for more staff, the budget shows a decrease in planned headcount between 2019 and 2021.**

- The call center financial reporting includes planned headcount, planned straight time, planned overtime. The call center actual spend includes straight time and overtime but does not update actual headcount (HC).<sup>59</sup>
- The planned HC number includes the following positions:
  - Clerical Support
  - Customer Contact (F/T & P/T)
  - Customer Contact Leads
  - Analyst / Operations
  - Manager Supervisor
  - Trainers
- **Exhibit XIII-18** graph shows actual spend and planned/budget HC. Observations include:
  - Between 2018 and 2019 overtime spend increased from \$1,061,335 to \$2,973,039 or 180 percent, indicating a staffing shortage was occurring in 2019 but planned

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<sup>56</sup> DR 1600.

<sup>57</sup> DR 217.

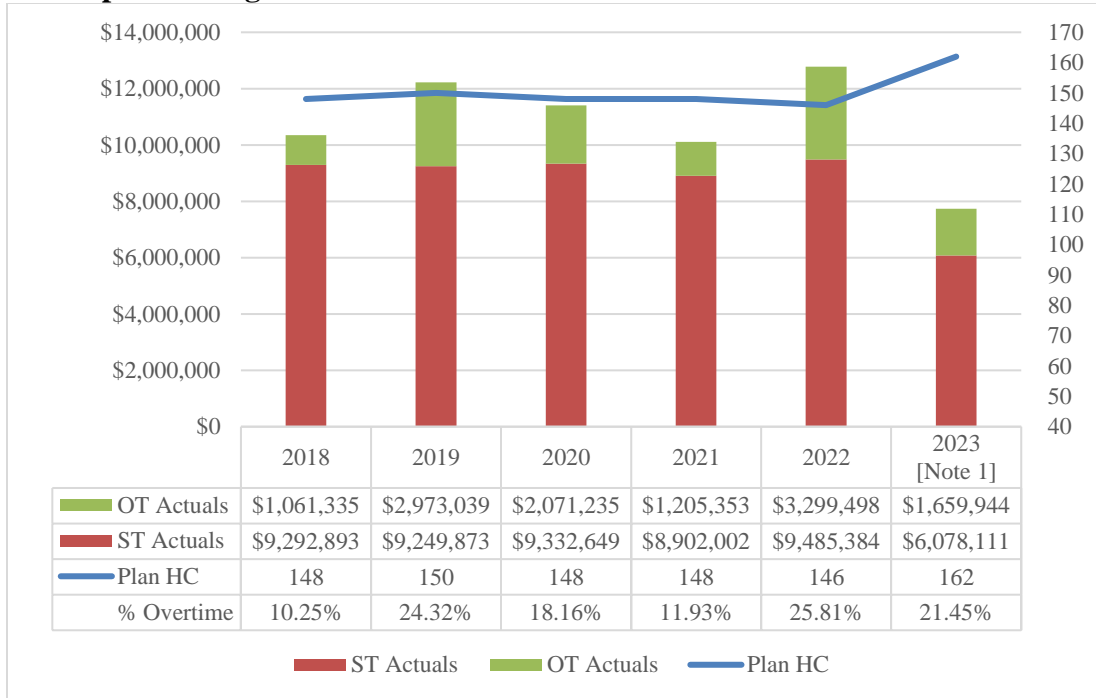
<sup>58</sup> DR 1265.

<sup>59</sup>DR 1175 Attachment 1-2, DR 1263 Attachment 1 – Confidential.



HC remained relatively stable with only a slight change of 2 HC (1.3 percent increase).<sup>60</sup>

**Exhibit XIII-18  
Call Center Financial Reporting  
\$ Spend Straight Time & Over Time versus Number Planned Headcount**



Note 1: Data range includes Jan-June 2023.  
Source: DR 1263 Attachment 1 – Confidential

**13. PSEG LI qualifying programs for Household Assistance Rate align with the LIPA Tariff. However, the LIPA Tariff does not completely align with the NYSPSC expanded eligibility guidelines that other New York utilities are required to comply with.**

- LIPA Qualifying Programs** – Tariff Leaf 20 states this includes customers who provides documentation of current enrollment in at least one of the following programs: Home Energy Assistance Program (HEAP); Medicaid; Supplemental Nutrition Assistance Program (SNAP); Supplemental Security Income (SSI); Temporary Assistance – Family Assistance (FA); Temporary Assistance-Safety Net Assistance (SNA); United States Veterans Administration – Veteran’s Pension or Veteran’s Surviving Spouse Pension.<sup>61</sup> PSEG LI Household Assistance Rates Procedure lists the same qualifying programs.<sup>62</sup>
- NYSPSC Qualifying Programs** – The LIPA Tariff has not updated their list of qualifying programs to align with guidance provided by the New York State Public

<sup>60</sup> DR 1175 Attachment 2.

<sup>61</sup> LIPA Seventh Revised Leaf No. 20 (Section 1.B – Qualifying Low-Income Customers).

<sup>62</sup> DR 1353

Service Commission (NYSPSC). NYSPSC directed all utilities to open their low-income discount programs to households that currently receive a Home Energy Assistance Program (HEAP) benefit, regardless of fuel or benefit type. In addition, the program expanded eligibility to include other public assistance programs besides HEAP.

- PSEG LI’s Household Assistance Rates (HAR) qualifying programs are aligned to the LIPA Tariff qualifying programs.
- **Exhibit XIII-19** reviews the qualifying programs listed by the NYSPSC versus qualifying programs listed by LIPA/PSEG LI.

**Exhibit XIII-19**  
**NYSPC versus LIPA/PSEG**  
**Household Assistance Rate Qualifying Assistance Programs [Note 1]**

PSC Energy Assistance Program Eligibility	LIPA/PSEG LI HAR Qualifying Program	NorthStar Review
Home Energy Assistance Program (HEAP)	Yes	
Lifeline Telephone Service Program (Lifeline)	No	Not in LIPA Tariff
Supplemental Nutrition Assistance Program (SNAP)	Yes	
Medicaid	Yes	
Veterans Disability or Survivors Pension	Yes	
Supplemental Security Income (SSI)	Yes	
Federal Public Housing Assistance	No	Not in LIPA Tariff
Bureau of Indian Affairs General Assistance (if living on tribal lands)	No	Not in LIPA Tariff
Head Start (if living on tribal lands)	No	
Tribal TANF (if living on tribal lands)	No	
Food Distribution Program on Indian Reservations (if living on tribal lands)	No	
Utility Guarantee / Direct Vendor programs	Yes	
Temporary Assistance for Needy Families (TANF)	Yes	
Safety Net Assistance	Yes	

Note 1: Based on NorthStar’s assessment of the HAR program eligibility for applicable audit period. Changes to Tariffs outside audit period were not considered.

Source: <https://dps.ny.gov/system/files/documents/2023/10/energy-affordability-program.pdf>

**14. The file transmission process between PSEG LI and the New York Office of Temporary Disability Assistance does not have an established schedule. PSEG LI’s record of last file received was June 2022 with a customer file matching rate of 76 percent. There is a potential that eligible customers are not enrolled in HAR.**

- The number of customers enrolled as part of the HAR Program is displayed in **Exhibit XIII-20**.
  - For Tier discount levels 1 to 3, most customers are qualified through the NY Office of Temporary Disability Assistance (OTDA). The Tier discount level is determined based on the amount of the HEAP benefit the customer is granted. Customer

information is provided to PSEG LI for purposes of HAR program enrollment. Customers that receive a HEAP benefit or an Emergency HEAP benefit should be automatically enrolled in the HAR program without having to apply for the rate.<sup>63</sup> Customers can also apply directly to PSEG LI for HAR by completing an application form available on PSEG LI website and providing proof of eligibility. PSEG LI processes these applications manually.<sup>64</sup>

- For Tier 4, PSEG LI is notified by social services and the customer account is updated accordingly.<sup>65</sup>

**Exhibit XIII-20**  
**PSEG LI Household Assistance Program Enrollment**  
**(Number of Participants)**

Tier	2018	2019	2020	2021	2022	2023 [Note 1]
Heating Tier 1 Total	905	652	834	789	952	1,372
Heating Tier 2 Total	346	493	541	611	643	464
Heating Tier 3 Total	1,693	1,970	2,016	2,112	2,072	1,778
Heating Tier 4 Total	183	163	85	76	82	152
Non-Heating Tier 1 Total	19,894	26,631	41,313	37,690	37,746	34,592
Non-Heating Tier 2 Total	0	0	0	0	0	0
Non-Heating Tier 3 Total	0	0	0	0	0	0
Non-Heating Tier 4 Total	2,005	1,764	932	664	870	1051
<b>Total (year-end)</b>	<b>25,026</b>	<b>31,673</b>	<b>45,721</b>	<b>41,942</b>	<b>42,365</b>	<b>39,409</b>
<b>Annual Average</b>	<b>22,676</b>	<b>28,070</b>	<b>38,963</b>	<b>45,242</b>	<b>39,782</b>	<b>41,933</b>

Note 1: 2023 is YTD as of August 2023

Source: DR 1442

- PSEG LI does not track the number of customer applications received by month as it is not a requirement and does not have a business reason to track this information. Customer enrollment counts by qualifying program are also not tracked.<sup>66</sup>
- Email exchanges between PSEG LI and OTDA suggests that OTDA tries to do three file shares per year (March, September, and November).<sup>67</sup>
- PSEG LI states they receive a list bi-annually of recipients of HEAP benefits within New York from OTDA.<sup>68</sup>
- Supplemental evidence provided regarding OTDA HEAP file transmissions indicate receipt one file each year between 2018 and 2021 and two files in 2022.<sup>69</sup>

<sup>63</sup> Fact Verification

<sup>64</sup> DR 97 Attachment 1, DR 808 Attachment 2, DR 97 Attachment 1, DR 1353 Attachment 1, DR 1441.

<sup>65</sup> DR 97 Attachment 1, DR 1353 Attachment 1.

<sup>66</sup> DR 1145, 1444, and 1445.

<sup>67</sup> Fact Verification

<sup>68</sup> DR 1447.

<sup>69</sup> Fact Verification

- PSEG LI provided details on only one file (received June 2022). The file had 16,865 customer records matching out of 22,167 records in file reflecting a 76 percent match rate.<sup>70</sup>
- Some issues exist with the customer matching process. This includes:
  - The OTDA file may not contain a PSEG account number.<sup>71</sup>
  - Addresses are not standardized making address matching difficult.<sup>72</sup>
  - The process does not generate any exception reports.<sup>73</sup>
- NorthStar’s review of manually processed HAR applications during the 2022 year indicate:
  - PSEG LI manually processed 5,908 applications received by email. Of these applications, 4,268 were approvals and 1,640 denials (38 percent denials).<sup>74</sup>
  - PSEG LI manually processed 5,479 applications received by mail and other channels (other than email). Of these applications, 3,988 were approvals and 1,491 denials (27 percent denials).<sup>75</sup>

**15. PSEG LI’s documentation is not aligned with LIPA Tariff Leaf 38B. PSEG LI does not enroll non-heating customers in Tier 2 and Tier 3 of the HAR program.**

- **LIPA Discount Tiers** – Tariff Leaf 38B discusses LIPA’s four discount Tiers levels available to low-income customers:

“The Tier 1 discount is available to all Qualifying Low-Income Customers. Customers that have received a HEAP benefit plus one (1) add-on shall receive the Tier 2 discount. Customers that have received a HEAP benefit plus two (2) add-ons shall receive the Tier 3 discount. The Tier 4 discount is reserved for customers with Direct Voucher/Guaranteed Payment. HEAP recipients receive add-ons for households with a vulnerable individual (household member who is age 60 or older, under age six or permanently disabled) and/or if the household’s gross income meets HEAP Tier 1 income guideline.”

- LIPA Tariff (Tariff for Electric Service) Tier discount amounts versus PSEG LI Tier discount amounts are displayed in **Exhibit XIII-21** and **Exhibit XIII-22** respectively.

**Exhibit XIII-21**  
**LIPA Statement of Low-Income Program Discounts**  
**(\$ per day)**

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<sup>70</sup> DR 1143.

<sup>71</sup> DR 1447.

<sup>72</sup> DR 1447.

<sup>73</sup> DR 1143.

<sup>74</sup> DR 1441 Attachment 9, NorthStar Analysis

<sup>75</sup> DR 1441 Attachment 8, NorthStar Analysis

Tier	2018	2019	2020	2021 (Jan 2021 - June 2022)	2022 (July 2022 – Dec 2022)	2023
<b>Heat Rate</b>	<b>Electric Heat Rate 580</b>					
Tier 1	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 2	\$1.33	\$1.53	\$1.53	\$1.53	\$1.50	\$1.60
Tier 3	\$2.00	\$2.17	\$2.17	\$2.17	\$2.15	\$2.25
Tier 4	\$1.40	\$1.60	\$1.60	\$1.60	\$1.60	\$1.70
<b>Non-Heat Rate</b>	<b>Electric Non-Heat 180</b>					
Tier 1	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 2	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 3	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 4	\$1.40	\$1.40	\$1.60	\$1.60	\$1.60	\$1.70

Source: <https://www.lipower.org/about-us/tariff/approved-rulemaking/> (Approved July 25, 2018; September 23, 2020; March 27, 2020; September 23, 2020, <https://www.lipower.org/wp-content/uploads/2021/12/LIPD-1.pdf>, <https://www.lipower.org/wp-content/uploads/2022/06/LIPD-2.pdf>; <https://www.lipower.org/wp-content/uploads/2022/12/LIPD-3.pdf>) and DR 1439, DR 1440 Attachment 1.

- PSEG LI four discount Tiers levels align with LIPA except for Tier 2 and Tier 3 Non-Heat Rates.
- **Exhibit XIII-22** shows PSEG LI HAR discount amounts by tier and heat/non-heat rates.

**Exhibit XIII-22**  
**PSEG LI Household Assistance Rate Daily Billing Credits**  
**(\$ per day)**

Tier	2018	2019	2020	2021 (Jan 2021 - June 2022)	2022 (July 2022 – Dec 2022)	2023
<b>Heat Rate</b>	<b>Electric Heat Rate 580</b>					
Tier 1	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 2	\$1.33	\$1.53	\$1.53	\$1.53	\$1.50	\$1.60
Tier 3	\$2.00	\$2.17	\$2.17	\$2.17	\$2.15	\$2.25
Tier 4	\$1.40	\$1.60	\$1.60	\$1.60	\$1.60	\$1.70
<b>Non-Heat Rate</b>	<b>Electric Non-Heat 180</b>					
Tier 1	\$0.67	\$0.83	\$0.93	\$0.93	\$1.25	\$1.35
Tier 2	No Tier 2	No Tier 2	No Tier 2	No Tier 2	No Tier 2	No Tier 2
Tier 3	No Tier 3	No Tier 3	No Tier 3	No Tier 3	No Tier 3	No Tier 3
Tier 4	\$1.40	\$1.40	\$1.60	\$1.60	\$1.60	\$1.70

Source: DR 1140 Attachment 1, DR 1442 Attachment 2

- With regards to Tier 2 and Tier 3 Non-Heat Rates, PSEG LI states they do not receive notification of HEAP add-ons for non-heating customers, and therefore non-heating customers are not enrolled in Tiers 2 or 3.<sup>76</sup>
- NorthStar reviewed the HAR renewal timeline and determined a difference by LIPA Tariff Leaf No. 38B and PSEG LI internal guidance. In response, PSEG has stated that LIPA filed a proposed tariff amendment in September 2023 to clarify the enrollment and grace period for the HAR Program. Under the proposed tariff language, the program period will be clarified as fourteen months with a four-month grace period.

<sup>76</sup> DR 1439.

The tariff amendments are presently subject to review and public comment under the State Administrative Procedure Act.<sup>77</sup>

**16. The Household Assistance Program does not have a manual to provide end-to-end program management. PSEG LI Household Assistance Rate (processing) procedure is deficient as it does not address document control or processing service levels. Processing quality control and records management is minimal.. Some applications were approved inconsistent with documented procedures.**

- Customers can apply for HAR directly by filling out a PSEG LI Household Assistance Program application and providing proof of eligibility or can be enrolled through assistance agencies such as OTDA or DSS.
- PSEG LI’s Household Assistance Program application is a single page document and available in English and Spanish.<sup>78</sup>
- PSEG LI has a documented HAR Procedure, but it is very high level and does not specifically address areas such as document control, processing service level, end to end form processing actions and daily lockup/storage of confidential information. The procedure does not include:
  - Receipt process of documents - Typically, utility applications are tracked by receipt date to determine the number of unprocessed applications to calculate staff burden to ensure applications are processed within an established service level.
  - Service level - The documents do not have an established service level such as processing applications within 30 days of receipt.
  - Document storage – the applications contain customer information and do not address daily lockup/storage requirements.
  - Common scenarios – the procedure documents do not include guidance on various “what-if” scenarios. Including scenarios helps to ensure application processing is handled equitably. Examples of scenarios:
    - The customer did not sign the application form or date the application form.
    - The form name does not completely match the customer of record name.
    - The customer did not sign the Medicaid card.
    - The eligibility document is not dated.
    - How old the eligibility document can be and how this is calculated?
    - Discretion on eligibility document substitutions.
    - Under what circumstances should the agent contact the customer before sending a denial letter.
- NorthStar reviewed a selection of HAR enrolled customers’ Household Assistance Program applications that were manually processed and approved by PSEG LI and compared to documented procedures. Some instances of missing or incomplete documentation observed include:

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<sup>77</sup> DR 1440.

<sup>78</sup> <https://www.psegliny.com/myaccount/customersupport/financialassistance/householdassistance>

- Eligibility document not provided for one customer.<sup>79</sup>
  - Alternative eligibility document , a printout of benefits did not show the customer address.<sup>80</sup>
  - NYS benefit card was not signed for one customer (needs to be signed to be valid).<sup>81</sup>
- Based on NorthStar’s review, Household Assistance Program enrollment appeared timely (less than 30 days) and the bills reflected appropriate messaging and line-item calculations such as:
    - The customer is notified by bill message that they are receiving the HAR discount and the expected amount.
    - The bill has a specific line item for the HAR discount.
    - The customer is automatically enrolled in budget billing.<sup>82</sup>

**17. PSEG LI conducts annual Advocacy, Education, and Outreach training for energy assistance programs. PSEG LI updates external/State energy assistance program information, but does not include HAR as part of its internal financial assistance guide.**

- Based on annual averages, HAR enrollment for 2020 and 2022 are similar with a increase observed in 2021. Using year-end enrollment numbers, HAR enrollment has been decreasing in the Household Assistance Program since 2020. As of August 2023, PSEG LI manual application enrollment counts are lowest that they have been in the 2018 to 2023 timeframe.<sup>83</sup> However, the 2023 data set does not reflect enrollments during the HEAP season.
- LIPA Tariff changes during COVID allowed for customers to continue to be enrolled in the HAR program without providing renewal documentation (i.e. The Authority may extend the Grace Period in the event a state of emergency affecting the service territory is declared).<sup>84</sup> This change likely accounts for the increase in HAR enrollment observed in 2021.
- A review of internal customer service communication found:
  - PSEG LI promptly communicates opening and closing dates of HEAP, emergency HEAP, Project Warmth and similar seasonal programs.
  - Some internal communication is observed regarding HAR but it is typically in connection with HEAP and Emergency HEAP and several other topics.
  - PSEG LI Internal Financial Assistance Program Guide does not list HAR.<sup>85</sup>

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<sup>79</sup> DR 1354 Attachment 5.

<sup>80</sup> DR 1354 Attachment 7.

<sup>81</sup> DR 1354 Attachment 8.

<sup>82</sup> DR 1354 Attachments 2-10.

<sup>83</sup> DR 1442 and DR 1145 Attachment 1, DR 1444 Attachment 1.

<sup>84</sup> <https://www.lipower.org/wp-content/uploads/2020/03/4-COVID-Tariff-Changes.pdf>

<sup>85</sup> DR 1138 Attachment 3-4.



- PSEG LI training decks for Advocacy, Education and Outreach Training show dates of August 2018, October 2019, April 2020, Winter 2021/2022, June 2022, 2022/2023.<sup>86</sup>

**18. Customer Service Representatives are not trained to address questions on EE or related programs. These calls are referred to other departments.**

- The Customer Associate Training manual does not address EE or other clean energy Programs.<sup>87</sup>
- PSESG LI states that Customer Service Representatives do not handle inquiries regarding EE programs. Instead, they forward these calls to the established Infoline where the customers questions would be addressed by an EE Subject Matter Expert.<sup>88</sup>

**19. PSEG LI is not required, but could provide customers with more favorable deferred payment agreement terms than current practice.**

- PSEG LI adheres to the minimum requirements of 16 NYCRR Parts 11 (HEFPA) and 13 in the establishment of payment arrangements for delinquent customers. 16 NYCRR Parts 11 (HEFPA) and 13 establish maximums that can be charged to the customer, but there is nothing in HEFPA that would preclude a NY utility from allowing multiple payment agreements or negotiating easier payment terms for the customer prior to sending the written standard offer.
  - As described in HEFPA, a “payment agreement may provide for any size or no down payment, and installments on any schedule over any period of time if mutually agreed to by the parties.”<sup>89</sup>
  - As described in 16 NYCRR Part 13, a “deferred payment agreement may provide for a greater or lesser down payment, a longer or shorter period of time, and payment on any schedule, if mutually agreed upon by the parties.”<sup>90</sup>
- **Exhibit XIII-23** describes the leniency allowed by/requirements of HEFPA in determining payment arrangements and PSEG LI’s general practices.
- The call center can work with customers within limited parameters, as summarized in **Exhibit XIII-23**, and discussed in subsequent conclusions.

**Exhibit XIII-23  
HEFPA Allowed Parameters and PSEG LI Practices [Note 1]**

HEFPA Requirement/Allowance (Summary)	PSEG LI Practice
<b>Eligibility</b>	
A customer or applicant is eligible for a payment agreement and must be offered one unless the customer has broken an existing payment agreement.	Customers must pay outstanding balance to reinstate an agreement.

<sup>86</sup> DR 1138 Attachment 7-12.

<sup>87</sup> DR 97 Attachment 1.

<sup>88</sup> DR 808.

<sup>89</sup> HEFPA § 11.10 Deferred payment agreements (a) Utility Obligations (1) (iv).

<sup>90</sup> 16 NYCRR § 13.5 (d) Terms of agreement (4).

HEFPA Requirement/Allowance (Summary)	PSEG LI Practice
§ 11.10 Deferred payment agreements (b) Eligibility (1) (i) <b>NorthStar Comment:</b> Utilities are not required to, but not precluded from offering payment agreements to customers that have broken agreements.	
<b>Amount and Duration of Agreement</b>	
A distribution utility must make reasonable efforts to contact eligible customers or applicants by phone, mail or in person for the purpose of offering a deferred payment agreement and negotiating terms tailored to the customer's financial circumstances, prior to making the written offer of a deferred payment agreement. § 11.10 Deferred payment agreements (a) Utility Obligations (1)	[Note 2]  CAS manual does not provide guidelines for negotiating custom payment agreements.
A payment agreement may provide for <b>any size or no down payment</b> , and installments on any schedule over <b>any period of time</b> if mutually agreed to by the parties. [Emphasis added] § 11.10 Deferred payment agreements (a) Utility Obligations (1) (iv)	PSEG LI CSRs are provided with a hierarchy of downpayments and installments to request from the customer. Recommended – full arrears. Minimum – 90 days arrears; balance remaining in 10 equal installments. Standard - terms equal to the HEFPA guidelines for residential accounts and the PSC guidelines for eligible non-residential accounts.
<b>Agreement Frequency /Broken and Amended Agreements</b>	
A utility must renegotiate and amend a payment agreement if the customer or applicant demonstrates that his or her financial circumstances have changed significantly because of conditions beyond his or her control. § 11.10 Deferred payment agreements (a) Utility Obligations (5)	PSEG LI practice.
(1) A customer or applicant is eligible for a payment agreement and must be offered one in accordance with subdivision (a) of this section, unless: (i) the customer has broken an existing payment agreement, except as provided in paragraph (e)(3) of this section (broken agreements). § 11.10 Deferred payment agreements (b) Eligibility (1) (i) <b>NorthStar Comment:</b> (e)(3) requires that if the customer's prior agreement required payment over a shorter term than the standard offer (10 installments or the duration required for based on ½ of the months average bill) Additionally, this does not preclude the utility from offering a new agreement for any broken agreement.	
A utility must make a written offer of a payment agreement, as required after a broken payment agreement in accordance with paragraph (e)(3) of this section. (e)(3) requires that if the customer's prior agreement required payment over a shorter term than the standard offer (10 installments or the duration required for based on ½ of the months average bill) § 11.10 Deferred payment agreements (a) Utility Obligations (4) (iv)	CAS manual states CSR to consider all bills rendered and payments received on or after the date of the DPA to come up with the correct reinstate dollar amount. <sup>91</sup>

<sup>91</sup> DR 90 Attachment 3

HEFPA Requirement/Allowance (Summary)	PSEG LI Practice
<b>NorthStar Comment:</b>	
<b>Financial Need</b>	
HEFPA does not specifically define “financial need”	The customer must have negative income or an overage of \$10/\$100 or less to be eligible for \$10 installment agreement. <sup>92</sup>
A utility may require that a customer or applicant complete a form showing assets, income and expenses, and provide reasonable substantiation of the information on that form, provided that all such information shall be treated as confidential. § 11.10 Deferred payment agreements (a) Utility Obligations (1) (ii) <b>NorthStar Comment:</b> Reasonable substantiation is not specifically defined, and may be required, but does not have to be required. The form showing assets, income, and expenses may be required but does not have to be required.	Completed form and associated documentation required for all \$10 agreements.
A payment agreement must provide for installments <b>as low as \$10 per month and no down payment</b> , when the customer or applicant demonstrates financial need for such terms, but need not provide for monthly installments of less than \$10. § 11.10 Deferred payment agreements (a) Utility Obligations (1) (iii)	Customers must have negative income or an overage of \$10/\$100 or less. There are no lesser agreements.
No specific HEFPA requirement.	Customers are only eligible for one \$10 agreement, unless financial condition changes.

Note 1: Assessment based on CAS Manual provided in DR 90 Attachment 3. Policy changes initiated in 2023 were not considered.

Note 2: A link to Omniguide was given but url cannot be accessed (permissions)DR 1183.

Source: 16 NYCRR Part 11, NorthStar Analysis.

**20. PSEG LI customers are allowed a \$10 installment Deferred Payment Agreement (DPA) if the customer has negative income or an overage of \$100 or \$10 per month<sup>93</sup>, has completed the required form, and provided associated documentation. This is consistent with the requirements of HEFPA but PSEG LI could be more lenient as HEFPA does not specifically define income requirements for a \$10 DPA. Less than 0.5 percent of PSEG LI’s customers had a \$10 DPA as of July 2023.**

- As described in PSEG LI’s Collections Training Manual, customers who cannot make an agreement for recommended, minimum, or standard terms must complete a Determination of Customer Resources Form (DCR) and submit it by fax, email and/or mail with the appropriate documentation.<sup>94</sup> DCRs are required when:<sup>95</sup>
  - The customer is unable to make a standard or below standard agreement.
  - Their financial status has changed, and the customer needs to renegotiate their existing agreement.

<sup>92</sup> DRs 90 Attachment 3 and 808 Attachment 1.

<sup>93</sup> Fact Verification - Policy changes initiated in 2023 were not considered for this assessment.

<sup>94</sup> DR 90 Attachment 3, pp. 43-44.

<sup>95</sup> DR 90 Attachment 3, p. 82.

- Certification of a medical emergency is received, and they have not had a previous \$10 a month agreement.
  - Quarterly when a long-term illness is reported, i.e., Life Sustaining Equipment/ Electric Critical Facility (LSE/ECRI).
  - The customer tried to obtain assistance and was denied.
- As described in the Collections Training Manual, all DCR's are required to be fully documented by EMAIL or FAX. The customer is required to provide documentation of monthly income and paid monthly expenses for the entire household for the past 30 days. (For example: paid rent, utilities, or transportation expenses). HEFPA allows the utilities to request documentation but does not require it. **Exhibit XIII-24** provides the DCR requirements as specified in the 2022 Collections Training Manual.

**Exhibit XIII-24**  
**DCR Documentation Requirements - 2022**

<b>Income</b> - All household income within the past 30 days	<b>Expenses</b> - PROOF of PAID expense (within past 30 days)
<ul style="list-style-type: none"> <li>• Net Income - 2 biweekly paystubs or 4 weekly paystubs</li> <li>• Savings and checking account statements</li> <li>• Food Stamp award letter</li> <li>• Any other source of income (must supply award letter for below)               <ul style="list-style-type: none"> <li>- Child Support</li> <li>- Unemployment</li> <li>- Social Security</li> <li>- SSI</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Rent/Mortgage</li> <li>• Utilities               <ul style="list-style-type: none"> <li>- Oil</li> <li>- Water</li> <li>- Gas</li> <li>- Electric</li> <li>- Telephone (\$44 allowance)</li> <li>- Propane</li> </ul>               Cable and Cellphone bills not accepted.             </li> <li>• Food</li> <li>• Car/Mass Transit Expense               <ul style="list-style-type: none"> <li>- Car loan</li> <li>- Car insurance</li> <li>- Gasoline for cars</li> </ul> </li> <li>• Dependents Expenses               <ul style="list-style-type: none"> <li>- School Tuition</li> <li>- Child Support</li> <li>- Childcare</li> </ul> </li> <li>• Education</li> <li>• Medical Expense               <ul style="list-style-type: none"> <li>- Copays</li> <li>- Insurance</li> <li>- Prescriptions</li> </ul> </li> <li>• DSS Payback</li> <li>• Loans</li> </ul>

Source: DR 90 Attachment 3.

- **Exhibit XIII-25** provides the revised DCR requirements as specified in the 2023 Collections Spring Fling Training.

**Exhibit XIII-25  
DCR Documentation Requirements – 2023**

Customer Financial Status	
Resources	Monthly Household Income
<ul style="list-style-type: none"> <li>• Cash on Hand</li> <li>• Checking Account</li> <li>• Savings Account</li> <li>• Other (specify)</li> <li>• <b>Total Resources</b></li> <li>• Available for Down Payments</li> </ul>	<ul style="list-style-type: none"> <li>• Net Salary Wages</li> <li>• Public Assistance</li> <li>• Social Security</li> <li>• SSI</li> <li>• Unemployment</li> <li>• Food Stamps/SNAP</li> <li>• Other (specify)</li> <li>• Other (specify)</li> <li>• <b>Total Monthly Income</b></li> </ul>
Monthly Expenses	Summary Totals
<ul style="list-style-type: none"> <li>• Shelter</li> <li>• Food</li> <li>• Medical</li> <li>• Utilities</li> <li>• Other Fuel</li> <li>• Basic Telephone</li> <li>• Real Estate Taxes</li> <li>• Car Expenses</li> <li>• Insurance</li> <li>• Transportation</li> <li>• Personal Needs</li> <li>• Child Care</li> <li>• Court Ordered</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly Income</li> <li>Less</li> <li>• Monthly Expenses</li> <li>• <b>Balance</b></li> </ul> <p><b>Please list all household members</b></p>

Source: DR 808 Attachment 1.

- Customers are afforded a one-time \$10 a month DPA, based on their eligibility. This type of agreement can be reinstated as long as the account has not been locked for non-payment.<sup>96</sup>
- PSEG LI requires that in order for the customer to be eligible for \$10 installments, the customer must have negative income or an overage of \$10 or less (or \$100 or less, depending on the PSEG LI source).<sup>97</sup> These are PSEG LI requirements and not specified by HEFPA.
  - The September 2022 Collections Training Manual indicates the overage amount is \$10.<sup>98</sup>
  - The Spring Fling 2023, Back Office Collections Staff Training uses a threshold of \$100.<sup>99</sup>

<sup>96</sup> DR 90 Attachment 3.

<sup>97</sup> DR 90 Attachment 3, DR 808 Attachment 1, Fact Verification – Spring Fling Training was after 4/15/2023 policy change.

<sup>98</sup> DR 90 Attachment 3.

<sup>99</sup> DR 808 Attachment 1.

- CSRs are instructed that any DCR overage in excess of \$100 should be negotiated for a higher installation amount.<sup>100</sup> NorthStar does not know if this occurs in practice.
  - If the net income is less than the Standard Installment amount but greater than \$100, the CRS should negotiate for an agreement up to the overage, but greater than \$10.<sup>101</sup>
  - If net income is greater than expenses and exceeds the Standard Installment amount, the customer is not eligible for a \$10 agreement and the CSR should offer the Standard Agreement.<sup>102</sup>
- On July 13, 2023, NorthStar requested an extract from CAS listing all customers currently on a \$10 agreement and the amount of the customer's net income (income less expenses) based on the information provided in the Documentation of Customer Resources (DCR) form.<sup>103</sup> PSEG LI provided a listing of 3,947 customers (0.36 percent of PSEG LI's approximate 1.1 million customers) on the \$10 agreement. **Exhibit XIII-26** provides a breakdown of these customers. PSEG LI has not completed a study or demographic assessment to identify or quantify low income or disadvantaged customers.<sup>104</sup>

**Exhibit XIII-26**  
**\$10 Standard Offer Financial Breakdown – Customers as of July 2023**

Date	Time
Total number of customers on the \$10 Agreement	3,947
Number of customers for which no net income was provided. According to PSEG LI, the net income amount was not retained for DCRs received prior to 2020.	2,364
Percent without net income information	59.9%
Percent with net income information	40.1%
Maximum monthly net income	\$2,891
Minimum monthly net income	(\$14,232)
Number of customers with net income greater than \$10	62
Percent of s customers with reported net income greater than \$10 (i.e., 62/1,583)	3.9%

Source: DR 1182.

**21. PSEG LI's ability to work with delinquent customers is effective. PSEG LI negotiates deferred payment terms with the customer based on a hierarchy, starting with Collection Services recommended agreement terms, followed by the minimum agreement terms, a standard agreement offer, and then a \$10 DPA (if income requirements are met), which serves as the lowest possible offer.**

- The terms window of the CAS automatically calculates and displays up to three agreements for CSRs showing the down-payment (DP), installment amounts (I/S) and

<sup>100</sup> DR 808 Attachment 1.

<sup>101</sup> DR 808 Attachment 1.

<sup>102</sup> DR 808 Attachment 1.

<sup>103</sup> DR 1182.

<sup>104</sup> DR 1146.

due dates. These terms are available to the representative as a guide when negotiating agreements. The dollar amounts and due dates displayed are based upon the account payment and collection history.<sup>105</sup> **Exhibit XIII-27** provides an example taken from the Collections Training Manual.

- Recommended - agreement terms recommended by Collection Services and may be used as the initial suggested amount when negotiating an agreement [DP = Full Arrears, I/S = Current Bill]
  - Minimum - the minimum agreement terms recommended by Collection Services. Negotiated agreement terms can fall between the recommended and minimum amounts. Minimum terms are not always displayed. [DP = 90 Arrears or 50 percent of Total Amt Due whichever is greater, I/S = Balance Remaining in 10 equal payments].
  - Standard - agreement terms equal to the HEFPA guidelines for Residential accounts and the PSC guidelines for eligible Non-residential accounts. Standard terms are not always displayed. [DP = 15 percent of Total Amount Due or 50 percent of Budget Billing whichever is greater, I/S = Balance Remaining in 10 equal payments or 50 percent of Budget Billing whichever is greater.]
- The Standard Agreement is consistent with the requirements of HEFPA Part 11.10 (c) Terms of Agreement.<sup>106</sup>
    - DOWN PAYMENT may not exceed the GREATER amount of: 15 percent of the total amount due or 50 percent of an average monthly bill. MONTHLY INSTALLMENTS may not exceed the GREATER amount of: 10 percent of the balance (10 installments) or 50 percent of an average monthly bill, WHICHEVER IS GREATER. All CURRENT BILLS issued after the agreement are due and payable upon receipt. [Emphasis included in training manual.]<sup>107</sup>
    - The collections training manual also specifies that: “DPA’s or Deferred Payment Agreements are offered to all residential customers who have received a Final Termination Notice due to arrears. The Company must consider the customer’s financial circumstances. It’s favorable to introduce the Balanced Billing plan to a customer when offering and/or negotiating agreement terms.”<sup>108</sup> Agreements made:
      - Are dependent upon the circumstances on the account and past collection history.
      - Should be fair to both the customer and the company.<sup>109</sup>

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<sup>105</sup> DR 90 Attachment 3, pp. 43-44.

<sup>106</sup> DR 90 Attachment 3, p. 19, and HEFPA Part 11.10 (c).

<sup>107</sup> DR 90 Attachment 3, p. 19.

<sup>108</sup> DR 90 Attachment 3, p.18.

<sup>109</sup> DR 90 Attachment 3, p.18.



**Exhibit XIII-27  
Sample Terms Provided to the CSR from CAS**

Terms		
<b>Recommended</b>		
Down Payment:	174.15	Due: 12-05-20
Installments:	73.68	Due: 12-28-20
Interval:	30 Days	
<b>Minimum</b>		
Down Payment:	123.00	Due: 12-05-20
Installments:	12.00	Due: 12-28-20
Interval:	30 Days	
<b>Standard</b>		
Down Payment:	37.00	Due: 12-15-20
Installments:	21.00	Due: 01-14-21
Interval:	30 Days	

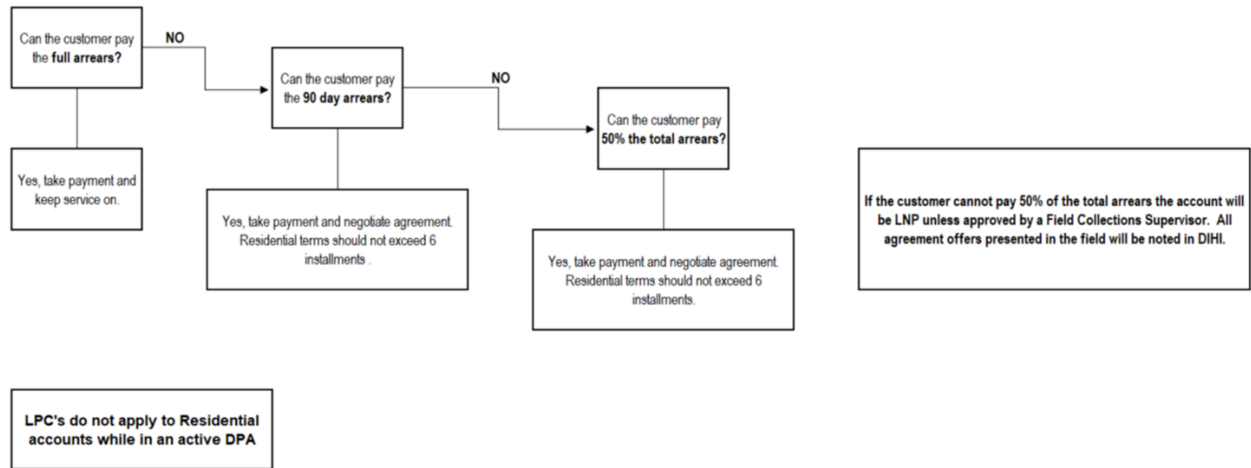
Source: DR 90 Attachment 3.

- The Collections Training Manual includes the following negotiation guidance: NEGOTIATE an agreement with the customer based upon your analysis of the account and the customer's financial circumstances. Generally, suggest the Recommended amount and negotiate slowly to the Minimum or Standard amount. Use judgment when negotiating above standard terms if the account history indicates sporadic payments/multiple broken agreements. If account history indicates that the customer is in financial difficulty, but sincere in making agreements and payments, work out realistic terms even if it means lowering the down-payment slightly.<sup>110</sup>
  - 30 Day Arrears - No Final Termination Notice: Customer may have received a Reminder Notice (credit rating 3) or a Reminder Call recently. Any amount is acceptable as long as the payments are not below the standard terms.
  - 60 to 90 Day Arrears - Final Termination Notice (Credit Rating 2) issued: No Active agreement on the account. Accounts are at this status for a very short period. This is a judgment call. Collection Services will be contacting this customer 10 days prior to the expiration of the Final Termination Notice for an agreement. You may: make a standard agreement: transfer or enter the negotiated terms on the Make Agreement window; make an above standard agreement if the customer offers an amount above the standard terms.

<sup>110</sup> DR 90 Attachment 3, p. 52.

- For customers scheduled to be locked for nonpayment (LNP) where a PSEG LI collector is in the field to terminate service, PSEG LI uses the following decision tree in **Exhibit XIII-28**.

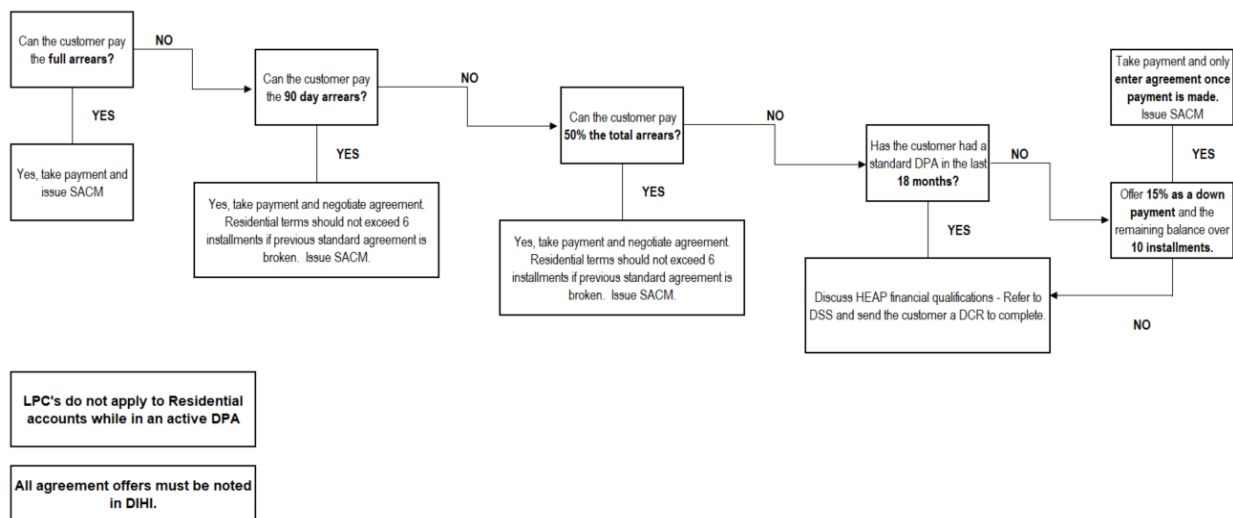
### Exhibit XIII-28 Field Collection LNP Decision Tree



Source: DR 808, Attachment 1.

- This decision tree is also used by collectors out in the field for a variety of reasons (e.g. leaving notices).<sup>111</sup>
- Exhibits XIII-29** and **XIII-30** provide the decision trees for residential and commercial customers when they are in LNP status..<sup>112</sup>

### Exhibit XIII-29 Residential LNP Decision Tree

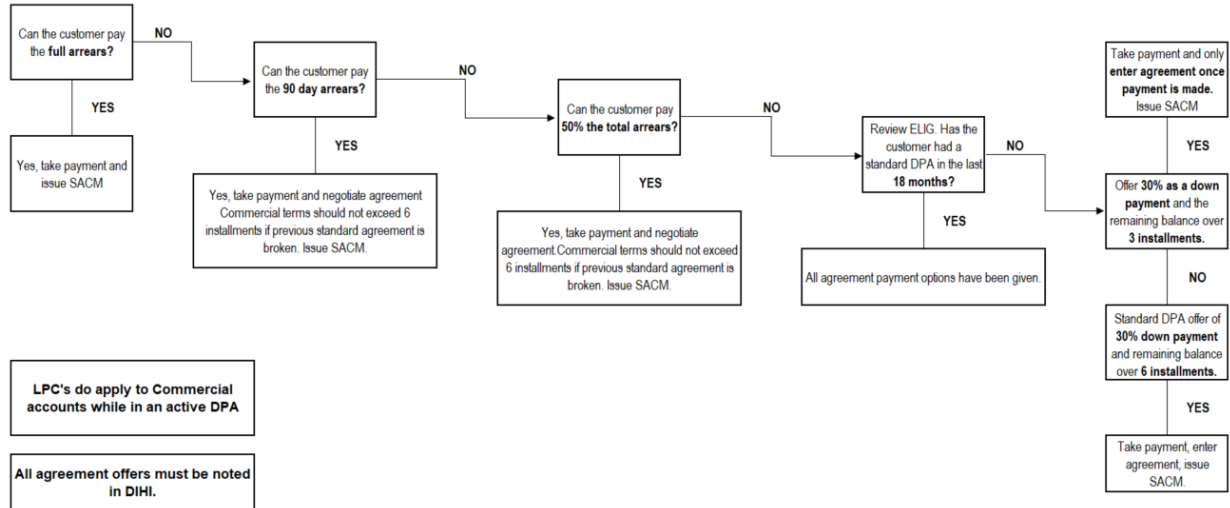


<sup>111</sup> Fact Verification

<sup>112</sup> Fact Verification

Source: DR 808 Attachment 1.

### Exhibit XIII-30 Non-Residential (Commercial) LNP Decision Tree



Source: DR 808 Attachment 1.

- NorthStar reviewed a sample of calls to the call center to assess CSR handling of delinquent customer calls and deferred payment arrangements. PSEG LI does not classify calls by type,<sup>113</sup> thus NorthStar was not able to isolate collections calls and had to sample from all calls to the call center. **Exhibit XIII-31** provides details of NorthStar’s sample selection. DPA calls were handled consistent with PSEG LI procedures.

### Exhibit XIII-31 Collections Call Sample

Date	Time	Number of Calls	Number DPA Related
Monday, January 18, 2021	9:00 – 9:03 am	0	N/A
Tuesday, January 19, 2021	12:00 -12:03 pm	40	3
Thursday, January 21, 2021	4:50 – 4:53 pm	19	1
<b>Subtotal</b>		<b>59</b>	<b>4</b>
Monday, June 12, 2023	9:00-9:03 am	26	4
Tuesday, June 13, 2023	12:00-12:03 pm	26	5
Thursday, June 15, 2023	4:50-4:53 pm	31	6
<b>Subtotal</b>		<b>83</b>	<b>15</b>

Source: DRs 1064 and 1065 (June 12, 13, and 15), NorthStar Analysis.

**22. Prior to 2023, PSEG LI had primary control over planning, organizing, and executing its outreach programs. LIPA was not involved in the process beyond budget provision. As of 2023, LIPA has been more engaged in the process at a program level.**

- PSEG LI states the outreach budget is approved by LIPA.<sup>114</sup>

<sup>113</sup> DR 740.

<sup>114</sup> DR 1436.

- The budget is allocated by the PSEG LI Director and Manager of Utility Marketing.<sup>115</sup> This information is not included in the Outreach and Education Plan 2023 document or information regarding the basis of allocation.
- The Outreach and Education Plan 2023 document is a high-level document organized by various outreach tactics, not by line of business or functional groups which is how the budget is structured. Specifically, functional leads are responsible for budget allocation across other Outreach and Education programs that are led through their specific area.<sup>116</sup>
- PSEG LI states that the stakeholders involved in the planning of Customer Program outreach includes the Marketing group, lines of business (LOBs), Corporate Communications, Agency, Vendors, and other partners as needed.<sup>117</sup> This list of stakeholders is not included in the Outreach and Education Plan 2023 document.
- From PSEG LI’s perspective, , LIPA has become more involved in marketing beyond budget provision and oversight and some changes have been noticed.<sup>118</sup>
  - 2022 OSA metric for Customer Segmentation.<sup>119</sup>
  - 2023 OSA metrics and projects like Time of Day, the CCaaS, Payment Kiosks, Credit Cards, Air Source Heat Pumps and Utility Marketing Effectiveness.
  - LIPA has exhibited increased involvement, providing input/feedback/approval on marketing content, execution plans, etc. This has included introduction of a more “formal” process not only for approving the overall marketing budget, but one which requires the submittal of detailed marketing communications plans for LIPA review and approval and budget approvals sometimes at a program/activity level.
  - LIPA has also increased inquiries around our agency of record vendor, , including the contract and its structure, as well as ongoing inquiries within the context of reviewing marketing plans and budgets.<sup>120</sup>

**23. Management of PSEG LI’s Customer Program Outreach and Education has significant issues including lack of planning for budgets, discrepancies in internal financial reporting, and plan execution.**

- The Customer Program Outreach and Education 2021 and 2022 SAP budget versus actual for non-labor is displayed in **Exhibit XIII-32** at a vendor level.

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<sup>115</sup> DR 1436.

<sup>116</sup> Fact Verification

<sup>117</sup> DR 1436.

<sup>118</sup> DR 1436

<sup>119</sup> DR 724

<sup>120</sup> DR 1436.

**Exhibit XIII-32**  
**2021 to 2022 SAP Non-Labor PSEG LI Customer Program Outreach and**  
**Education Budget versus Actual (\$) [Note 1]**

Vendor	2021 Budget	2021 Actual	2021 Variance (under)	2022 Budget	2022 Actual	2022 Variance (under)
Advertising Agency	\$6,250,000	\$5,505,194	(\$1,238,543)	\$4,600,000	\$5,505,194	\$905,194
Email Service Provider	\$675,000	\$523,576	(\$151,424)	\$675,000	\$523,576	(\$151,324)
Print Broker	\$755,919	\$430,041	(\$325,878)	\$480,000	\$430,041	(\$49,959)
USPS (Mail Delivery)	\$520,000	\$520,000	\$0	\$529,880	\$33,528	(\$496,352)
Incentive Vendor	\$110,000		(\$110,000)			\$0
Miscellaneous	\$60,000		(\$60,000)			\$0
<b>Total:</b>	<b>\$8,370,919</b>	<b>\$6,978,811</b>	<b>(\$1,885,845)</b>	<b>\$6,284,880</b>	<b>\$6,492,439</b>	<b>\$207,559</b>

Note 1: DR 1436 Attachment 1 Confidential Summary numbers do not tie to the SAP transaction detail in DR 1436 Attachment 4 (2022). SAP transaction details were not provided for 2021.

Source: DR 1436 Attachment 1 Confidential Summary

- The exhibit data indicates the majority of the Customer Program Outreach and Education spend is attributed to services performed for advertising. On a total basis, non-labor spend was significantly under budget in 2021 and slightly exceeded budget in 2022.
- Information provided in the 2023 Outreach and Education Plan indicates the budget is used to support the following:
  - Customer Service – messaging on billing, complaint procedures, rate information, rights and responsibilities, special needs, etc.
  - Energy Affordability – Household Assistance Rate (Household Assistance Program)
  - Energy Efficiency – REAP, Home Comfort Program (heat pumps).
  - Seasonal Communication - programs available through PSEG Long Island as well as the social service programs that encompass HEAP and the components of Heating repair and replace, clean and tune, as well as the cooling benefit available. This is in addition to speaking about regular HEAP and emergency HEAP.
  - Service-Related Communication – Include messaging on outages, infrastructure, metering, safety, tree trimming, etc.
  - Other Communication – other programs that do not fall into the above.<sup>121</sup>
- The 2023 Outreach and Education Plan provides a program level overview of the 2022 budget versus actual spend as displayed in **Exhibit XIII-33**. The data did not completely tie to the SAP reported amount and the discrepancy is captured within the “undefined” category.

<sup>121</sup> DR 1128 Attachment 3.

**Exhibit XIII-33**  
**2022 PSEG LI Customer Program and Outreach and**  
**Education Budget versus Actual (\$)**

Category	Description	Budget	Actual	Variance (Under)	% Budget Spent
Customer Service	Includes messaging on billing, complaint procedures, rate information, rights and responsibilities, special needs etc.	\$461,935	\$2,004,936	\$1,543,001	434%
Energy Affordability	Household Assistance Rate	\$2,267,829	\$794,909	(\$1,472,920)	35%
Energy Efficiency	REAP, Home Comfort Program (heat pumps).	\$N/A	\$1,917,065	\$1,917,065	[Note 1]
Seasonal Communication	[Note 2]	\$129,908	\$45,076	(\$84,832)	35%
Service-Related Communication	Includes messaging on outages, infrastructure, metering, safety, tree trimming, etc.	\$1,482,847	\$3,299,521	\$1,816,674	223%
Other Comm.	Identify and describe other programs that do not fall into the previous categories. Not defined.	\$2,024,996	\$1,305,451	(\$719,545)	64%
Outreach Event			\$337,237	(\$337,237)	(100%)
	<b>Subtotal:</b>	<b>\$6,367,515</b>	<b>\$9,704,195</b>	<b>\$3,336,680</b>	<b>152%</b>
Undefined	[Note 3]	\$195,994	\$127,000	(\$68,994)	
	<b>Total:</b>	<b>\$6,563,509</b>	<b>\$9,831,195</b>	<b>\$3,267,686</b>	<b>150%</b>

Note 1: Energy Efficiency budget shown in DR 1128 Attachment 3 as “n/a” without explanation.

Note 2: Description not provided.

Note 3: Line item created by NorthStar to reconcile total amounts provided in DR 1128 Attachment 3 (SAP).

Source: DR 1128 Attachment 3 (report summary not SAP raw data)

- Observations of the 2022 Outreach and Education budget and spend by program in 2022 include:<sup>122</sup>
  - The budget for Customer Service and Service-Related communication was significantly overspent.
  - The budget for the Household Assistance Rate and Seasonal Communication was significantly underspent.
  - PSEG LI appears to have unexpectedly incurred marketing expenses for EE programs. Information provided within the 2023 Outreach and Education Plan indicates that in 2022, the Outreach and Education budget for EE programs was \$0 with an annual spend of ~\$2M. PSEG LI and the EE subcontractor program budget and spend does not appear to be aggregated for program reporting purposes.<sup>123</sup>
  - PSEG LI did not identify and describe spend within “Other Communication”.
- Under the EE portfolio (administered by the EE subcontractor), the Home Comfort program has a subprogram called “Home Comfort Plus”. This program is available to

<sup>122</sup> DR 1128 Attachment 3.

<sup>123</sup> DR 1128 Attachment 3.

income qualified customers. Income-qualified customers may qualify for free installation with little to no out-of-pocket cost. The current income guidelines at 60 percent of the state median income. Program applications do not appear to be available on the PSEG LI website, customers are directed to download a list of approved Home Comfort Plus Partners.<sup>124</sup> Marketing efforts and referrals are not integrated within income-eligible programs such as the Household Assistance Program and REAP.

**24. PSEG LI does not refer to a formal documented invoice review procedure or allowable cost documents to ensure outreach spend is allowable, classified, and allocated properly.**

- NorthStar requested PSEG LI provide procedures for the review and payment of vendor invoices as related to Customer Program Outreach. PSEG LI’s response did not include a formal process or internal policy documentation, and stated the following:

“The vendor sends the invoice to the primary marketing contact. The Marketer reviews the invoice and back-up documentation for accuracy. The Marketer then forwards the invoice with associated accounting to the clerk for payment processing, ccing the Marketing Manager. The system (Ariba) generates an email, placing the invoice in the queue for the Marketing Manager to approve. The Marketing manager reviews for accuracy and finding no errors, approves the invoice in the ARIBA system. Once processed the paid invoice is reflected in SAP.”<sup>125</sup>

- The lack of formal procedures or reference to internal policy documents indicates the accounting for such expenses may be subjective and inconsistent. Utilities typically have internal guidance on allowable expenses, cost classification, and rules for allocation.
- A General Ledger (GL) guidance document was provided as supplemental evidence. The document is specific to expense categorization. Per for General Ledger training material (2024), the guidelines exist to assist employees on what general ledger accounts to use to correctly code expenses, but these guidelines have not been universally adopted.

**25. PSEG LI provides sufficient training to CSR representatives for low-income and assistance programs. However, PSEG LI program marketing and outreach is minimal.**

- PSEG LI Customer Service Representatives annual training includes:
  - Consumer Advocacy Information & Referral line
  - Household Assistance Rate
  - Residential Energy Affordability Program (REAP)
  - Special Protections for medical emergencies

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<sup>124</sup> <https://www.psegliny.com/saveenergyandmoney/homeefficiency/homecomfort/plus>

<sup>125</sup> DR 1436.



- Critical Care Program (life-support equipment)
  - Friendly follow-Up Program (trusted person to receive electric bill)
  - Peace of Mind Program (30-day due date extension for hospitalized customers)
  - Home Energy Assistance Program (HEAP)
  - Project Warmth
  - 2-1-1 Long Island
  - Supplemental Security Income (SSI Guarantee – DSS benefit)
  - Deferred Payment Agreements (\$10 DPA – one time)
  - DSS Emergency Assistance<sup>126</sup>
- NorthStar reviewed PSEG LI efforts to educate consumers on financial and low-income program assistance. These communications are shown in **Exhibit XIII-34**.

**Exhibit XIII-34**  
**2022 Financial Assistance and Income Eligible Program Communications**

Channel / Date	Content	Comment
<b>Bill Inserts</b>		
Date not provided	“Responding to Higher Energy Prices” QR Code on bill insert and url to blog at <a href="https://pluggedin.psegliny.com/">https://pluggedin.psegliny.com/</a>	Multiple Topics Frequency not stated
(2023 example)	Household Assistance Program – Income-eligible customers can save more than \$35 on every bill. You may qualify if you receive benefits from at least one the following programs.	Why verbiage “may qualify”?
<b>Blog</b>		
Nov 3, 2022	“How Customers Can Lower Their Bills” includes energy saving tips.  “Assistance Available to Those Struggling with Bills” includes Household Assistance Program, Emergency Rental Assistance Program (ERAP), HEAP, Emergency HEAP, OTDA heating equipment repair or replacement benefit applications.	
<b>Brochures / Flyers (Residential Flyer)</b>		
January 2022	Homeowner Assistance Fund (up to 50K per eligible homeowner), Emergency Rental Assistance Program (ERAP), HEAP and Emergency HEAP, Regular arrears Supplemental HEAP, Project Warmth	English & Spanish Content
May 2022	DPA, Household Assistance Program, Emergency HEAP, Payment methods.	English & Spanish Content
<b>Direct Mail</b>		
1 time per year	Topics: Suspended collections, resume shutoffs for non-payment July 12. HEAP,	The number of letters sent is not provided
<b>Marketing Email</b>		
3 times per year	Collections	576,618 (emails sent)
2 times per year	Disconnections	24,609 (emails sent)
1 time per year	Financial Assistance	664,264 (emails sent)

<sup>126</sup> DR 1138 Attachment 7-12

Channel / Date	Content	Comment
7 times per year	REAP	162,112 (emails sent)
13 times per year	Financial Assistance Webinar	672,986 (emails sent)
<b>Webinar</b>		
June 2022	Financial Assistance Webinar email states income eligibility program include: HEAP and Emergency HEAP, REAP, Household Assistance Program.	
<b>Website</b>		
PSEG LI Website	<u>Financial Assistance Programs</u> Covid-19 Assistance and Resources, Balanced Billing, Consumer Advocacy, HEAP, Household Assistance Program, REAP  <u>Customer Assistance Program Section</u> Blind or Visually Impaired, Deaf, Hard of Hearing and Speech Impaired Critical Care Program (life-support) Consumer Advocacy Peace of Mind Program Friendly Follow-Up Program Special Protections and Medical Emergencies	
<b>Press Releases</b>		
March 24, 2022	HEAP, Residential Arrears Supplement (RAS), Emergency HEAP, OTDA Heating equipment repair, Energy Saving Tips.	
June 30, 2022	Deferred Payment Agreement, Household Assistance Program, Emergency Rental Assistance Program, HEAP, State forgiveness program.	
October 24, 2022	Energy Saving Tips, Rebates for Home Comfort Program, Household Assistance Program, Emergency Rental Assistance Program, HEAP, OTDA Heating equipment repair and cleaning.	
<b>Social Media</b> <b>[Note 2]</b>		
Facebook	HEAP – 2 posts. Low Income – 0 posts. Household Assistance Program – 3 posts. REAP – 4 posts. Medical – 0 posts Life support – 0 posts. General Financial Assistance Help (non-specific) – 9 posts. Deferred Payment Agreement – 2 posts. Project Warmth (211) – 1 post. Senior Resource Fair – 2 posts.	66,000 Followers, # posts not shown.
Twitter	HEAP – 1 post. Low Income – 0 posts. Household Assistance Program – 3 posts. REAP – 5 posts. Medical – 0 posts. Life support – 0 posts. Financial Assistance – 9 posts	16,200 Followers and 12,900 posts (as of 2023 Q4).

Channel / Date	Content	Comment
Instagram	Could not locate any posts for Low Income or Special Assistance in 2022.	4,349 Followers and 723 posts, (as of 2023 Q4)
Youtube	Could not location any videos for Low Income or Special Assistance in 2022.	4,850 subscribers, 395 videos (as of 2023 Q4)

Note 1: DR 1129 Attachment 4 (Inserts and Newsletters) stated Annually in financial insert. Bill inserts are not digitally viewable on PSEG LI website without an established MyAccount.

Note 2: Number of posts in each content category based on presence of each corresponding Key Word in social media posts.

Source: DR 218 Attachment 6, 7 and DR 1430 Attachment 8

- Observations of financial assistance and special program communications in 2022 include:<sup>127</sup>
  - The majority of the communications are by email. PSEG LI states the company currently has more than 771,000 customers enrolled in email communication (in total not just income-eligible/low-income).
  - Few communications are in a language other than English.
  - In addition to email, the company utilizes various channels to communicate with their customers but very few of the communications are centered around financial assistance and special programs.
  - Website blog posts are long (4 pages) and cover multiple topics.
  - Press releases lead with energy savings tips and combine multiple assistance programs together.
  - Few social media posts include information on the Household Assistance Program. Social media posts direct customers to the PSEG LI website to determine eligibility. The verbiage in the eligibility section states that you “may qualify” if you have an active residential account in your name and currently receive benefits from the list of social programs.
  - Customer Assistance Programs such as Blind or Visually Impaired, Deaf, Hard of Hearing and Speech Impaired, Critical Care Program (life-support), Peace of Mind Program, Friendly Follow-Up Program, Special Protections and Medical Emergencies can be found within the PSEG LI website (although not easily found from main landing page). Aside from the PSEG LI website, the programs are not specifically advertised.<sup>128</sup>
- PSEG LI does not have formal contracts in place and does not pay for services to community-based agencies for communication or outreach for income-eligible/low-income, EE, or arrear forgiveness programs. Relationships are in place with various agencies such as:
  - Nassau County Department of Social Services
  - Family Service League
  - Five Towns Community Outreach Center
  - Island Harvest

<sup>127</sup> DR 401, DR 807, DR 1129 Attachment 4, NorthStar social media review,

<sup>128</sup> <https://www.psegliny.com/en/myaccount/customersupport/customerassistanceprograms#>.

- JCC of Far Rockaway
  - Long Island Cares
  - Northwell Health System
  - St. Vincent de Paul
  - St. Mary of the Isle
  - Suffolk County Library System
  - The Wyandanch Resource Center<sup>129</sup>
- PSEG LI states they provide brochures to agencies for programs such as Household Assistance Program, Residential Energy Affordability Partnership (REAP), and tips on energy conservation. Material is available when PSEG LI personnel are on site and copies are left with the agencies. The effectiveness of communication is said to be measured by increase of customer and agency awareness.<sup>130</sup>

**26. The EE subcontractor has primary operational and financial control over program administration and implementation of EE programs. The EE subcontractor manages at a portfolio level to achieve overall energy savings goals (MMBTUs) and has unlimited flexibility to reallocate funds between EE programs.**

- PSEG LI EE program administration/implementation is managed by the EE subcontractor. The EE subcontractor manages these programs with the assistance of many subcontractors.<sup>131</sup>
- PSEG LI states the EE subcontractor views the budget from a portfolio perspective. As programs and associated markets heat up and cool down and/or additional metrics are passed down, The EE subcontractor will internally reallocate funding to ensure the overall MMBtu and additional metrics are met without exceeding the overall budget.<sup>132</sup>
- The EE subcontractor managed programs in 2022 include the following:<sup>133</sup>
  - Commercial Efficiency Program
  - Multifamily
  - Home Comfort
  - Home Comfort Plus (low-income qualifying)
  - Home Performance with ENERGY STAR
  - Residential Energy Affordability Program (low-income qualifying)
  - All Electric Homes (AEH)
- **Exhibit XIII-35** displays each program by percent rebate budget spent and percent MMBTU goal attained in 2022.

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<sup>129</sup> DR 1435.

<sup>130</sup> DR 1435.

<sup>131</sup> DR 5 Attachment 1.

<sup>132</sup> DR 1432.

<sup>133</sup> PSEG LI 2023 Utility 2.0 update, July 2023.

**Exhibit XIII-35**  
**2022 Energy Efficiency Rebate Spend vs MMBTU Goal [Note 1]**  
**(%)**

Program	% MMBTU Goal	% Rebate Budget Spent	Comment
Commercial Efficiency Program (CEP) & Multi-Family (MF)	134%	74%	
Energy Efficiency Products (EEP)	99%	102%	
Home Comfort (HC)	91%	98%	[Note 2]
Home Performance with Energy Star (HPwES)	79%	85%	[Note 3]
Residential Energy Affordability Program (REAP)	101%	n/a	
All Electric Homes (AEH)	14%	33%	[Note 4]
<b>Total</b>	<b>106%</b>	<b>85%</b>	

Note 1: This is Program Rebate % spend only. This does not include program implementation or marketing.

Note 2: Home Comfort Plus (low-income qualifying) is not broken out.

Note 3: HPwES is currently at 79% of MMBTU goal primarily do to the loss of production from a contractor who is no longer participating in the program.

Note 4: 1 application for 2022.

Source: DR 1432 Attachment 1

- As of mid-2023, PSEG LI has been working with LIPA and consultants on an overall plan for addressing workforce development.<sup>134</sup> LIPA’s Heat Pump Barriers report discusses barriers and provides actions that can be taken to address expanding the vendor pool.<sup>135</sup> Apart from the LIPA report, PSEG LI acknowledges a possible labor shortage in the foreseeable future due to insufficient labor supply in the HVAC area to support the State’s long-term, heat pump goals.<sup>136</sup>

**27. Examples of the 2022 Energy Efficiency marketing indicate multi-channel efforts and extensive use of digital marketing. Collateral and campaigns focused mostly on Air Source Heat Pumps.**

- PSEG LI states the EE subcontractor has a robust strategy dedicated to outreach and awareness of PSEG LI’s EE programs.<sup>137</sup>

“This includes marketing and advertising across numerous channels including paid, owned and earned media around programs such as energy star rebates, heat pumps, income eligible energy saving programs, and small business efficiency programs. The strategy also includes partnerships with outside organizations through special events, sponsorships and school events to further promote our energy efficiency programs.”<sup>138</sup>

- PSEG LI states they utilize a multichannel approach to the to the promotion of EE programs and topics including general EE, ASHP/Home Comfort, Electric Vehicles, Smart Thermostats, etc. Mass media efforts including banner campaigns and print ads are managed by ICF Next, the agency of record. Email campaigns are developed

<sup>134</sup> DR 1433

<sup>135</sup> DR 1433 Attachment 1 Confidential

<sup>136</sup> DR 1434

<sup>137</sup> More information on the EE Contractor and Energy Efficiency is provided in Chapter VIII – System Planning.

<sup>138</sup> DR 1432

internally and executed by Questline Digital. Billing inserts are produced internally and printed by HH Global, the print broker.<sup>139</sup>

- A review of a 2022/2023 developed collateral by marketing channel is shown in **Exhibit XIII-36**. Significant marketing efforts directing customers to buy (and receive rebate) on Air Source Heat Pumps (Home Comfort Program) is evident. The Home Comfort Plus Program, the income qualifying sub-program, did not receive the same marketing attention.

**Exhibit XIII-36**  
**2022/2023 Energy Efficiency Program Communication Sample [Note 1]**

Channel / Topic	Content / Strategy	Comment / Campaign Measurement
<b>Bill Inserts</b>		
Air Source Heat Pump (2022)	Residential – Bill Insert not provided (May & Sept 2022)	
Energy Efficiency Rebates	Business – Bill Insert not provided (May)	
Clean Energy Program (2022)	Business – Bill Insert not provided (Sept)	
Heat Pump (2023)	Directs customers to view a list of eligible heat pump pool heaters at PSEGLINY.com/savemoney	
Air Purifiers and Dehumidifiers (undated)	Directs customers to visit the online Efficiency Marketplace at PSEGLINY.com/savemoney	
Home Energy Assessment	Save up to 20% on energy bills. Any homeowner can get a free Home Energy Assessment from PSEG Long Island, regardless of the heating fuel used. An approved participating contractor will give you guidance on steps you can take to lower your bills by up to 20% etc.  *Home must be single-family.	
Energy Star Appliances (2023)	Lists Heat Pump Clothes Dryers 28% less energy and \$300 off and Clothes washers 25% less energy and \$50 off. Directs customers to visit PSEGLINY.com/savemoney	
<b>Bill Inserts (on bill)</b>		
Home Comfort - Heat Pumps (2023)	One system for heating and cooling with or without ducts. Directs customers to PSEGLINY.com/homecomfort	
Home Comfort (Heat Pumps) and Home Comfort Plus (2023)	PSEG Long Island’s <b>Home Comfort program</b> reduces the cost of a new heat pump system with valuable rebates and incentives. Our <b>Home Comfort Plus</b> program is available for income-eligible customers.	

<sup>139</sup> DR 1430

<b>Channel / Topic</b>	<b>Content / Strategy</b>	<b>Comment / Campaign Measurement</b>
	Directs customers to PSEGLINY.com/ mysmartenergyhome.com and PSEGLINY.com/homecomfort.	
<b>Digital Campaigns</b>		
Air Source Heat Pump	May 2021 – June 26, 2021 (8 weeks). Awareness campaign to increase awareness and familiarity of heat pump benefits. Mix of offline and online channels.  Concurrently, PSEG LI is using other tactics (banners and email) that also help drive traffic to the campaign landing page.	Interactive dashboard was developed to provide ongoing access to quantitative campaign performance. Measured average time on site, direct conversions, organic traffic and conversions. Banner traffic and actions, Paid search measures.
<b>Social Media</b>		
Air Source Heat Pump	Facebook/Instagram effective in driving engaged web sessions.	Number of web sessions, average time on page, click through rate, number of clicks., number of actions.
<b>Display Banners</b>		
Air Source Heat Pump	Three-fold channel strategy.	
<b>Video</b>		
Air Source Heat Pump	A mix of video tactics was utilized to increase awareness: Addressable Connected TV, Advanced TV, and Pre-Roll Video.  Videos ran in premium content such as Discovery+, HGTV, TLC, Food Network, BET, Fox News, CBS News, and Investigation Discovery.	Video placement and traffic measures. Completion rates.
<b>Streaming Audio</b>		
Air Source Heat Pump	Majority of streaming radio placements were on top streaming platforms such as Pandora, Spotify, and TuneIn.	Radio streaming delivered and completions. Completion rates.
<b>Paid Search</b>		
Air Source Heat Pump	Paid Search using keywords.	CTR, engagement (impressions, clicks)
<b>Email</b>		
Air Source Heat Pump	Email with subject line optimization (continuous testing of email subject lines to maintain high open and click rates).	Open rate and CTR.
Home Energy Assessment (2023)	Email promoting a free Home Energy Assessment for every homeowner.  *Home must be single-family.	



Channel / Topic	Content / Strategy	Comment / Campaign Measurement
LED Bundle Sale (2023)	Shop online and choose from LED lighting bundles that can save energy and money! Shipping is FREE.	
Residential Energy Affordability Partnership (REAP)	<p>PSEG Long Island’s Residential Energy Affordability Partnership (REAP) helps income-eligible customers lower their energy costs through a free home energy assessment. A REAP technician will help you find savings opportunities in every room of your home.</p> <p>REAP includes these free services:  A comprehensive analysis of your home’s energy use. Inspection of your lighting with potential LED replacements. health and safety assessment of your home. Review of your past energy use and energy efficiency recommendations.</p>	
<b>Ad Placement</b>		
Air Source Heat Pump (2023)	Google Discovery. Yahoo Native Display. Meta (launches to PSEG LI url for Home Comfort program). NextDoor. Newsday (Digital Display Driver Ads). Newsday (Page Zero Ads). Nativo (Ads). Patch (Ads) Google Ad Callout Extensions (Google Search)	
<b>Articles</b>		
Air Source Heat Pump (2023)	Newsday (Article 1) – “5 Reasons Why People Are Switching to Air Source Heat Pumps”.  Newsday (Article 2) – “Air Source heat Pumps for Cooling”.  Nativo (Article 1) – “5 Reasons Wy People Are Switching to Air Source Heat Pumps”.  Patch (Article 1) – “5 Reasons Wy People Are Switching to Air Source Heat Pumps”.	
<b>TV Spots</b>		
Air Source Heat Pump	Baby Time and Big Feet TV Spots.	
<b>Marketing Email</b>		
Electric Vehicle	Electric Vehicle Festival (25% off general admission ticket)	
Electric Vehicle Smart Charger Rebate	Email to Approx. 50K Residential customers interested in EVs. Directs customers to PSEG LI Marketplace and customers can also enroll in Smart Charge Rewards. Customers may purchase one of two EV Chargers: ChargePoint Home Flex or Juicebox40 and receive a \$500 instant rebate upon checkout.	
<b>PSEG LI Website (Home Efficiency)</b>		

Channel / Topic	Content / Strategy	Comment / Campaign Measurement
Home Comfort Plus	The smarter, economical way to heat and cool The Home Comfort Plus program is a limited time offer for income-qualified customers.	Unsure why “limited time offer”
Ducted Air Source Heat Pump	Upgrade your comfort the smart and easy way. Enjoy the energy advantages of a new air-handler and condenser, while conveniently utilizing your home’s existing ductwork. A ducted air source heat pump provides quiet, powerful, more economical cooling and heating year round	
Ductless Mini-Split Heat Pump	Heat pump technology provides cooling and heating without the hassle of installing ductwork. Ductless systems are slim, quiet and economical, and provide advanced zone controls for greater room temperature flexibility.	
Heat Comparison Tool	See what you could be saving by switching to an energy efficiency heat pump.	

Note 1: DR response included a mix of 2022 and 2023 marketing collateral and some not dated.

Source: DR 1430 Attachment 1-16, DR 1178 Attachment 3, DR 1129 Attachment 4

- Observation of EE program marketing channels and content indicate:
  - PSEG LI employs a wide range of channels to engage customers.
  - The marketing efforts in 2022 show the focus was on Air Source Heat Pumps (Home Comfort Program) with an extensive digital marketing.
  - Mechanisms are in place to track a wide range of campaigns and metrics. Vendor presentations provided insights and strategy suggestions.
  - Campaigns are typically targeting customers in general or a specific customer segment leading with specific highlights within an individual program.
  - Program marketing is program specific, as programs are not marketed together within the same campaign.
- Mass media efforts including banner campaigns and print ads are managed by ICF Next.

**28. Marketing campaign goals and KPI measurement focus is on digital impressions, click-through-rate and time spent on referral site for JD Power score purposes. Increasing program participation is generally not a goal or a KPI measurement.**

- Mass media is primarily used to create education and awareness around EE and incentives/rebates. Tactical communications are utilized with the intention of getting customers to take action.
- PSEG LI does not measure paid media campaign by ROI. Performance tracking is based upon utilizing paid tactics. Campaigns are monitored on a weekly basis. Paid media goals vary by platform and purpose however, typical metrics such as impressing

loads, clicks (if applicable), and click-through-rate (CTR) assist in determining cost versus attainment of goals.<sup>140</sup>

- Paid campaigns are based on exceeding impression goals and CTR benchmarks in order to improve JD Power Scores.<sup>141</sup> JD Power data shows that the more people who know about and participate in EE programs, the higher the satisfaction they have with the utility.<sup>142</sup>
- Campaign effectiveness is measured depending on the channel and/or objective.
  - Results are readily quantifiable if the campaign is meant to drive results such participation, enrollment, or sales.
  - If a digital campaign is meant to increase basic awareness, metrics such as impressions and clicks can help measure success and generate insights. For example, results from the 2022 Air Source heat Pump campaign showed:
    - A significant year-over-year (YOY) increase in deeper website engagements indicates the audience is spending more time learning about and investigating their heat pump options.
    - Organic and referral on-site traffic more than doubled YOY – indicating high awareness and audiences utilizing PSEG LI as a resource.
    - Video outperformed static creative on Facebook and Instagram, with the Chatty Heat Pump creative outperforming all other versions.
    - Campaign messaging seemed to resonate at a higher rate with male audiences on Facebook and Instagram.<sup>143</sup>
- PSEG LI enlisted the services of Illume Advising to gather customer feedback on the marketing materials and tools developed to inform customers of the new TOU offerings. A variety of questions were used to identify which materials and messages respondents prefer and is most effective to encourage signup. This included: promo emails, drip emails, direct mail, TOU Video, Web landing page, and TOU tools (Rate selection, CSR, MyAccount tools) or other resources.
- Results of a 2022 Household Assistance email campaign showed the initial email campaigns measured a high level of engagement, but a low level of conversion. Therefore, not generating increased program participation.<sup>144</sup>
- As of 2023, LIPA states efforts are underway to put a system in place to measure outcomes generated by marketing measures, compare results to agreed benchmarks, and then take corrective actions as needed with their respective agencies. LIPA’s areas of focus include:

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<sup>140</sup> DR 1129

<sup>141</sup> DR 1129

<sup>142</sup> DR 1129

<sup>143</sup> DR 1430

<sup>144</sup> DR--807

- Reviewing and evaluating overall spend, including processes related to budgeting and forecasting, and agreements and retainers with advertisement agencies (i.e., agency compensation and agency revenue).
- Reviewing chosen communications channels (i.e., untargeted mass media compared to direct-to-customer), campaigns for each channel year over year, spending for each channel, and key performance indicators to verify the effectiveness of campaigns.
- Reviewing the appropriateness of market segmentation, the effectiveness of marketing strategy, and communication channels, review customer survey participation, and provide electric utility benchmarking statistics.
- Ensuing marketing and advertising align with Second A&R OSA requirements to ensure appropriate use of customer funds.<sup>145</sup>

**29. LIPA and PSEG LI took appropriate steps to address the impacts of the COVID pandemic on employee safety and customer operations.**

- LIPA and PSEG LI took appropriate steps to protect employees by suspending non-essential inside services, implementing access restrictions for projects, prioritizing projects based on exposure risk, and implementing remote work.<sup>146</sup>
- Upon reopening LIPA and PSEG LI followed the New York State Department of Health “NY Forward Business Re-Opening Safety Plan Template”. This template contains a comprehensive checklist which required LIPA and PSEG LI to consider and document essential protocols prior to reopening.<sup>147</sup>
- LIPA and PSEG LI took appropriate steps to remediate the impact of COVID on customer operations. PSEG LI implemented a proactive outreach effort through press releases, direct mailings to customers, bill inserts, social media, webinars, websites and call center upgrades and training. These communications include:<sup>148</sup>
  - Notification of customer protection, bill payment assistance programs and energy use reduction programs.
  - Offering of deferred payment agreements and other bill assistance programs.
  - The availability of low-cost EE and conservation.

**30. LIPA and PSEG LI took appropriate steps to manage the financial impacts of COVID.**

- LIPA followed applicable regulatory guidance as well as internal policies to help customers manage the financial impacts of COVID. This includes a moratorium on shutoffs and arrearage programs for certain customers. As noted in LIPA’s 2024

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<sup>145</sup> DR 807

<sup>146</sup> DR 182

<sup>147</sup> DR 182

<sup>148</sup> DR 218

proposed budget, the cost for COVID customer arrears forgiveness programs implemented in 2023 is expected to average \$0.58 per month.<sup>149</sup>

- Many customers experienced financial distress during the COVID pandemic and could not pay their electric bills. In response, LIPA forgave all arrears incurred through May 1, 2022, for participating low-income customers, funded partly by a \$9.8 million New York State budget appropriation. Over 11,000 low-income customers benefited from arrears relief totaling \$25 million.
- For those customers who struggled financially due to COVID but did not meet the low-income criteria, LIPA offered forgiveness of balances of up to \$2,000. Approximately 39,000 customers received bill credits through this program, totaling an estimated \$37 million. A similar program for small commercial customers benefited approximately 750 small businesses and totaled approximately \$1.2 million.

**31. PSEG LI External Affairs department communicates with local Town/City officials on projected Five-Year Capital Plans. Presentations are typically presented in person to key stakeholders through in-person meetings.**

- PSEG LI Five-Year Capital Plans were presented between June and August 2022 as shown in **Exhibit XIII-37**.

**Exhibit XIII-37  
External Affairs Team Five Year Capital Plan Presentations**

Stakeholder / City / Town	Date	Logistics	2022-2027 Potential Projects Presented
DPS	3/10/2022	Zoom meeting - completed	
Town of Oyster Bay	6/1/2022	In Person Meeting Completed	4 load growth, 1 other.
Town of Riverhead	6/1/2022	In Person Meeting Completed	1 load growth.
Town of Smithtown	6/2/2022	In Person Meeting Completed	1 load growth, 1 reliability.
Town of Southold	6/3/2022	In Person Meeting Completed	1 load growth / reliability.
Town of Southampton	6/13/2022	In Person Meeting Completed	5 load growth.
Town of East Hampton	6/13/2022	In Person Meeting Completed	8 load growth. 1 Village request.
Town of Babylon	6/14/2022	In Person Meeting Completed	2 load growth.
Town of Brookhaven	6/14/2022	In Person Meeting Completed	3 reliability, 1 interconnection, 1 deliverability upgrades, 1 load growth.
Town of Huntington	6/16/2022	In Person Meeting Completed	4 reliability, 3 load growth.
Town of North Hempstead	6/23/2022	In Person Meeting Completed	1 other.
NYC / Rockaways	6/28/2022	No in-person meeting. Deck Emailed.	3 load growth / reliability. 1 other.
City Of Long Beach	6/30/2022	In Person Meeting Completed	1 load growth. 1 reliability.
Town of Hempstead	7/12/2022	In Person Meeting Completed	7 load growth. 3 reliability. 1 County Project.
Town of Islip	7/13/2022	In Person Meeting Completed	2 load growth. 1 load growth / reliability. 1 reliability.

<sup>149</sup> LIPA 2024 Proposed Budget <https://www.flipsnack.com/lipower/2024-budget-report/full-view.html>

Stakeholder / City / Town	Date	Logistics	2022-2027 Potential Projects Presented
Suffolk County	7/18/2022	In Person Meeting Completed	[Note 1]
Nassau County	8/25/2022	Canceled - Meeting was canceled as CE Blakeman had COVID	[Note 1]
City of Glen Cove	N/A	No meeting needed as there are no projects scheduled in Glen Cove.	No Projects.
Town of Shelter Island	N/A	No meeting needed as there are no projects scheduled in Shelter Island	No Projects.

Note 1: Presentation not provided for NorthStar review.

Source: DR 348 Attachment 20

### 32. PSEG LI has not fully implemented all of NorthStar’s prior audit recommendations for Capital Project Outreach.

- PSEG LI has not formalized or extensively enhanced its external outreach training program.
  - PSEG LI’s implementation of NorthStar’s recommendation for External Communications training on capital projects suggests there are six training modules.<sup>150</sup> PSEG LI only provided five training slide decks.<sup>151</sup>
  - Training materials for Capital Project Outreach Scoring does not include any discussion or guidance on how to score capital projects in a consistent, objective manner. The lack of guidance to consistency and objective scoring of projects undermines appropriate outreach efforts.
  - Training on developing outreach budgets contains a very high-level description. Training lacks any detail for developing outreach cost estimates as well as any tools or data sources used for estimating. The training materials state that External Affairs should develop an Outreach Cost Matrix when the project is at a Conceptual Estimate level. PSEG LI does not consistently complete Conceptual Estimates for capital projects.<sup>152</sup>
  - Training Module 4: DPS Communication is dated October 1, 2018, but Final Review of Module 4 was supposedly performed on October 31, 2018. Furthermore, the training session was supposedly completed on the same date of the Final Review, October 31, 2018.<sup>153</sup>
  - PSEG LI conducted most of its outreach training based on the 2016 External Affairs (EA) Handbook that was created prior to NorthStar’s 2018 audit.<sup>154</sup>
  - Training only included select members of the External Affairs team.<sup>155</sup> PSEG LI did not provide evidence of any training on the EA Handbook after October 2019.

<sup>150</sup> DR 1636 Attachment 1.

<sup>151</sup> DR 1636 Attachments 3, 5, 8, 11, and 13.

<sup>152</sup> DR 1636 Attachment 11. For more information on project estimating, see Chapter X – Program and Project Management.

<sup>153</sup> DR 1636 Attachment 1 and Attachment 8.

<sup>154</sup> DR 347 and 1636 Attachment 1.

<sup>155</sup> DR 1636 Attachments 2, 4, 6, 9, 10, and 12.

PSEG LI’s response indicates ad-hoc training was performed for other employees, but does not provide any evidence as support.

- PSEG LI provided email invites for training sessions, but no indication if employees actually attended. PSEG LI does not conduct post-training surveys for continuous improvement purposes.<sup>156</sup>
- PSEG LI has formalized Tier 3 Outreach Plans, but did not include all aspects as recommended in the NorthStar 2018 Audit.
  - The PSEG LI’s EA Handbook was created in 2014 with subsequent revisions to provide a consistent, coordinated approach to customer outreach needs for construction activities and/or specific capital projects. The handbook is broken down into five sections: Part I: Organize, Part II: Assess, Part III: Prepare, Part IV: Execute, and Part V: Evaluate.<sup>157</sup>
  - The point system as described in Part II: Assess phase determines the project Tier level and extent of customer communications. Tier 1 (1-29 points), Tier 2 (30-54 points), Tier 3 (55-150 points). In terms of project communication complexity:
    - Tier 1 projects are considered straightforward and unlikely to generate controversy. A significant external affairs strategy is generally not required.
    - Tier 2 projects are considered to have an intermediate amount of challenge. Potential activities include those listed in Tier 1 and Tier 2.
    - Tier 3 projects are considered the most complex projects and more likely to generate controversy and require more extensive customer outreach and early stakeholder engagement. Potential activities include those listed in Tier 1 through Tier 3.<sup>158</sup>
- NorthStar requested the outreach plans for a selection of current Tier 3 capital projects for review.<sup>159</sup> Results of observations are provided in **Exhibit XIII-38**.

**Exhibit XIII-38**  
**Review of Selected Tier 3 Capital Project Outreach Plans**

Criteria/Project Number	L.99313/ L.89313	L.99022	Notes
Project Description	✓	✓	
Project Timeline & Key Milestones	No	No	No project timeline or key milestone provided
Alternatives Analysis	✓	✓	
Checkpoints for significant changes	No	No	No checkpoints to re-engage stakeholders on significant project changes
Scoring Sheets	No	No	No scoring sheets
Key concerns and mitigations	✓	✓	Mitigations include statements such as “engage stakeholders frequently”

<sup>156</sup> DR 1636 Attachments 2, 4, 6, 9, 10, and 12.

<sup>157</sup> DR 1128 Attachment 1 (May 2021)

<sup>158</sup> DR 1128 Attachment 1

<sup>159</sup> NorthStar requested five Tier 3 capital projects. Only two were provided. One project was cancelled and the second was re-scored as a Tier 2. The third project was submitted erroneously; PSEG LI provided a Tier 1 project.



			however, schedule states “as needed”
Project Budget	No	No	
Detailed Outreach Budget	No	No	
Outreach program schedule/Materials/Frequency of Communications	✓	✓	An outreach program schedule was included; however, PSEG LI did not provide any meeting materials for NorthStar’s review.

Source: DR 1637 Attachments 1 to 3.

- PSEG LI has not updated the EA Handbook to include lessons learned and other issues. NorthStar compared the August 2019 and May 2021 versions of the Handbook and found most changes were in Part II: Assess.<sup>160</sup> PSEG LI made changes to EA Audit table for “Areas to Assess” and “Considerations”. Also, PSEG LI made changes to project considerations (i.e., Construction Considerations) and tier scoring – from 88 to 150 total points. No other chapters, tools and templates, or the appendices had any material changes. Additionally, there is somewhat of a disconnect between the required actions associated with each tier level and the development of the EA Public Outreach Plan due to vagueness in language and/or lack of circumstance explanation that should be further clarified in the PSEG LI EA Handbook. For example:
  - The Corporate communication contact is not listed on the EA Public Outreach Plan despite having responsibility for several items. The timing and inclusion of their effort in the process is not explained.
  - The corporate communications strategy is not included in the EA Public Outreach Plan.
  - Information on creating the outreach budget and tracking actuals is vague.
  - The EA Handbook does not discuss:
    - The need to update the communication log in the EA Public Outreach Plan to include dates of when activities were completed.
    - How Article VII projects are Tier classified and how this impacts ownership of activities defined in the outreach plan, given DPS’s involvement.
    - Under what circumstances each of the communication methods such as email blasts, text messages, social media posts, door hangers, postcards etc. should be utilized? None of the project samples reviewed included these communications.
    - Under what circumstances third party experts are required?
    - Under what circumstances is an outreach plan not needed and how should this be documented?
    - When customer surveys should be done.
    - What records need to be retained.
    - Budget ownership, allocation, expense classification, or approval.

<sup>160</sup> DR 347 Attachments 2 and 5.

- PSEG LI did not implement NorthStar’s 2018 audit recommendation to measure the effectiveness of capital-project outreach, media relations and external affairs programs.<sup>161</sup>

**33. PSEG LI has a customer communications process for vegetation management, however, the templates were not included in the company’s response preventing assessment of customer communication.**

- PSEG LI Operations Manual for Vegetation Management (VM) Distribution Trim Policies and Procedure document describes the outreach for their Vegetation Management Program. This includes pre-trim and post-trim customer communications.
  - The pre-trim customer notification process outlines the following steps:
    - Letters are sent to Customers along the circuit three (3) weeks prior to start of work. A third- party vendor is provided with the necessary information for this.
    - An automated message (robotic call) is delivered to Customers along the circuit approximately one (1) week before work is to begin, the Customer Experience group creates a standard message, which is deployed by Business Analysts to customers.
    - Vegetation Management supplies a Door Hanger to contractors to distribute prior to work.
    - Before work is to begin, a text message is sent to customers by the System and Change Implementation Group.
    - A final notification is made when the contractor arrives at the customer site and “knocks on the door.”
  - The post-trim customer notification process outlines the following steps:
    - After work for a customer is completed, a post-trim “Thank You” postcard and a post-trim survey and questionnaire are sent by the Customer Intelligence group.
- The communication attachments referenced within the Vegetation Management procedure document were not provided. This includes templates customer letters, robotic calls messages, door hangers, and text messages samples.

**34. PSEG LI did not provide procedures or controls for approval of Utility 2.0 outreach spend. In addition, SAP transaction data for 2022 was not provided to support reported outreach spend.**

- Utility 2.0 O&M budget vs actuals is shown by filing year in **Exhibit XIII-39**. These amounts are exclusively O&M and do not include the Utility 2.0 capital budget or expenditures.

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<sup>161</sup> For more information, see Chapter XVII – Implementation of Recommendations from the Prior Management Audit.

**Exhibit XIII-39**  
**2022 O&M Utility 2.0 [Note 1]**  
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Utility 2.0 Filing Year	Initiative Launch	Plan	Actual	Variance (Under)
2018 Filing	AMI Deployment, Electric Vehicles, AMI Analytics, AMI Customer Experience, AMI DSP, AMI Outage Management, AMI Rate Modernization, Grid Storage, PMO + Change Mgmt, Locational Value Study, Super Savers, Utility of the Future	\$20,500,024	\$16,501,111	(\$3,998,913)
2019 Filing	Next Gen Insights Pilot, Energy Concierge Pilot, Electric School Bus Pilot	\$2,438,563	\$1,236,671	(\$1,201,892)
2020 Filing	EV Make-Ready Program, CVR Program, DER Visibility, Hosting Capacity Maps, NWS Process Development	\$683,966	\$216,866	(\$467,099)
2021 Filing	Connected Building Pilot, Electric Vehicle EV Maek Ready Phase, Increasing Hosting Capacity, Suffolk County Bus Initiative	\$3,940,318	\$1,397,606	(\$2,542,711)
<b>Total O&amp;M Utility 2.0:</b>		<b>\$27,562,870</b>	<b>\$19,352,255</b>	<b>(29.8%)</b>

Note 1: Please note this is by Filing Year not budget year.

Source: DR 1625 Attachment 1 - PSEG LI Executive Summary Utility O&M 2.0 YTD, December 31,2022

- As of Q4 2022, there were 25 projects with allocated budgets under Utility 2.0. These projects are listed in **Exhibit XIII-40** along with the reported outreach budget and actual spend provided by PSEG LI. Customer Outreach Budgets appear to be established for two Utility 2.0 projects – Enabled AMI Customer Experience and Enabled AMI Rate Modernization.

**Exhibit XIII-40**  
**2022 O&M Utility 2.0 Budget vs Actuals Project and**  
**Customer Outreach Budget vs Actuals**  
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Utility 2.0 2022 Projects	Utility 2.0 2022 Budget vs Actuals			Utility 2.0 2022 Customer Outreach Budget vs Actuals		
	Year-End Project Status	Budget	Actuals	Budget	Actuals	Variance (Under)
AMI Deployment	Active / Operational Status (2023)	\$3,834,780	\$3,932,539			
Connected Buildings Pilot	Delayed	\$635,600	\$0			
Conservation Voltage Reduction (CVR) Program	Complete	\$28,760	\$12,654			
DER Visibility	Active	\$69,107	\$12,600			
Electric School Bus V2G	Canceled	\$497,267	\$0			
Electric Vehicle Make-Ready Phase II	Active	\$2,839,718	\$1,243,977		\$19,622	\$19,622
Electric Vehicles	Active	\$2,191,720	\$2,446,486		\$72,755	\$72,755

Utility 2.0	Utility 2.0 2022 Budget vs Actuals			Utility 2.0 2022 Customer Outreach Budget vs Actuals		
Enabled AMI: Analytics	Active / Operational Status (2023)	\$2,075,000	\$2,335,927			
Enabled AMI: Customer Experience	Active / Operational Status (2023)	\$3,642,000	\$3,477,263	\$2,475,000	\$2,678,543	\$203,543
Enabled AMI: DPS	Not stated	\$80,000	\$43,940			
Enabled AMI: Outage Management	Not stated	\$1,474,000	\$0			
Enabled AMI: Rate Modernization	Active / Operational Status (2023)	\$4,976,214	\$3,011,518	\$2,772,131	\$1,532,790	(\$1,239,341)
Enabled AMI: Revenue Protection	Continuous Improvement	\$0	\$0			
Energy Concierge Pilot	Canceled	\$857,296	\$0			
EV Make-Ready Program Phase I	Active	\$153,099	\$0			
Grid Storage	Delayed	\$50,000	\$0			
Hosting Capacity Maps Stage 3	Continuous Improvement	\$433,000	\$100,772			
Increasing Hosting Capacity	Complete	\$55,000	\$153,629			
Locational Value Study	Continuous Improvement	\$25,000	\$10,923			
Next Gen Insights Pilot	Active / Operational Status (2023)	\$1,084,000	\$1,236,671			
Non-Wires Alternative Process Development	Active/ Complete	\$0	\$90,840			
PMO + Change Management	Not stated	\$0	\$0			
Suffolk County Bus Initiative	Delayed	\$410,000	\$0			
Super Savers	Active/ Complete	\$1,026,310	\$189,345		\$102,564	\$102,564
Utility of the Future	Active / Operational Status (2023)	\$1,125,000	\$1,053,170			
<b>Total:</b>		<b>\$27,562,870</b>	<b>\$19,352,255</b>	<b>\$5,247,131</b>	<b>\$4,406,274</b>	<b>(\$840,857)</b>

Source: DR 1132 Attachment 9,13

- The Utility 2.0 budget was underspent by \$8.2M or 29.8 percent, for the following reasons:<sup>162</sup>
  - A scope refinement in Rate Modernization program.
  - The slow ramp up for EV Make Ready incentives.
  - The deferral of AMI Outage Management charges into 2023.
  - Lower customer adoption for Super Savers.

<sup>162</sup> DR 1625

- NorthStar requested PSEG LI to describe controls in place for the use of funds for each Utility 2.0 program. This information was not provided in the data request response.<sup>163</sup>
- NorthStar’s review PSEG LI 2018 to 2022 customer outreach SAP accounting transaction data found:
  - PSEG LI provided SAP raw data for the timeframe 2018 through 2021 at detail transaction level. For 2022, information was provided in summary format without SAP supporting transaction data.<sup>164</sup>
  - The 2022 summary indicates rebates are included within customer outreach costs.<sup>165</sup>
- Per PSEG LI, there are not any KPI’s or OSA metrics associated with Utility 2.0 customer outreach.<sup>166</sup>

## **D. RECOMMENDATIONS**

1. Improve oversight, controls, reporting, and tools for Shared Meter Investigations.
  - Require Special Investigations supervisors to approve all Shared Meter Reports prior to submittal to Customer Relations.
  - Require Customer Relations supervisor to approve all Shared Meter penalties and assessments prior to notification of landlords.
  - Develop in-field tools for investigators that are consistent across all employees and updated as necessary. Discontinue the use of private notes. Tools may include:
    - Checklists
    - Forms to be completed
    - Photographs to be taken
    - New technology such as electronic notebooks etc.
  - Discontinue the practice of reviewing a week’s worth of investigations on Fridays and require daily reporting.
2. For projects where PSEG LI relies heavily on external vendor expertise and support, LIPA should have closer involvement in contracting and project management oversight.
3. Determine the extent to which PSEG LI can offer customers bill credits for the purposes of achieving OSA metrics.
4. Improve Call Center resource planning, budgeting, and training.

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<sup>163</sup> DR 1132

<sup>164</sup> DR 1132 Attachments 5-8 (2018-2021)

<sup>165</sup> DR 1132 Attachment 9

<sup>166</sup> DR 1132

- PSEG LI Call Center should have a documented plan and be appropriately prepared for an increase in customer call volume for the 2024 TOD implementation.
  - Refine Call Center forecasting model to day-of-week and include all resources (including supplemental department support). Call volume forecast should be “tunable” to calculate needs based on variable inputs (e.g., TOD rollout).
  - The Call Center forecasting model output should be used to inform the call center budget.
  - Call Center agents should have training on EE programs and information sheets they can send or email customers
  - Retain records of training material, along with dates of training, and individuals who participated in the training session.
5. PSEG LI required Call Center performance metrics should be consistent with Case 15-M-0566 reporting requirements in alignment with other New York utilities. Refer to the four metrics discussed within the Chapter.
6. Implement process improvement initiatives for the Household Assistance Program. Scope should include at a minimum:
- Update Household Assistance Program processing procedure per report findings.
  - Create a comprehensive Program Manual for the Household Assistance Program to include end-to-end program management. Include the following:
    - Stakeholders
    - Applicable Tariffs
    - Eligibility
    - Program goals and KPI’s
    - Program budget by admin, marketing/outreach and implementation.
    - File matching cadence
    - Tier discounts – maintenance of Tier discounts
    - HAR form – English and other languages
    - HAR letters – English and other languages
    - Marketing and Outreach collateral – English and other languages
    - Marketing and Outreach Strategy
    - Community Based Organization partners
    - List of reports with samples.
    - Training material locations
    - Audit report locations
    - Etc.
  - Establish cadence for receipt of OTDA file and track file match rates. Encourage customers (and change website verbiage) that have received HEAP or Emergency HEAP to apply directly to the utility until a higher rate of customer matching is achieved.
  - Determine reasons for HAR high rate of denials for manually processed applications. Review verbiage on denial letters to ensure customer friendly tone and communicates how they can remedy their application.

- Review and clarify Tariff intention Tier 2 and Tier 3 discounts for non-heat customers. PSEG LI should reflect Tier discounts in accordance with LIPA tariff (provide internal operational guidance as notes in procedure).
  - Update HAR application form to include discount tiers and instructions for completing application form.
  - Utilize a sample calculator to determine appropriate sample size for monthly enrollment audits. Audit should also encompass denied applications.
7. Update Internal Financial Assistance Program Guide to include HAR.
  8. Track and coordinate internal referrals to maximize low-income program participation such as between the Household Assistance Program and REAP. Review REAP program eligibility rules and determine if they can be adjusted to align with the Household Assistance Program so participation in one program will qualify for the other.
  9. Revisit and clarify the net income requirements for \$10 Agreement eligibility for payment agreements.
  10. Evolve marketing and outreach strategies to focus on methods that increase customer participation in the Household Assistance Program and EE programs.
  11. Implement capital project outreach recommendations from prior NorthStar audit.
    - Update the External Affairs Handbook to reflect recent lessons learned, the findings in NorthStar’s report.
    - Implement formal capital outreach training as recommended in the prior NorthStar audit, document attendees, and conduct post-training surveys for continuous improvement.
    - Develop Tier 3 Capital Project Outreach Plans in accordance with the prior NorthStar audit.
  12. Improve transparency and controls over EE programs. At a minimum:
    - Implement approval process for LIPA to approve fund-shifting between EE programs.
    - Implement processes to increase transparency of EE program funds. Suggest budgeting and tracking at a program level by admin, marketing/outreach, implementation, and rebates/incentives costs.



## XIV. ADVANCED METERING INFRASTRUCTURE

This chapter provides the results of NorthStar’s review of LIPA’s Advanced Metering Infrastructure (AMI) program.

### A. BACKGROUND

#### Utility 2.0 Long Range Plan and AMI

LIPA’s initial investment in AMI began in 2009. The Smart Energy Corridor demonstration project began in February 2010 and continued through February 2015, which included the Research Foundation of the State University of New York (SUNY) and the Research foundation of SUNY at Stony Brook.<sup>1</sup>

LIPA procured a Meter Data Management System (MDMS) in 2012 to improve the data integrity of the meter to cash process which in turn provided the customer with usage data in a Customer Portal. Initial components included Home Energy Management (residential), business web portal, and PSEG LI My Account to support the Green Button initiative<sup>2</sup>.

The initial MDMS project included integration with the billing system to automate the transfer of register index reads (i.e., meter reads) for billing. The system was developed with configurations to support industry standard data validation rules to maintain the data integrity across the systems. External file transfer interfaces were built to support load settlement, interconnection billing, and rates and pricing load profiling. In addition, PSEG LI installed a customer portal to present customer usage interval data via My Account and support customers to download the data in Green Button format.<sup>3</sup>

Small-scale AMI deployments began around the service territory between 2013 and 2017. Specific areas included:

- Fire Island meters that were damaged after Super Storm Sandy.
- The State University of New York (SUNY) Stony Brook’s area due to high number of estimated bills.
- Long Island Railroad’s (LIRR) billing concerns and converted all 136 traction accounts to AMI.

Due to the small-scale program success, PSEG LI expanded the AMI communications network to cover the entire service territory in 2016. The effort focused on deploying 72 collectors and 1,530 routers communicating via radio frequency (RF) throughout the service

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<sup>1</sup> [https://www.energy.gov/sites/prod/files/2017/01/f34/LIPA\\_Improving-Security-Growing-Smart-Energy-Corridor.pdf](https://www.energy.gov/sites/prod/files/2017/01/f34/LIPA_Improving-Security-Growing-Smart-Energy-Corridor.pdf)

<sup>2</sup> The Green Button initiative is an industry-led effort that responds to a 2012 White House call-to-action to provide utility customers with easy and secure access to their energy usage information.  
<https://www.energy.gov/data/green-button>

<sup>3</sup> DR 188 Attachment 1

territory to allow AMI meters to be installed anywhere to support existing or new customers as needed. Prior to full-scale mass deployment approval, PSEG LI had already deployed a robust AMI communications network with over 100,000 AMI meters installed measuring over 40 percent of system load.<sup>4</sup>

On December 19, 2018, the PSEG LI Utility 2.0 proposed plan for territory-wide AMI mass deployment was approved by the LIPA Board.<sup>5</sup>

The project scope included the following:

- Deploy smart meters for large commercial and market participant customers to include:
  - Time of Use Rates (TOU)
  - PV net metering functionality
  - Recharge New York
  - Retail Choice by year-end 2018
- Deploy smart meters system-wide by the year-end 2022.
- Upgrade existing MDMS and AMI web portal to enhance the customer experience and expand functionality by year-end 2018.
- Expand customer education and outreach as well as direct customer communications.
- Develop a roadmap for achieving the future benefits enabled by AMI.<sup>6</sup>

AMI meter deployment was complete in the third quarter of 2021.<sup>7</sup>

### **AMI Full Deployment Project Cost/Benefit Summary**

PSEG LI's 2018 Utility Long Range Plan provided updated capital investment numbers and savings projections for the Smart Meter Deployment Project. Benefits such as wholesale energy and capacity benefits, and other revenue benefits were added to the plan. The stated savings were projected to be \$498M using the societal cost test (SCT). This included \$415M O&M and \$65.2M in other savings at a cost of \$315 million. The SCT test considers expected benefits and costs from the perspective of society measuring the net economic benefit to the utility service territory, state, or region, as measured by the total resource cost test, plus indirect benefits such as environmental benefits.<sup>8</sup>

Other savings categories considered the rate impact measure (RIM) test based on the DPS BCA Framework. The utility cost test (UCT) views benefits and costs from PSEG LI's perspective and does not include benefits such as avoided emissions or customer outage

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<sup>4</sup> DR 191

<sup>5</sup> DR 188 Attachment 2

<sup>6</sup> PSEG LI Utility 2.0 Long rang Plan, 2017 Update, Appendix 1 – Smart Meter Full Deployment Business Plan, September 8, 2017

<sup>7</sup> Fact Verification

<sup>8</sup> DR 188 Attachment 1

benefits. The RIM test is similar to the UCT, except that the gained utility revenue (e.g., from theft detection or other revenue protection benefits) is treated as a benefit.<sup>9</sup>

### AMI Savings Projections (2019-2038)

A summary of estimated quantifiable operational benefit projections is outlined in **Exhibit XIV-1**.

**Exhibit XIV-1**  
**Utility 2.0 2018 Estimated AMI Savings Projections (SCT)**  
**(\$M)**

Benefit Category	Description	Present Value (2019-2038)
<b>Utility O&amp;M Benefits</b>		
Reduced Meter Reading Costs	Reduced O&M expenses due to reduced meter reading labor and vehicle costs.	\$171.9
Reduced Meter Services Costs	Reduced O&M expenses due to reduced meter services labor and vehicle costs. Meter services include expenses related to service connects and disconnects, and no trouble found calls.	\$83.4
Reduced Call Center and Billing Costs	Reduced labor due to Call Center and billing efficiencies.	\$10.3
Reduced Outage Restoration Costs	Reduced mutual assistance and internal costs associated with storm restoration due to improved restoration efficiency associated with AMI integration with the OMS.	\$60.7
<b>Subtotal:</b>		<b>\$326.3</b>
<b>Other O&amp;M Benefits</b>		
Avoided Outage Costs (Customer Benefit)	PSEG LI can identify and fix outages faster using nested outage detection, which reduces the customer minutes of outage (CMI) for both residential and commercial customers. A reduction in CMI has an inherent value to customers.	\$97.9
Carbon Savings (Societal Benefit)	Carbon emissions are reduced two-fold: (1) lower emissions from reductions in wholesale energy consumption, and (2) reductions in vehicle emissions through the automation of meter reading and meter services.	\$1.8
Pollutant Savings (Societal Benefit)	Pollutant emissions (i.e., NO <sub>x</sub> , SO <sub>x</sub> ) are reduced due to reductions in vehicle miles driven through the automation of meter reading and meter services. This value is negligible relative to the other benefit streams.	\$0
<b>Subtotal:</b>		<b>\$99.7</b>
<b>Wholesale Energy and Capacity Benefits</b>		
Avoided Generation Capacity Costs	Reduced wholesale energy costs associated with a reduction in system energy consumption due to rate modernization. This	\$27.1

<sup>9</sup> DR 188 Attachment 1

Benefit Category	Description	Present Value (2019-2038)
	category also includes the value of shifted energy consumption due to TOU rates.	
Avoided Transmission Capacity Costs	Reduced transmission capacity costs due to a reduction in peak load from the implementation of rate modernization.	\$13.7
Avoided Distribution Capacity Costs	Reduced distribution capacity costs due to a reduction in peak load from the implementation of rate modernization.	\$17.7
Avoided Wholesale Energy Costs	Reduced wholesale energy costs associated with a reduction in system energy consumption due to rate modernization. This category also includes the value of shifted energy consumption due to TOU rates.	\$6.7
<b>Subtotal:</b>		<b>\$65.2</b>
<b>Total [Note 1]:</b>		<b>\$491.2</b>

Note 1: The category amounts included for SCT in the source document did not match the SCT total of \$498M. Source: PSEG LI Utility 2.0 Long Range Plan, 2018 Annual, June 29, 2018

Additional benefits discussed, but not considered part of the 2018 Utility 2.0 SCT calculation but part of UCT and/or RIM tests are outlined in **Exhibit XIV-2**.

**Exhibit XIV-2**  
**Utility 2.0 2018 Estimated Additional Savings Projection (Non-SCT)**  
**(\$M)**

Benefit Category	Description	Present Value (2019-2038)
<b>Bill Savings</b>		
Bill Savings (Customer Benefit)	Customers can save energy on their bills through modernized rate structures such as TOU rates. This value is only counted in the RIM test and is not applicable in the SCT and UCT tests.	\$12.4
Revenue Protection from Theft/Tamper	Revenue gained from identifying electricity theft and tamper of meters	\$104.5
Revenue Protection from Move-in/Move-out	Revenue gained due to the ability of PSEG LI to connect and disconnect customers more efficiently during the move-in/move-out process	\$2.3
Meter Accuracy	Revenue gained is from more accurate meters-reads. Electro-mechanical meters generally underestimate consumption, especially as the meters age.	\$69.5
Reduced Bad Debt and Write-offs	Reduced bad debt and write-offs associated with the implementation of prepaid billing.	\$8.2
<b>Total:</b>		<b>\$198.9</b>

Source: PSEG LI Utility 2.0 Long Range Plan, 2018 Annual, June 29, 2018

In addition to benefits that can be quantified, the opportunity to realize a range of qualitative benefits is possible with the achievement of a successful AMI deployment. Benefits

such as increased customer experience, access to real-time data, and better DER program offerings were treated in the PSEG LI 2018 Utility 2.0 Long Range Plan as qualitative.

## Overview of AMI Architecture

The AMI System includes the following components:

- **Smart meters** - Electric meters that record energy consumption, typically in intervals of an hour or less. These devices typically send data back to the utility company at least once daily.
- **Communications network** - Communication networks serve as the backbone of the two-way communication between smart meters and the AMI head-end. They can be either wireless or wired, depending on the specific topology of the system. These AMI networks carry data from the smart meters to the head-end system and vice versa, allowing utility companies to send commands to meters (e.g., remote disconnect/reconnect, firmware updates, etc.).
- **AMI Head-End System (HES)** – PSEG LI’s HES is managed by Landis+Gyr (Command Center application). The AMI head-end is the back-office system that controls the advanced metering infrastructure. The meter network infrastructure consists of meters, access points, and backhaul, and aggregation points to bring the data into the HES.<sup>10</sup>
- **MDMS** - Meter data management (MDM) is software that stores and manages data from smart metering systems, which collect usage data and events from meters. MDM performs functions such as validation, estimation, and editing (VEE) of meter data, and prepares data for other utility applications such as billing, customer information, and outage management. The MDMS serves as an intermediary grouping of systems used to receive and send data to the HES and Customer Care applications. PSEG LI MDMS is Landys+Gyr (L+G) managed.<sup>11</sup>

## B. WORK TASKS

As part of NorthStar’s scope of work, its Work Plan included the following:

- Assess how AMI data integration with other information and management systems including Outage Management System (OMS) and geographic information system (GIS) enable PSEG LI to create more accurate and detailed outage maps, isolate outages faster, improve outage information, support rapid restoration, and promote customer notification on service restoration progress. See also C10.2 System Improvement and Performance.
- Review and assess the compatibility of the technology with existing systems including but not limited to the Outage Management System (OMS), and Billing Systems.

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<sup>10</sup> DR 638 Attachment 3

<sup>11</sup> DR 638 Attachment 3

- Assess PSEG LI's progress to customize any components as required to enhance compatibility among these systems.
- Review and assess the accuracy of reported savings in the form of decreased O&M expenses from meter services associated with the technology.
- Determine if all opportunities to improve operational efficiency through use of AMI technology are being utilized.
- Review and assess any substantial impacts and benefits of AMI for customers and PSEG LI, including but not limited to load forecasting, capital investment planning, customer management/control on its electricity consumption, the costs saving of metering & billing, and outage/restoration costs.
- Assess how AMI voltage monitoring capabilities improve/enhance the effectiveness of automated controls for voltage and reactive power management, particular for the conservation voltage reduction program (CVR) and Voltage Optimization.
- Review and assess PSEG LI's use of AMI technology to provide customers improved, granular, user-friendly data on their electric usage with useful insights to their consumption and costs, and any available options to lower or alter these attributes to benefit them and the grid.
- Assess the ability of the technology, in coordination with other systems, to support new rate designs including Time of Use Rates.
- Evaluate the impact of AMI for customer engagement in Demand Response programs.
- Assess what processes or technologies are in place for PSEG LI to upload aggregated monthly data by municipality to NYSERDA's Utility Energy Registry (UER), consistent with the Public Service Commission's Order issued on April 20, 2018, in Case 17-M-0315, and whether this information has been provided. (Chapter VIII – System Planning)
- Assess PSEG LI's plans and preparedness for meeting the IEDR requirements and other elements of the data access sharing proceeding (20-M-0082). (Chapter VIII – System Planning)
- Evaluate how PSEG LI is using the data received via AMI metering is using the data received via AMI metering to advance more energy efficiency and smoothing of peak load. Identify best practices of other NY utilities for consideration.
- Determine the extent to which PSEG LI/LIPA are maximizing the benefits of AMI relative to other utility practices. (From C9 CLCPA, with additions to reflect the DPS Prioritization List):
  - Improved meter reading and billing accuracy.
  - Reduction in long-term estimates and billing exceptions.
  - Reduced costs for meter reading, call center, and exception processing.
  - More granular information for addressing high bill questions.
  - Reduced collections and turn-/turn-off costs and safety benefits associated with remote updates.
  - Integration with the Outage Management System, and improved system condition diagnostics.
  - Increased granularity in load forecasting.
  - New rate design/variable pricing structures.
  - Potential for an expanded portfolio of energy efficiency, demand response, load management and energy management programs for customers and the utility.

- Peak/load shifting. – (part of TOU)
- Deferred distribution, transmission and generation investments.
- Increased adoption of load management.
- More detailed usage information for customers to manage load and usage.
- Shorter billing cycle and days sales outstanding (DSO)
- Ability to detect theft of service.
- Voltage monitoring.
- Potential for increased adoption of electrification programs if pricing structures are aligned.

## C. FINDINGS AND CONCLUSIONS

### 1. PSEG LI uses a range of common industry system integration and customized solutions to address system compatibility issues, resulting in a functional system.

- PSEG LI developed solutions to assist with real-time data transmission status monitoring in the event a system is off-line (as data cannot be transmitted if a system is unavailable). Tools for regular system status monitoring and error log monitoring have also been implemented.<sup>12</sup>
- AMI integrations to OMS and CAS (Billing System) are handled by PSEG LI's MuleSoft integration solution. MuleSoft is their preferred enterprise solution for current and future real-time integrations.<sup>13</sup>
- There is an active project to migrate all existing real-time integrations from Sonic ESB to MuleSoft. This strategic direction aims to enhance efficiency, improve performance, and ensure long-term sustainability. In addition, PSEG LI has in-house resources experienced in MuleSoft.<sup>14</sup>
- For applications hosted within the PSEG LI internal network, integration solutions such as MuleSoft Enterprise Service Bus (ESB), custom designs, and Websphere Messaging and Querying (MQ)/ESB/ Java™ Message Service (JMS) Queues are used.<sup>15</sup>
- System integration challenges, such as mapping schemas between systems, were overcome through MuleSoft integration middleware. MuleSoft allows for the extraction, transformation and loading of data. MuleSoft ESB is a Java-based enterprise service bus. MuleSoft is vendor neutral, allowing for different vendor implementation to plug in to it. MuleSoft ESB's key advantages include:<sup>16</sup>
  - Service Creation and hosting – expose and host reusable services, using the ESB as a lightweight service container.

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<sup>12</sup> DR 690

<sup>13</sup> DR 1595

<sup>14</sup> DR 1595

<sup>15</sup> DR 690, DR 689, DR 1451-1455

<sup>16</sup> <https://www.mulesoft.com/resources/esb/what-mule-esb>



- Service mediation – shield services from message formats and protocols, separate business logic from messaging, and enable location-independence service calls.
  - Message routing – route, filter, aggregate, and re-sequence messages based on content and rule.
  - Data transformation – exchange data across varying formats and transport protocols.
- AMI / OMS integration was completed in 2022. The suppression of power outage notifications for planned/anticipated outages was enabled by utilizing MuleSoft to maintain the anticipated outage table entries located in the MDMS.<sup>17</sup>
  - AMI / CAS integration was completed in 2018. Challenges stemmed from limitations of the existing homegrown billing system (hosted on the mainframe). These issues were addressed with custom designs of the file transfers and using Websphere MQ/ESB/JMS Queues for real-time integrations.<sup>18</sup>
  - Enhanced monitoring is in place to address issues such as system unavailability that may arise, such as in the case of real-time data transmission between multiple systems. This includes a monitoring dashboard and automatic alert notifications set up via MuleSoft. For legacy middleware ESB, support staff monitor related error logs.<sup>19</sup>
  - The transfer of AMI data to applications hosted outside PSEG LI network (such as GridX, C&I Portal, Data Lake, Bidgely, MySmartEnergy etc.) is accomplished utilizing MessageWay.<sup>20</sup>
  - Key functionality of MessageWay includes:<sup>21</sup>
    - Prepares data for destination-ready file delivery, flexibly translating data between common file formats including flat files, XML, X12, EDIFACT, ERP, SWIFT, ACH, HL7, BAI2 and proprietary formats.
    - This allows organizations to integrate B2B files in real time between enterprise systems and partner communities.
    - Provides a single-pass, any-to-any translation that eliminates the need for intermediate file formats.
  - Common Information Model (CIM) data standards are used to ensure every party involved receives the same formatted data.<sup>22</sup>

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<sup>17</sup> DR 690

<sup>18</sup> DR 690

<sup>19</sup> DR 690

<sup>20</sup> DR 690

<sup>21</sup> <https://www.progress.com/docs/default-source/messageway/ds-messageway.pdf>

<sup>22</sup> DR 690

- A project to migrate existing Sonic ESB services to MuleSoft began January 2022 with an expected end date of December 2025.<sup>23</sup> It is unclear how this work affects planning and execution of the System Separation project.
- A list of ongoing PSEG LI integration work is displayed in **Exhibit XIV-3**:

**Exhibit XIV-3**  
**Ongoing PSEG LI Integration Work**

Project	Integration
Contact Center as a Service (CCaaS)	Omilia IVR, NICE HVCA, MuleSoft, Customer Accounting System (CAS), Enterprise Based Objects (EBO), Outage Management System (OMS), Kubra
Time Of Day	Customer Mobile App, MuleSoft, and CAS
Paymentus	Paymentus, MuleSoft, and EBO
CRM Replacement	MyAccount, Customer Mobile App, MuleSoft, NICE CX-ONE DFO
Outage Incident and Communications (OIC)	OMS, MuleSoft, Salesforce, and DPS
MDMS Field Remote Disconnect	MDMS, MuleSoft, and Computer Aided Dispatch (CAD)
Kiosk	Citybase Payment Kiosk, MuleSoft, and
Splunk Upgrade	Splunk and MuleSoft
Replacing Sonic ESB with MuleSoft	Systems Integrated: Omilia IVR, Nice HVCA, Sitecore, Customer Mobile App, iPay, Agent Desktop, Fiserv, Kubra MyAlerts, Kubra Muniportal, Kubra Outage Map, Damage Assessment, MuleSoft, CAS, EBO, Experian, OMS, CAD, and GIS, Jenkins (Used for CI/CD for automated MuleSoft deployments).

Source: DR 1457

**2. AMI pinging and meter outage data assist with validating customer outages and provide additional information for identifying the outage source allowing for quicker service restoration and unnecessary truck rolls.**

- AMI data integration efforts with OMS began in 2019-Q1 and went live 2022-Q2.<sup>24</sup>
- AMI-OMS data integration includes sustained AMI power outage notification, power restoration, and meter pinging.<sup>25</sup> The integration allows for AMI outage information to be transmitted to the OMS in addition to existing customer call outage data.<sup>26</sup>

<sup>23</sup> DR 1609

<sup>24</sup> DR 191 Attachment 3, DR 1453

<sup>25</sup> AMI “pinging” is used to validate single customer outages/restoration status.

<sup>26</sup> DR 689, DR 1455

- AMI meter outage start time and end time data (i.e., power outage notifications) are sent from the AMI Meter to the AMI HES and then to the AMI MDMS.
- A power outage notification is sent to the OMS if power restoration has not occurred within six minutes of the AMI HES receiving outage notification. If power restoration has occurred, the notification will be discarded.<sup>27</sup>
- An AMI outage call pattern quickly establishes the source of the outage on the feeder and helps to better direct crews to the location of the initial loss of power on the feeder, reducing time to patrol the entire feeder.
- During an active outage, occasionally a pattern of AMI power outage notifications received at/near the same time help the operator to determine a mismatch in the AMI reported outages versus GIS / OMS connectivity patterns.
- AMI helps to rapidly identify an “area outage” versus a single customer issue, eliminating the need to wait for an additional customer call, and helps to speed up the dispatching on known larger area outages, often before customers can report.

**3. AMI Outage data improves operations visibility to determine fault (loss of phase) location providing information to determine the location of blown fuses or damaged transformers. Outage data also serves to assist in identifying incorrectly mapped secondary patterns and primary phasing inconsistencies, eliminating the need for field visits to determine the extent of mapping errors.**

- AMI outage data is useful in the event of a loss of single or multiple phases and no SCADA event. The outage data in the OMS helps the Distribution Operations team to narrow in on the location of the damage in the Pragma Geo System (modeling side of the OMS). Prior state relied on patrolling from the substation source or SCADA supervisory device as delays in customers reporting outages often led to differing indications as to where the most upstream loss of power was at the time of the most recent customer call received.<sup>28</sup>
- AMI outage data assists in identifying incorrectly mapped secondary patterns and primary phasing inconsistencies. However, the number of corrections could not be quantified as PSEG LI does not track submitted tickets to correct mapping errors.<sup>29</sup> Prior state involved either unreported mapping changes, or a follow up field visit to trace out the secondary pattern or confirm branch primary phasing.<sup>30</sup>

**4. Dashboard reports have been developed to provide support/visibility to the business and customers during an outage event.**

- Dashboard reports have been developed utilizing the Data Lake and Connectivity Model to provide value during Business Continuity Planning (Outage) scenarios. The reports have been further adopted for use within regular operations.

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<sup>27</sup> DR 1451

<sup>28</sup> DR 689, DR 692, DR 1492

<sup>29</sup> DR 689 and DR 1453

<sup>30</sup> DR's 1451-1455

- The Data Lake is a repository for a range of information including data from the HES, CAS, OMS, SAP, GIS, etc. As related to outage data, the AMI HES transmits a “LOST” meter file to the Data Lake every 15-minutes. The “LOST” meter file contains a listing of all meters that have lost connection status in the HES indicative that customer may have lost service.<sup>31</sup>
- BCP Dashboard Reports include the BCP Outage Tracker, the BCP Customer Outage Dashboard, and the BCP Customer Counts Dashboard.<sup>32</sup> These reports were originally built for use during a BCP scenario but because of their value, they are utilized more frequently in regular business operations.<sup>33</sup> Comparable reports did not exist prior to AMI.
- The BCP Outage Tracker Report built for Distribution Operations identifies outage events.
  - Distribution Operations team utilizes DSCADA and SCADA incidents to identify main line outage events such as Distribution Breaker lockouts and ASU/ASUV lockouts vs the BCP Dashboard which identifies and groups outages for branch line fuses, transformers, and singles customer outages.
  - The BCP report does not infer outages like OMS. For example, if OMS groups to a fuse outage, it reports all the customers under that fuse as out, whereas this report does not. It only shows the actual meters that are out from the lost meter file and does not infer any meters out regardless of the outage level it groups to.
  - The dashboard uses a mirror of OMS’ grouping logic for transformers and fuses.
  - This report provides visibility to operations during a BCP scenario and aids in digital circuit sweeps. For example, if a fuse is brought back online, operations can look at this report and see if there are any more downstream outages before the crew leaves.<sup>34</sup>
- The BCP Customer Outage Dashboard is a two-part solution built for the Customer Communication team and customers.
  - The internal facing dashboard built for the Customer Communications team utilizes the “LOST” meter file and estimated time of restoration (ETR) data manually populated from the restoration tracker that is managed by the Electric Operations team. The report displays data based on the account number associated with the lost meter and customer related data such as village, county, and township.
  - The external facing (customer facing) Kubra outage map can be generated based on an AMI based outage file (utilizing the same specifications of the regular data feed).<sup>35</sup>

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<sup>31</sup> DR 1455, DR-855 Clarification

<sup>32</sup> DR 689, DR 1455

<sup>33</sup> DR 855 Clarification

<sup>34</sup> DR 689 and 1455

<sup>35</sup> DR 689

- The BCP Customer Counts Dashboard built for the Reliability team displays data on customer affected, outages and restores.
  - The report utilizes the “LOST” meter file and the “Connectivity Model”. The Connectivity Model database (created by PSEG LI Data Analytics Team) maps the lineage of all the devices across the service territory and uses granular AMI data to help provide the ability to determine the likely origin of an outage. It uses a bottom-up approach, allowing AMI data to be leveraged to determine outages at various levels of the distribution network. This capability allows the organization to determine the state of the grid every 15 minutes. The Connectivity Model uses several different data sources, including GIS, OMS, CAS, and AMI data.<sup>36</sup>
  - Total customers affected are determined based on unique meters out during specified time frame parameters. Total outages are calculated based on meter out in specified time frame and may be counted more than once if meter was out and then restored and then went out again. Total restores are based on meters that are no longer on the “LOST” meter file.

**5. The GIS system does not utilize AMI data.**

- The GIS system does not utilize AMI data.<sup>37</sup> However, the Connectivity Model uses several different data sources, including GIS, OMS, CAS, and AMI data.

**6. AMI has achieved operational efficiencies and improvement in data quality. Examples include automated meter readings, remote disconnect/reconnect for move-in/move-out service requests, reduced billing estimates, improved safety, and improved outage analytics. The development of the Data Lake provides a solid platform for advanced data analytics.**

- NorthStar reviewed the state of PSEG LI operational advancement in several areas to determine the state of AMI maturity. **Exhibit XIV-4** provides a summary of operational areas evaluated.

**Exhibit XIV-4  
AMI Operational Opportunity Assessment**

<b>Benefit Category</b>	<b>Specific Benefit(s)</b>	<b>Assessment</b>
<b>Analytics</b>		
AMI system vendors as well as third-party vendors offer analytical solutions to typical operational issues. Some utilities also chose to implement their own analytic solutions for specific operational problems	Aggregation of electrical loads from a group of meters (possibly from a group served by the same transformer)	Yes
	Outage analytics	Yes
	Meter heat detection to detect overheating	Yes [Note 1]
	Phase detection	No
	Power quality	No [Note 2]
	Nonrevenue determination	No

<sup>36</sup> DR 1607

<sup>37</sup> DR 1456, DR 1607

<b>Benefit Category</b>	<b>Specific Benefit(s)</b>	<b>Assessment</b>
<b>Billing and Collections</b>		
Remote Disconnect and connect capability.	The AMI HES system is utilized to disconnect or reconnect customers via the disconnect switch in the AMI meter. This could be for move-in / move out or for non-payment. This eliminates the need to physically disconnect/remove a meter in the field. With respect to non-pay disconnects, field collectors still attempt to collect payment from customer before disconnection for non-payment. The remote disconnect/reconnect saves field time and is safer for Field Collectors.	Yes
Improved Data Quality and Billing Quality - Automated, remote data collection streamlines the back-office processing for billing, asset management, and outage management. Machine-to-machine data transfers increase the quality of data collected by eliminating misreads, transcription errors, and data recording errors	With AMI, it is no longer necessary to manually access “hard to reach” meters or reschedule meter readings. Improved data integrity eliminates the need to investigate, correct, and reissue disputed bills. This increase in meter reading accuracy significantly reduces billing errors and customer disputes.	Yes
Shorter Billing Cycle and Days Sales Outstanding (DSO) - Replacing traditional meter reading with AMI shortens the billing process by reducing the time and the number of steps between consumer usage and bill distribution.	Cash flow is increased by an average of two days, thus decreasing daily sales outstanding (DSO).	No
Reduced Load in Contact Centers - Most incoming calls are about billing errors, meter readings, collections issues and/or reporting outages. Accurate remote data collection and interactive voice response (IVR) technology can replace long hold times with instant, automated information	Reduce questions on bills. Proactively tell customers which areas are affected and the estimated duration. These efficiencies reduce call center costs and allow staff to provide better customer service	No
<b>Demand Response / Load Management</b>		
Demand Response / Load Management – Control DR devices	Control DR devices and/or use AMI data to verify compliance with DR events.	Limited [Note 3]
<b>Distribution Automation</b>		
Many AMI vendors facilitate near-real-time automation for utility distribution processes. AMI can also work with third-party distribution automation applications.	Recloser control	No
	Capacity bank control	No
	Line switching	No
	Fault circuit indication	No
	Line voltage monitoring	No [Note 3]
	Power reliability monitoring	No
<b>Distributed Intelligence</b>		
Some AMI systems offer greater computing capability within the meter that can facilitate distributed intelligence applications.	These could include theft detection, high impedance detection, outage detection, location awareness, and neighbor comparisons.	Limited

<b>Benefit Category</b>	<b>Specific Benefit(s)</b>	<b>Assessment</b>
Making educated assumptions about future usage, sizing of new transformers and circuits to match peak load.	Benefits can be translated into savings by procuring correctly sized distribution equipment and making distribution system investments appropriate for the feeder load.	No
<b>Outage Management</b>		
Integrating AMI with your outage management system.	This can improve your performance metrics. It can also boost efficiency in dispatch of crews, outage sizing, and restoration.	Yes [Note 3]
<b>Other</b>		
Conservation voltage reduction - Some AMI systems can provide information that you can use to control the voltage on feeders and distribution lines.	This could reduce power needs, cut costs, and improve power quality for your end-of-line customers.	Limited [Note 3]
Streetlighting controls - Several AMI systems allow you to use their communications networks to control streetlights by reporting outages and brightening or dimming the lights	Being able to adjust brightness can improve public safety and reduce power costs.	Yes [Note 1]
Prepay - Many AMI systems integrate with prepay vendor systems, allowing you to offer this payment option to customers.	Prepay is popular in communities with population turnover, like college towns. In addition, prepay programs reduce demand.	No
Time-of-Use (TOU) - Pairing AMI meters with a meter data management system and interval data can provide the necessary elements for TOU pricing options.	This will help reduce the bills of customers who are flexible about the time of day they use electricity.  The levelling of demand allows for greater management of supply and a reduction in the cost of peak purchases.  13,400 customers in Pilot TOU.  Five of six TOU rates available, including ability to review rate comparisons, including ability to select rates through self-serve or CSR channels, and bill.	Yes
Collaboration - Some utilities are evaluating the benefits of sharing their AMI communications network and other portions of their AMI infrastructure with neighboring utilities.	One benefit is the opportunity to share costs.	No
Safety – Safety record improvement	The ability to remotely connect and disconnect services to protect utility employees from potential safety hazards both at the customer premise and from utility infrastructure.	Yes

Note 1: Information provided in Fact Verification did not indicate when functionality was deployed or the extent to which functionality has been used operationally during audit period.<sup>38</sup>

<sup>38</sup> Fact Verification



Note 2: The Vendor HES Command Center indicates it is capable of voltage monitoring, data responses did not indicate PSEG LI utilizes this functionality.

Note 3: Topic is discussed in a separate section within the chapter as it relates to a specific scope topic.

Source: <https://pages.esource.com/AMI-rollout-opportunities.html> and

<https://www.encyclopedia.com/technology/energy-and-power/white-papers/What%20Are%20the%20Limits%20of%20AMI%20in%20Supporting%20Load%20Management.pdf>, [Advanced Metering Infrastructure and Customer Systems: Results from the Smart Grid Investment Grant Program \(energy.gov\)](#), NorthStar Analysis, Fact Verification

- PSEG LI implemented AMI-enabled remote connect/disconnect functionality in 2019-Q4.<sup>39</sup> The move in/ move out transaction is sent via CAS to the AMI HES to remotely operate the disconnect switch or reconnect switch in the AMI meter. With respect to the collection cut off process, Field Collectors attempt to collect payment at the residential property and customers are reminded that they must turn-off service at the breaker for service to be turned-on.<sup>40</sup>
- The 2022 Performance Metric T&D-16 Motor Vehicle Accident (MVA) rate showed the year-end performance of 8.40 above the target level of 9.20. This reflects a total of 65 motor vehicle accidents over more than 7.7 million miles driven, which was among the best performances on record for PSEG LI.<sup>41</sup>
- The ability for collectors to turn off service from their vehicle is a safety benefit of AMI.
- To disconnect, Field Collectors access the AMI HES and utilize the disconnect switch in the AMI meter to cut off a customer for non-payment, eliminating the need to physically disconnect/remove a meter in the field. 15-minute AMI interval data is utilized by the billing system. This allows for better data quality (less estimates) and reduces the risk of inaccurate billing.
- For 2022, PSEG LI tracked 8,989 remote connections of for move-in service, and 21,271 remote disconnections for move-out. In addition, a total of 16,012 disconnections associated with field collections was recorded in 2022.<sup>42</sup>
- **Exhibit XIV-5** provides the percentage of estimated bills from 2022 to February 2023. NorthStar requested four years of historical data to assess the effects of AMI implementation. According to PSEG LI, it “did not historically measure this and doesn’t have historical data as requested.”<sup>43</sup> The OSA 2023 YE target is less than 0.61% estimated bills.<sup>44</sup>

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<sup>39</sup> <https://www.lipower.org/wp-content/uploads/2020/07/2020-06-30-PSEG-Long-Island-Utility-2.0-2020-Annual-Update.pdf> (Page B-9)

<sup>40</sup> DR1064.

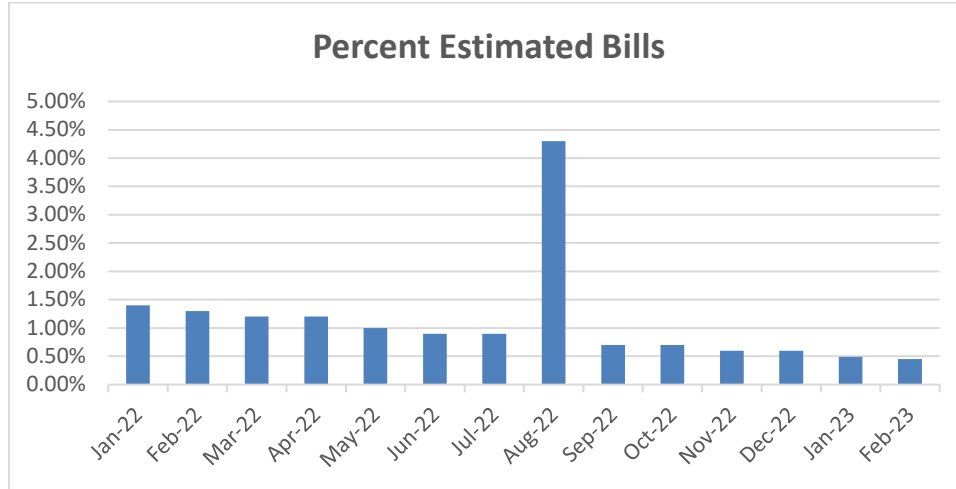
<sup>41</sup> DR 502 Attachment 6

<sup>42</sup> DR 692

<sup>43</sup> DR 681.

<sup>44</sup> DR 681 Attachment 4.

**Exhibit XIV-5  
Estimate Bill Percent**



Source: DR 681 Attachments.

- The number of inactive accounts with long-term estimates declined from 9,586 in January 2022 to 535 accounts in December 2022.<sup>45</sup> Inactive accounts are defined as metered accounts (with 5 or greater estimates) that have no current customer of record with energy consumption on the meter or no read.<sup>46</sup> The OSA YE Target was 861. Active accounts with 3 or more estimates declined from 3,667 at the beginning of January 2022 to 623 at the end of December 2022. The OSA YE Target was 700.<sup>47</sup> **Exhibit XIV-6** provides the stated resolution reasons.

**Exhibit VII-6  
Long-Term Estimate Resolution  
(Number)**

Resolve Reason	Account		Grand Total
	Active	Inactive	
Customer Read	47		47
Non-Access Fees and Certified Legal Notice	319		319
Service Terminated	613		613
Meter Read	4,014	658	4,672
Multi-Tenant	3	12	15
Dummy Account Shared Meter Assessment		67	67
Meter Read and Referral for Advance Consumption		9	9
New Service		417	417
Off/Disconnected at Meter or Pole		1,495	1,495
Removed from CAS		6,385	6,385
<b>Grand Total Resolved</b>	<b>4,996</b>	<b>9,043</b>	<b>14,039</b>

Source: DR 672 Attachment 1.

<sup>45</sup> DR 672 Attachments 1 and 2.

<sup>46</sup> DR 672 Attachment 2.

<sup>47</sup> DR 673 Attachment 2

- The Data Lake serves as a database repository for a range of data including data from the HES, CAS, OMS, SAP, GIS, etc.
- It receives four facets of AMI data from the HES. This includes: Universal Load Profile (ULP) containing KWH delivered and received; Universal Instrumentation Profile that contains voltage, amperage per phase, KVAR, KVAH; 32 meter event types (including power off and restored); and Meter Nameplate data.<sup>48</sup> The Data Lake is being used in various ways to provide a data source for analytical projects throughout the organization.
- Dashboard reports have been developed and incorporated with Business Continuity Plans for the loss of OMS (refer to Chapter section discussion on AMI and Outage Data).<sup>49</sup>

**7. Some anticipated AMI benefits are not tracked nor meet projected potential. This includes customer bills savings through TOU rates, revenue protection from theft/tamper, revenue protection from move-in/move-out, and reduced bad debt and write-offs.**

- TOU has not been widely implemented at this time. As of the end of 2022, there were 13,400 customers enrolled on new TOU rates. PSEG LI CBA workpapers do not include Customer bill savings calculations.<sup>50</sup> Savings evaluation of customer bills and load shifting are completed in full after a year of a population being on the rate.<sup>51</sup> Efforts relating to implementation of Time of Use (TOU/TOD) Rates are discussed in Chapter X1 – Customer Operations).<sup>52</sup>
- Efforts around remote theft detection began in 2022. The project had limited success as PSEG LI was unsuccessful in remote theft detection use cases. Theft detection events resulted in 96% false positives.<sup>53</sup>
- PSEG LI quantifiable utility cost test (UCT) and rate impact measure test (RIM) savings are cumulatively displayed in **Exhibit XIV-7**.

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<sup>48</sup> DR 855

<sup>49</sup> DR 689

<sup>50</sup> DR 691

<sup>51</sup> Fact Verification

<sup>52</sup> DR 1596 Attachment 5

<sup>53</sup> <https://www.lipower.org/wp-content/uploads/2023/05/LIPA-2022-PSEGLI-Year-End-Metric-Report.pdf>

**Exhibit XIV-7**  
**PSEG LI Utility Cost Test (UCT) Savings Categories**  
**(\$M)**

Benefit Category	Projected 2019-2022	Realized 2019-2022	Realized %
Bill Savings (Customer Benefit TOU Rates)			[Note 1]
Revenue Protection from Theft/Tamper	\$7,155,701	\$2,971,128	42%
Revenue Protection from Move-in/Move-out	\$151,558	\$129,437	85%
Meter Accuracy	\$5,534,582	\$4,945,870	89%
Reduced Bad Debt and Write-offs			[Note 1]

Note 1: CBA workpapers do not include calculations for Customer Bill Savings or Reduced Bad Debt/Write-off.

Source: DR 691 Attachment 5 (Q4 2022), NorthStar Analysis

- 8. Areas that may benefit from efficiency with AMI include distribution automation, power quality monitoring, streetlighting controls, pre-pay, and collaboration opportunities. In addition, the HES system may have functionality not being utilized.**
- 9. PSEG LI has very few Dynamic Load Management (DLM) programs and the overall MW impact is relatively small. An AMI meter is not a requirement for the Smart Savers Program.**
  - LIPA introduced three Dynamic Load Management (DLM) programs to the electric tariff effective April 1, 2016. The three programs include the Direct Load Control Smart Savers Program, the Commercial System Relief Program, and the Distribution Load Relief Program. The DLM Tariff was designed to be consistent with the objectives of REV by providing innovative market-based solutions to T&D system needs. The program is effective during the capability period, which is May 1-September 30.<sup>54</sup>
  - The objective of the DLM programs is to realize savings for customers by reducing the amount of capacity needed to be purchased for the following summer period. The coincident load reduction effort in 2022 was estimated to reduce the overall 2023 capacity purchase by \$1,870,000.<sup>55</sup>
  - The Smart Savers Program – is a thermostat control-based program. The majority of participants are residential customers. The Smart Savers Program pays customers a one-time payment of \$85 upon the customer’s enrollment of a qualifying smart thermostat. In exchange, participants agree to allow PSEG LI to curtail usage of their central air conditioning systems in the home or small business during periods of peak load.<sup>56</sup>
  - The Commercial System Relief and the Distribution Load Relief Programs. The Program is applicable to Direct Participants and Aggregators who agree to provide Load Relief for a minimum of 4 hours during all contracted hours. These programs

<sup>54</sup> Utility 2.0 Long Range Plan & Energy Efficiency Plan 2023 Annual Update, August 25, 2023 (A-56)

<sup>55</sup> DR 696

<sup>56</sup> <https://www.psegliny.com/saveenergyandmoney/energystarrebates/smartsavers>

include either large commercial customers or small aggregated customers capable of reducing or displacing power and energy from the grid when dispatched during peak summer days. All customers and aggregators are given access to My Account consumption data to evaluate potential for load reduction.<sup>57</sup>

- The number of participating customers and corresponding MW's (as reported by PSEG LI) from 2018-2022 are shown in **Exhibit XIV-9** and **Exhibit XIV-10** respectively. There are four customers who participate directly providing a combined total of 475 kW of load relief, the remaining are through third-party aggregators.<sup>58</sup>

**Exhibit XIV-9  
Demand Response Participants  
(Number)**

Program	2018	2019	2020	2021	2022
Direct Load Control Smart Saver Program	16,000	22,000	27,000	32,900	38,534
Commercial System Relief Program / Distribution Load Relief Program	123	215	263	302	397
<b>Total</b>	<b>16,123</b>	<b>22,215</b>	<b>27,263</b>	<b>33,202</b>	<b>38,931</b>

Source: DR 574

**Exhibit XIV-10  
Demand Response Participants  
(MW)**

Program	2018	2019	2020	2021	2022
Direct Load Control Smart Saver Program	17.9	26.9	39.6	43.9	50.9
Commercial System Relief Program / Distribution Load Relief Program	17.6	20.1	22.6	23.1	23.6
<b>Total</b>	<b>35.5</b>	<b>47.0</b>	<b>68.5</b>	<b>67.0</b>	<b>74.5</b>

Source: DR 574

**10. With the adoption of AMI, PSEG LI implemented a Distribution Voltage Remediation program to address low voltage locations on the secondary system. Conservation Voltage Reduction was determined to be not feasible at this time.**

- AMI data was utilized to evaluate the feasibility of implementing Conservation Voltage Reduction (CVR) on the LIPA system. The increased penetration of AMI across the system provides additional visibility and insight to the voltages that customers are receiving at their meter pan. This effort identified low voltage locations on the secondary system, which was unknown prior to the implementation of AMI. As a result, PSEG LI has implemented Distribution Voltage Remediation program to address these locations.<sup>59</sup>

<sup>57</sup> DR 697 and <https://www.psegliny.com/businessandcontractorservices/businessandcommercialsavings/csrp>

<sup>58</sup> DR 576

<sup>59</sup> DR 692

- PSEG LI did not recommend implementing CVR at this time since the program requires reducing voltages, which is not feasible on the LIPA system due to existing low voltage conditions.<sup>60</sup>

**11. TOD/TOU rates and related billing and analytical support provide leveraging third-party technology and services.**

- New functionality is not being developed within the legacy CIS system. Through an RFP process, LIPA/PSEG LI selected GridX, Inc to provide expertise and technology for a Rate Platform/TOU solution. GridX contracted scope of services include:<sup>61</sup>
  - Analytic Services (Batch Rate Analysis, Rate Marketing Tool, CSR Rate Analysis Tool, Rate Design Tool, Rate Analysis APIs)
  - Production Billing Service (Customer Billing)
  - Amazon web Infrastructure and Services for Stand Alone PSEG VPC
  - Tariff Modeling
  - Modeling and Validation of New Rate and Revision of Existing Rate that involves Structural Changes (with Production Bills or test cases to Reconcile)

**12. The use of AMI data for load forecasting is in its infancy.**

- AMI data is used as a supplement to the SCADA data to verify/refine the load models on an as need basis. AMI is useful to understand specific customer usage where planning looks at the aggregate. Distribution Planning is using AMI data to verify the demand load for major load additions as applicable.<sup>62</sup> This is also discussed in Chapter VI – Load Forecasting.

**13. Meter Services expenses decreased between 2018-2022, with an increase in 2022.**

- An overview of annual expenditures within the Customer Service Organization is found in **Exhibit XIV-11**.

**Exhibit XIV-11  
Customer Service Expenses (2018-2022)  
(\$)**

<b>Customer Service</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
Customer Contact & Billing	27,927,725	27,438,627	25,366,216	24,265,468	27,137,070
Customer Energy Cloud			4,853,839	3,970,720	-
Revenue Operations	15,712,376	16,662,820	16,864,538	15,594,857	17,327,641
Customer Experience & Marketing	17,058,818	17,948,397	17,572,349	16,546,709	20,215,652
Meter Services	27,688,994	21,548,561	18,478,997	16,866,780	20,178,342
VP Customer Service – Fringe	42,009,636	41,088,975	40,498,356	17,824,621	18,848,280

<sup>60</sup> DR 692

<sup>61</sup> DR 804-Confidential

<sup>62</sup> DR 255

Customer Service	2018	2019	2020	2021	2022
VP Customer Service – Other	-	-	-	-	-
<b>Subtotal O&amp;M Expenses</b>	<b>130,397,549</b>	<b>124,687,381</b>	<b>123,634,295</b>	<b>95,069,155</b>	<b>103,706,985</b>
<b>Capital Expenses [Note 1]</b>	<b>29,299,065</b>	<b>17,709,311</b>	<b>25,225,404</b>	<b>12,689,747</b>	<b>8,548,929</b>
<b>Total</b>	<b>159,696,614</b>	<b>142,396,692</b>	<b>148,859,699</b>	<b>107,758,902</b>	<b>112,255,914</b>

Note 1: Capital Expense categories are not provided in financial reports.  
Source: DR 168 Attachment 1-6.

**14. PSEG LI does not link capital planning or expenditures to a capital investment strategy inhibiting analysis on the impact of AMI within capital planning. For further discussion refer to Chapter IV – Budgeting and Financial Reporting.**

**15. Customers have access to a wide range of resources to understand and evaluate their usage patterns and reduce their overall bill cost. This includes tools and resources available under the Home Energy Management Program (HEM), the Next Generation Insights Program, and a Rate Comparison Calculator.**

- The Home Energy Management Program, launched in 2017, is a comprehensive behavior-based program with strategies that focus on reducing customer energy usage, saving money, and increasing customer satisfaction. The program, which is fully supported by the Energy Infoline, includes three distinct resources to assist customers in understanding and evaluating their usage patterns to help reduce their overall bill cost. The HEM Program consists of Home Energy Reports, “MyEnergy” Online Portal, and the Online Home Energy Analyzer.
- Home Energy Reports – Personalized paper and digital Home Energy Reports are distributed to over 500,000 residential customers several times during each year. Reports include the following content:<sup>63</sup>
  - Group Comparisons – A highlighted group comparison of the previous month’s usage which can motivate customers to reduce their electric usage by comparing their home’s usage to the “average” or “efficient” home in a group of similar homes based on square footage, year built and heating type. In addition, a graph of customers previous 13 months usage compared to the “average” and “efficient” home is also included. The content also includes words of encouragement designed to motivate positive behavior.
  - Disaggregated Forecast – A disaggregated forecast of the upcoming month’s electrical usage, by category (e.g., lighting, cooling, etc.), is provided to raise awareness and to help identify individual customers’ high usage categories. The forecast is designed to motivate customers to take active steps to reduce energy usage in those consumption categories that would make the most impact.
  - Smart Meter Insights AMI Usage Graph – Smart Meter Insights AMI Usage Graph illustrates average weekday hourly usage. The graph compares customers’ average hourly current month usage with their previous month’s usage. This provides customers with insight and feedback into any

<sup>63</sup> DR 697



consumption changes that they may have made in their hourly usage patterns between the months compared. The content also includes a narrative description of any usage change and words of encouragement to motivate positive behavior.

- Tips and Recommendations Graph – Tips and recommendations outline additional steps that customers can take to reduce their electric energy usage (switch to LEDs, run full wash loads, etc.). While tips to mainstream customers may include major appliances such as air source heat pumps, only low or no cost actions are included to an identified segment of low-to-moderate income (LMI) customers.
  - Energy Efficiency and Rebates – Content promotes and highlights PSEG Long Island Energy Efficiency programs and available rebates (REAP, Home Comfort, Marketplace, etc.) to encourage participation and help customers to save energy and money on their electric bills. Paper reports include website addresses and QR scan codes, while digital reports include direct links that customers can access for more information.
- PSEG LI’s “MyEnergy” Online Portal is an online suite of tools that can help customers understand energy usage and conserve. Customers have the ability to track energy efficiency efforts over time compared to similar homes in geographic area.<sup>64</sup> The secure, interactive online portal available to all residential customers through their authenticated “MyAccount”.<sup>65</sup>
- Group Comparison
  - Disaggregated Forecast
  - Tips and Recommendations
  - Home Energy Profile – provides the user with the opportunity to enter information about their home’s building, household and appliances, which would result in a more accurate analysis of their energy use and help to refine suggested tips in both the online portal and Home Energy Report.
  - Interactive Savings Plan – allows customers to set an energy savings goal (5%, 10% or 15%) and select specific actions (turn off icemaker, run dishwasher on full loads only, unplug chargers, etc.) to add to their Savings Plan toward achieving their energy savings goal.
  - Interactive Historical Use Graph – provides customers with a maximum of three years of AMI electric usage data by Year (shown as monthly usage within the user selected year), Month (shown as daily usage within the user selected month) and Day (shown as hourly usage within the user selected day).
- The Online Home Energy Analyzer is a graphical, user-friendly portal where customers input home profile information for a customized energy plan. Customers can discover their energy savings potential and find ways to reduce their electric bill by completing a simple, graphics-driven energy inventory of their home equipment and appliances that takes less than five minutes to finish. Customers

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<sup>64</sup> <https://www.psegliny.com/saveenergyandmoney/tipsandtools/myenergy>

<sup>65</sup> DR 697

receive customized results which include energy and cost savings opportunities in addition to information about available PSEG LI energy efficiency programs and rebates.<sup>66</sup>

- The Next Generation Insights Program provides customers with personal insights into their energy usage via web portal and digital email alerts. The technology uses Artificial Intelligence (AI) with load disaggregation energy usage data to provide customers a cost breakdown of their home usage by appliance group, along with tips, next actions and recommendations.<sup>67</sup>
  - Monthly Summary – An itemized breakdown of monthly energy use and cost by appliance group.
  - Bill Projection – An alert sent mid-way through a billing cycle that provides an end-of-cycle bill projection.
  - Budget Alerts – An opt-out alert that is triggered to be sent out when 75% and 100% of the budgeted amount is met.
  - Next Best Insights (NBI) – An alert based off their disaggregation that informs customers about utility program recommendations, discounts, and rebates of products.
  - High Usage Alerts (HUA) – An alert that is sent to customers, informing them that their usage is higher than their daily average (weekly or weekday).
  - EV Monthly Tracker – subset of EV-specific customers receive a monthly usage summary, showing how much electricity they have used for charging. If the customer is not on TOU they are encouraged to join TOU and take advantage of the overnight discounts. If on TOU, it encourages additional overnight charging and/or acknowledges the good job they’ve been doing taking advantage of overnight discounts.<sup>68</sup>
- A Rate Calculator is available in MyAccount and used to analyze actual customer energy use over the past 365 days and compare bills by rate options available. This feature (“Compare Rates Plans” button and the Rate Comparison table) only appear for customers in MyAccount when they have 365 days of AMI data history.<sup>69</sup>

#### **16. Customers have access to AMI data through the MySmartEnergy Portal, MyBusinessEnergy Portal, and through a mobile app.**

- The MySmartEnergy and MyBusinessEnergy Portals are free tools available to residential and commercial (C&I) customers after logging into MyAccount. The portal allows customers to view, download, and analyze their energy usage.<sup>70</sup>
  - Customer can view 15-minute, hourly, daily, weekly, or monthly energy data. Data can be downloaded in a spreadsheet format.

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<sup>66</sup> DR 697

<sup>67</sup> DR 697

<sup>68</sup> DR 695 Attachment 5

<sup>69</sup> DR 696 and DR 697

<sup>70</sup> DR 98 Attachment 12, DR 695 Attachment 1-3 (Res), Attachment 7-8 (Comm), DR 697

- Customers can analyze when they are using energy and utilize widgets to compare energy use such as daily comparison of usage to last 90-day average and last week average.
  - Energy Saving Tips can also be accessed on the user interface.
  - Customer Service Representatives can also access this portal as a tool to review usage with customers.<sup>71</sup>
- Mobile App Usage – AMI data integrated via an Application Programming Interface (API) leveraged from MySmartEnergy. Customers with portal access can view their energy usage through their mobile app. Data views are limited to Hourly, Daily, and Monthly.<sup>72</sup>
    - Two customized usage alerts were developed in conjunction with PSEG LI/Landys+Gyr/Accelerated Innovations.<sup>73</sup>
      - The first provides a weekly summary of a customer’s usage tailored for their current bill cycle. This allows the customer to stay informed about their usage and more in control of their bill.
      - The second is the usage threshold alert where customers can provide a threshold amount of kWh usage they want to be made aware of and once that amount is used by the customer and realized by the system, a communication will be sent to the customer making them aware.

**17. The accuracy of reported savings from meter services is not substantiated. PSEG LI could not provide the actual list of employees “reduced” and supporting vehicle list information lacks detail to confidently attribute vehicle reductions solely to meter services.**

- PSEG LI most substantial realized savings claim is for reduced labor costs for meter reading and meter services.<sup>74</sup> Labor costs are typically reduced as smart meter technology serves to obtain automatic meter readings, eliminating the need for manual meter reading labor.
- As meter reading labor is reduced, the number of vehicles needed to support meter reading operations is also reduced. Reductions in the number of vehicles dispatched and the number of vehicle miles traveled result in reductions in the amount of fuel consumed for these avoided trips. Lower fuel consumption leads to lower environmental emissions, including reductions in carbon dioxide.<sup>75</sup>
- PSEG LI reported quantifiable O&M savings is displayed in **Exhibit XIV-12**.

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<sup>71</sup> DR 689

<sup>72</sup> DR 689 and DR 694 Attachment 4

<sup>73</sup> DR 689

<sup>74</sup> DR 691 Attachment 1 (Q4 2022 benefits Reporting Cumulative to Date)

<sup>75</sup> [https://www.energy.gov/sites/prod/files/AMI\\_Savings\\_Dec2012Final.pdf](https://www.energy.gov/sites/prod/files/AMI_Savings_Dec2012Final.pdf), Field Operational Benefits, Pg. 8,

**Exhibit XIV-12  
PSEG LI Reported Benefits Savings**

<b>Initiative Name</b>	<b>Benefit Category</b>	<b>Projected 2019-2022</b>	<b>Realized 2019-2022</b>	<b>Realized %</b>
Meter Services - AMI Meter Deployment	Reduced Labor Costs for Meter Reading and Meter Services	\$35,072,082	\$36,636,919	104%
	Reduced Vehicle Costs for Meter Reading and Meter Services	\$3,263,573	\$2,263,915	69%
	<b>Subtotal:</b>	<b>\$38,335,655</b>	<b>\$38,900,834</b>	<b>101%</b>
AMI-Enabled Outage Management (Avoided Cost)	Reduced No Trouble Found (NTF) Truck Rolls	\$7,412,713	4,433,145	60%
	Internal Outage Restoration Cost Savings	\$2,943,308	200,046	7%
	<b>Subtotal:</b>	<b>\$10,356,021</b>	<b>\$4,633,191</b>	<b>44.74%</b>
AMI Billing and Call Center FTE Attrition	#Call Center Rep Core AMI Operational   Removed (FTE's)	0	2	200%
	#Billing Rep Core AMI Operational   Removed (FTE's)	0	2	300%

Source: DR 691 Attachment 1 (Q4 2022 benefits Reporting Cumulative to Date)

- PSEG LI benefit calculations workpapers are overly cumbersome and contain a multitude of count if, indirect, index, and match formulas to summarize line-item benefit categories.<sup>76</sup> This makes navigating cell references and basic verification of intended cell inclusions difficult for a non-technical user. The added complexity seems unnecessarily cumbersome as the cell formula references typically result in summing values found in just a single row of data.<sup>77</sup>
- Except for reduced no trouble found (NTF) truck rolls in 2022, the workpapers do not provide individual transaction detail.<sup>78</sup>
- NorthStar's review of PSEG LI's 2019-2022 O&M Meter Services workpapers for the Meter Reading and Meter Services savings realized line-item amount of \$36,636,919 found:
  - Baseline values establishing the employee list by role, and individual loaded cost is not recorded.
  - Employee reduction counts are recorded as cumulative change year-over-year without an employee count start value and employee ending count value.
  - The actual loaded cost is not provided for any individual.
  - Each role is tied to a static savings amount that increases by a static 3% inflation value year-over-year.

<sup>76</sup> DR 691 Attachments 4-9

<sup>77</sup> DR 691 Attachments 4-9, DR 1267, DR 1371

<sup>78</sup> DR 691 Attachments 4-9, DR 1267, DR 1371

- A list of actual employees that are counted as “reduced” year over year, is not included. The company does not have the granular details of Employee ID, title, department, employee loaded cost, employment start and end dates.<sup>79</sup>
- NorthStar’s review of PSEG LI workpapers for calculating the 2019-2022 Reduced Vehicle Cost savings realized line-item amount of \$2,263,915 found:
  - Baseline values establishing the vehicle list, vehicle general expenses, and fuel costs for each vehicle are not recorded.
  - Each vehicle (general expense and fuel) assumes the same annual cost, an amount of \$16,518.
  - A list of actual vehicles that are counted as “reduced” year over year, did not specifically indicate the vehicles were assigned to the meter services group.<sup>80</sup> In addition, some of the vehicles were replaced.<sup>81</sup>
  - The vehicle list lacked other typically tracked information such as vehicle assignment (employee, department, etc.), and license plate numbers.<sup>82</sup>

**18. The accuracy of reported savings from outage management could not be substantiated between 2019-2021. There is sufficient transaction level support for 2022.**

- NorthStar’s review of PSEG LI’s 2019-22 Reduced NTF Truck Rolls realized line-item amount savings of \$4,433,145. The basis of reduced NTF truck rolls includes mutual aid benefits (not defined), truck roll fuel cost saving, and using AMI pinging to determine meter status.<sup>83</sup> The review was broken up into two timeframes.
- Workpapers prior to 2022 indicate:
  - The benefit calculation does not state the number of reduced NTF truck rolls, or other inputs used to calculate NTF benefits prior to 2022.<sup>84</sup>
  - The 2020 storm Isaias accounts for \$3,581,395 (or 81%) of the total claimed NTF savings.<sup>85</sup>
  - The number of FTE per crew was assumed to be three (3) during Isaias, whereas 2.5 FTE is the current general assumption.<sup>86</sup>
- Workpapers for 2022 reduced NTF truck rolls found:
  - The 2022 total savings amount claimed is \$469,159. With non-storms accounting for \$361,711 (or 77%) and all other storms \$107,448 (or 23%).<sup>87</sup>

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<sup>79</sup> DR 1267, DR 1371

<sup>80</sup> Fact Verification

<sup>81</sup> DR 1371 Attachment 1

<sup>82</sup> DR 1267 Attachment 1, DR 1371 Attachment 1

<sup>83</sup> DR 691 Attachment 1

<sup>84</sup> DR 691 Attachment 7

<sup>85</sup> DR 691 Attachment 6

<sup>86</sup> DR 691 Attachment 4 Global Inputs

<sup>87</sup> DR 691 Attachment 7

- Transaction detail to support the \$469,159 savings was provided and other global inputs are reasonable. Some notable data reporting issues included:
  - Some transactions recorded repair crew comments that field visits were made. These transactions should have been removed.
  - Storm #1 does not have a cost per truck roll associated with it.<sup>88</sup>
  - Data provided for meter pings suggests possible missing ping data as some months do not show any data and few transactions were captured for other months.
- The basis for determining the Internal Outage Restoration Cost is calculated by considering the number of fewer jobs to dispatch, operator time per dispatch, and the pre-determined salary per hour. The input to fewer jobs to dispatch is based on the same AMI ping data as the reduced NTF truck rolls. As previously stated, only 2022 supporting ping data was provided in the workpapers.
- PSEG LI did not project or realize any AMI billing and call center savings prior to 2022 as these were expected to be realized after AMI deployment was complete.<sup>89</sup>
- For 2022, the only billing savings recognized is attrition of two FTEs, without specifying employees or savings amount.<sup>90</sup>

## D. RECOMMENDATIONS

1. Ensure risks associated with system integration projects (Sonic ESB to MuleSoft) overlapping with the system separation program are captured within the appropriate mitigation plan to support the continuation of system separation.
2. Create a centralized library to document Data Lake / Tableau reports specifications and business uses.
3. Determine if any distribution automation, power quality monitoring, streetlighting controls, pre-pay and collaboration opportunities can be considered in the roadmap. PSEG should also note any constraint preventing AMI from being used in these areas and share a summary report with LIPA and DPS.
4. Evaluate functionality of the L+G HES Command Center to determine if it is being utilized to its fullest extent.
5. Create a mechanism to gather information to determine what factors contributed to program engagement as customers enroll in demand response and energy efficiency programs.

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<sup>88</sup> DR 691 Attachment 7

<sup>89</sup> DR 691 Attachment 10

<sup>90</sup> DR-691, DR 691 Attachment 1, 2

6. Determine if reduced truck rolls associated with mapping corrections (eliminating a field visit) can be tracked and included as a future AMI savings category.
7. Include documentation of actual meter reader attrition and meter services vehicles for annual O&M Savings support.
8. Simplify the AMI benefits reporting workbooks for calculating realized savings.
9. Expand AMI benefit workbooks to include AMI benefit tracking for other anticipated AMI benefits such as customer bills savings through TOU rates, revenue protection from theft/tamper, revenue protection from move-in/move-out, and reduced bad debt and write-offs.



## XV. INFORMATION TECHNOLOGY AND CYBER SECURITY

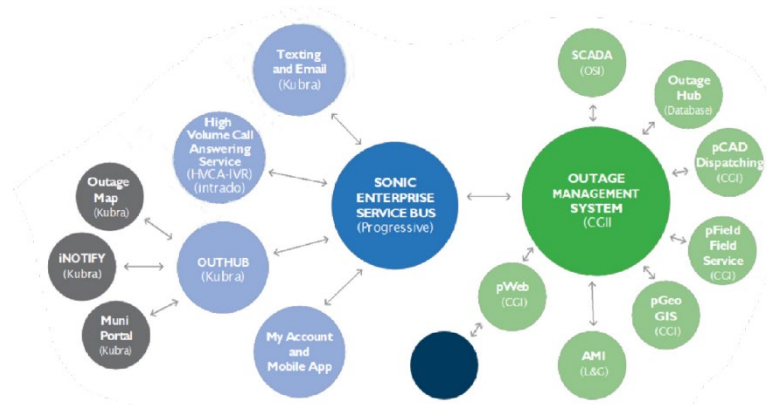
This Chapter provides the result of NorthStar’s review of the PSEG LI’s Outage Management System (OMS), select Information Technology (IT) process, System Separation Program, and system/application disaster recovery plans. NorthStar also reviewed PSEG LI’s cyber security organization and practices.

### A. BACKGROUND

#### OMS

All customer communications related to outage and restoration reporting and status, regardless of the initiating channel, entail transmitting information to and receiving information from the OMS. The OMS is the central repository for inbound outage reports and the processing engine for the service restoration process. The OMS takes in data from customers reporting outages through any of the multi-channel customer communication options and integrates electrical system status information from SCADA devices that monitor the electrical network. The OMS analyzes and integrates the separately produced outage information and predicts the location of the failure. For each predicted failure, it then dispatches a crew Work Package to initiate the necessary repair, and the status and completion of this work is tracked through the OMS.<sup>1</sup> Exhibit XV-1 provides the architecture of PSEG LI’s OMS.

**Exhibit XV-1**  
**Architecture of PSEG LI’s Outage Management System**



Source: September 23, 2020. Tropical Storm Isaias 30-Day Report, for the Long Island Power Authority Board of Trustees, submitted by the Isaias Task Force (<https://www.lipower.org/wp-content/uploads/2020/09/LIPA-Isaias-30-Day-Report-Final.pdf>), DR 213, Fact Verification.

<sup>1</sup> September 23, 2020. Tropical Storm Isaias 30-Day Report, for the Long Island Power Authority Board of Trustees, submitted by the Isaias Task Force (<https://www.lipower.org/wp-content/uploads/2020/09/LIPA-Isaias-30-Day-Report-Final.pdf>), DR 213

The OMS also uses all its available information to calculate the estimated time of restoration (ETR) for each customer outage and updates these ETRs when new information from the dispatched repair crews becomes available. The OMS makes these ETRs available to all customer communications channels, including the outage map, text updates, and live agent calls.

PSEG LI states that its communication strategy is connected to the information provided to customers during an outage based on current weather conditions and severity of the storm. When the electric operations group is evaluating damage and preparing to provide estimated times of restoration, all communications are both proactive and in response to customers with “Assessing Conditions”. Press releases, marketing and banners on the website as well as the outage map explain that Assessing Conditions is when workers in the field are trying to determine the extent of damage to determine what is needed to get power back on in order to provide the most accurate estimate of restoration. When the estimated time of restoration (ETR) is determined for areas or circuits, it is entered into OMS which automatically sends out proactive notifications to customers’ preferred channels, such as SMS text, email, phone calls and push notifications with the PSEG LI mobile application. The mobile application, outage tracker, outage map, My Account, and status via text all provide the same specific ETR for the customer requesting the information.<sup>2</sup>

While PSEG LI communicates with its customers through a wide variety of methods including phone, website, text, mobile devices, email and social media, the goal is for these different channels to work together to allow a customer to be served in the manner they prefer. During Isaias, however, customers encountered difficulties communicating through almost all of the channels.

## System Separation

In the Second A&R OSA, LIPA and PSEG LI agreed to separate the IT systems used by Long Island from those of PSEG Corporate and its affiliates. A joint, cross-functional team (IT Team) was developed in April 2022 to develop the separation plan. As described jointly by LIPA and PSEG LI, the IT Team considered the cost of IT separation, ongoing maintenance, the impact on Operations Services, the customer impact, and minimizing the impact on PSEG LI’s ability to meet its obligations under the OSA. To minimize costs and disruptions, the systems were categorized in bundles, separation was planned to coincide with planned upgrades or replacements (where possible), and the system “carve out” and “lift-and-shift” method was selected for the Enterprise Resource Planning (ERP) system separation.<sup>3</sup> Under this approach, original system design and configuration remains intact, the Long Island data is sliced out of the system, and separate infrastructure and separate instances of the original system are developed. At the time, the IT team identified approximately 44 comingled IT systems (including cyber security systems) to be separated by the end of 2024.<sup>4</sup> Approximately 300 of the existing systems in PSEG LI are already operating on a stand-alone

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<sup>2</sup> DR 1464.

<sup>3</sup> DR 1518.

<sup>4</sup> DR 1211 Attachment 1.

basis or have been partially separated.<sup>5</sup> **Exhibit XV-2** provides a list of key systems that already operate on a stand-alone basis, and those requiring separation. The Plan at the time suggested the systems would be separated in three bundles. Costs are budgeted at \$33.5 million (inclusive of \$10.0 million of contingency).<sup>6</sup>

**Exhibit XV-2**  
**System Separation Requirements**

Key Stand-Alone Systems	Systems Requiring Separation [Note 1]
<ul style="list-style-type: none"> <li>1) Outage Management System (CGI OMS/PCAD v 6.7)</li> <li>2) Distribution SCADA (OSII)</li> <li>3) EMS (GE)</li> <li>4) Customer Accounting System (CAS)</li> <li>5) Enterprise Rate Platform (GridX)</li> <li>6) PSEG Long Island customer contact center and voice/telephone service (Cisco)</li> <li>7) Identity and Access Management for LIPA electric customers (Okta)</li> <li>8) PSEG Long Island Advanced Meter Infrastructure (AMI) system (Landys and Gyr)</li> <li>9) PSEG Long Island SCADA (PI) historians (OSII)</li> <li>10) Data Analysis systems (SAS)</li> <li>11) LAN, server farms, and PSEG-LI SharePoint (Microsoft, Intel, Linux)</li> <li>12) PSEG Long Island core network infrastructure (Cisco)</li> </ul>	<p>Bundle 1: ERP and Ancillary Systems</p> <ul style="list-style-type: none"> <li>16) SAP-ECC Finance Corporate ERP – GL, AR, AP, CO, PO, WM, etc. (core accounting system)</li> <li>8) Success Factors - HR/Payroll SaaS based Recruitment, Performance, Learning, Onboarding, Compensation, Succession Planning platform</li> <li>34) SAP Ariba - Procurement and supply chain management application</li> <li>14) SAP-Concur - Travel and Expense Management System</li> <li>1) Catalyst (Accounts Payable) - Catalyst system is used to process non-Ariba POs and Non PO invoices</li> <li>2) PowerPlan - Finance Fixed assets system.</li> <li>44) OrgChartsPlus - HR Tool for Managing Organization Charts</li> <li>22) Microsoft Identity Manager (MIM) -IT Microsoft Identity Manager - Syncs AD with SAP for users in Enterprise and LI</li> </ul> <p>Bundle 2: Email and Communications Infrastructure</p> <ul style="list-style-type: none"> <li>17) Microsoft Exchange - Email and collaboration services</li> <li>19) Active Directory (IT) - Separated, there is a trust between the two forests.</li> <li>30) Cyberark - Cyber CyberArk Privileged Account Management, Password Vault Web Access, Privileged Session manager, Central Policy Manager</li> <li>37) Neustar ULtraDNS ULtraDDos - Cyber DNS and DDOS Protection</li> <li>39) ProofPoint - Cyber Email Protection; Email Security - SPAM detection</li> <li>40) Area-1 Security - Cyber Email protection</li> <li>32) Digicert - Cyber Certificates</li> <li>33) Okta - IT Authentication and Identity (for SSO)</li> <li>23) Airwatch - IT Application for mobile phones (LI owns their own licenses)</li> <li>45) Venafi - Cyber Cryptographic management</li> </ul> <p>Bundle 3: Hosted (Cloud Systems)</p> <ul style="list-style-type: none"> <li>18) ServiceNow - IT Service Management (e.g., Help Desk, etc.)</li> <li>36) Barista - IT Front-end to ServiceNow for ticket creation and status</li> <li>3) Legal Tracker - Legal matter management and billing system (for outside counsel)</li> <li>4) Cybergrant - Used for managing charitable donations by PSEG-LI and PSEG-LI employees</li> </ul>

<sup>5</sup> DR 500 Supplement 1.

<sup>6</sup> DR 213 Supplement 241.

Key Stand-Alone Systems	Systems Requiring Separation [Note 1]
	5) Caseworks - Legal Case management system used for regulatory filings 20) SiteCore - Online Self-Service - Customer self-service portals (PSEG Long Island has its own instance; Azure SQL Servers are shared) 46) Burp Suite - Cyber Application Security Code Scanner 35) Carbon Black - Cyber VMARE Application Control 41) CRISP – Cyber security Risk Information Sharing Program 42) Encase - Cyber Forensics and Discovery 38) FireEye Helix – Cyber security defense and analysis services 43) Lookout - Cyber Mobile Device Management 31) RSA appliances - IT Authentication tool 7) iManage - SaaS based Document Management solution used by Legal Dept in NJ and LI 9) The Link - SaaS based Communication Platform used to communicate Company information 10) Guidance Link (Corp Secretary) - FileNet based Repository for all Corporate Practices 11) Relativity One - Legal E-Discovery Solution 12) SIMS - T&D Safety Information Management System 13) Hitachi Password Manager - Hitachi Password Reset Manager - Support of call reduction, automation and Self-Service 15) Lotus Notes - HR Labor Relations Reporting Application (custom) 26) LoadRunner - IT Performance Testing Tool 6) Roxi - Custom Claims Management System 24) Project Tracking System - IT PMO McLaren document repository running on FileNet Platform 21) MobiChord (Tango, also a NJ solution) - IT Cloud based solution and service for Telecom Bill Payments (TEM) Telephony Expense Management System 29) AWS related DevOps - IT Management of the AWS infrastructure (Ops) environment - re-license server deployments 28) Zoom - IT Application is used for conducting video and audio meetings/webinars 27) Atlassian Confluence - IT Knowledge Management  Not Specified 25) Sharepoint - IT Shared documents in PSEG-CORP repository6

Source: IT System Separation Plan (DR 213 d).

Note 1: Numbers represent the numbering scheme used in Appendix 1 to the IT System Separation Plan.

PSEG LI and LIPA agreed that for IT, Operational Technology or Cyber Security (Cyber) system to be classified as an “intermingled system” it must satisfy at least one of the following criteria:

- The system is deployed on hardware and/or infrastructure owned, operated, or controlled by PSEG.
- The system software is licensed by PSEG and not by PSEG LI (acting as an agent of LIPA).
- The system is supported and maintained under a vendor contract with PSEG and not by PSEG LI (acting as an agent of LIPA).

- The services provided by the system are provisioned under a vendor contract with PSEG and not with PSEG LI (acting as an agent of LIPA).
- The administrative control of the system is performed by employees or agents of PSEG and not by employees or agents of PSEG LI.<sup>7</sup>

The IT Separation Plan was submitted to DPS with 46 systems (an increase of two systems from the original findings) identified for separation for its review and recommendation to the LIPA Board on July 29, 2022. Based on DPS’ review, Bundle 3 was split into two bundles with the cloud-based systems remaining in Bundle 3 and the SAP-based systems moving into Bundle 4.<sup>8</sup> DPS Staff also recommended that LIPA and PSEG LI identify each of the 46 systems that are due for near-term upgrades and/or replacements and identify potential efficiencies or cost savings in the individual projects plans to simultaneously upgrade and separate these systems. While the primary goal of the Updated IT Plan is to derive benefits from system separation, the risk of incurring additional cost by layering on upgrades to systems should not pass on unjust costs to customers. If LIPA and PSEG LI can derive additional efficiencies by upgrading systems while also separating those systems, then those efficiencies should be identified, tracked, and reconciled in each project plan. DPS Staff recommended that LIPA and PSEG LI report on their ability to actualize such savings as each project is completed.<sup>9</sup>

DPS further recommended a Risk & Mitigation Plan be added for each system, that LIPA and PSEG LI file quarterly updates with the DPS, and that LIPA and PSEG LI determine the degree of change system(s) users and impacted stakeholders will encounter in the systems interface, operations, and functionality.<sup>10</sup>

For 2022, \$250,000 of incentive compensation tied to the following three deliverables was at risk (Metric IT-7):

- Development of a PSEG LI System Segregation Plan complying with the requirements of Section 4.2(A)(1)(q) for separation of all Long Island systems within the time specified by the contract, to be completed with the objective of segregating all Long Island systems by the end of 2023.
- The PSEG LI System Segregation Plan is submitted for LIPA approval, which shall not be unreasonably withheld, within 120 days of signing the contract.
- All planned work for 2022 in the LIPA-approved PSEG LI System Segregation Plan is completed in 2022.

For 2023, PSEG LI has \$600,000 of incentive compensation at risk associated with system separation (Metric IT-7).<sup>11</sup> “All planned scope and work for 2023 in the LIPA Board-approved IT System Separation Plan (“the Plan”), and in any approved detailed plans, roadmaps and strategies subsequently developed by the joint LIPA and PSEG LI IT Team pursuant to the

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<sup>7</sup> DR 500 Supplement 1.

<sup>8</sup> IR 81.

<sup>9</sup> September 27, 2022, Letter from Rory M, Christian, DPS Chief Executive Officer to Honorable Mark Fischl, LIPA BOT Vice Chairman (DR 213 part (d))

<sup>10</sup> DR 213 (part d)

<sup>11</sup> “Making a Difference for Our Customers”, LIPA 2023 Annual Budget.

Plan, will be completed in 2023 in accordance with the Plan and the above-mentioned associated planning materials. Metric deliverables will be updated in Smartsheet upon the approval of the System Separation Plan and associated planning materials.”<sup>12</sup>

## Cyber Security

Cyber security continues to be a significant risk area and challenge for utilities. Cyber security concerns include privacy violations, data breaches, ransomware, denial of service, and critical infrastructure attacks. The security risks facing utilities have never been higher, and the risks require robust security programs for the benefit of the utility and its customers. Over recent years, the industry has seen successful critical infrastructure attacks in the gas (Colonial Pipeline) and electric (Duke Energy) sectors in the United States; ransomware incidents increasing in 2021 with some of the highest average ransom payments were in the energy and utilities sector at \$2.03 million; NERC CIP compliance fine maximums at approximately \$1.3 million per incident per day with companies receiving multi-million-dollar fines in recent years; and the federal government warning that critical infrastructure was hacked by China as part of global geopolitical tensions.<sup>13</sup>

In the past, PSEG LI has relied upon PSEG NJ to provide cyber security services to protect its IT/OT/Network and other elements of its digital infrastructure. As part of the Second A&R OSA, PSEG LI was required to develop cyber security program functions and services. The Second A&R OSA further describes cyber security requirements for PSEG LI including:

- Implementing, updating, and maintaining cyber security measures with respect to the digital environment.
- Maintaining plans, procedures, and practices which comply with the OSA, cyber security framework to detect potential and actual cyber security incidents.
- Maintaining plans, procedures, and practices which comply with the OSA, cyber security framework to respond and recover efficiently and effectively to cyber security incidents.
- Regularly reviewing, exercising, and enforcing cyber security measures that were implemented, updated, and maintained with respect to the IT/OT/Network and other elements of the digital infrastructure to ensure compliance with the OSA. PSEG LI must also verify the application of the cyber security measures and keep and maintain records that are timely provided to LIPA.
- Comply with all requirements of Applicable Law regarding data security including written notification of cyber security incidents.
- Systems directly operated by PSEG LI or its Affiliates that have LIPA data may be evaluated by an independent cyber security firm hired by LIPA...

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<sup>12</sup> LIPA PSEG LI 2023 Performance Metrics (<https://www.lipower.org/wp-content/uploads/2022/11/PSEGLI-2023-Performance-Metrics.pdf>).

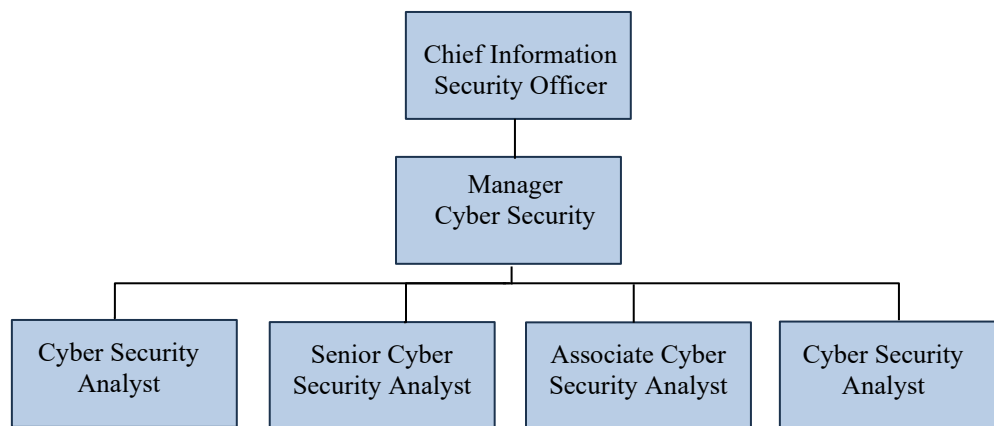
<sup>13</sup> As of 2020, the maximum civil monetary sanction set forth in 18 CFR § 385.1602(d) is \$1,291,894 per violation, per day. NERC Sanction Guidelines App 4B noted in fact verification. Also, see <https://www.cybersecuritydive.com/news/ransomware-attacks-payouts-2021/622784/>; <https://spectrumlocalnews.com/nc/charlotte/news/2023/01/17/another-substation-shot-up-in-n-c---power-company-says>, <https://securityscorecard.com/blog/what-you-need-to-know-about-nerc-cip-compliance/>, <https://www.wired.com/story/china-volt-typhoon-hack-us-critical-infrastructure/>. Accessed November 8, 2023.



- The IT/OT/Network environments operated by others besides PSEG LI or its affiliates, PSEG LI is to exercise commercially reasonable efforts to perform due diligence of others and their practices to ensure their systems are maintained and protected in accordance with standards no less than the OSA.
- Provide prompt technical and logistical support, information, data, reports, and records related to IT/OT/Network and other elements of the digital infrastructure.<sup>14</sup>

PSEG LI is in the process of developing its own cyber security function. Currently, the PSEG LI Cyber Security team includes six resources with a forecast to add five more resources in 2023 as shown in **Exhibit XV-3**.<sup>15</sup>

**Exhibit XV-3**  
**PSEG LI Cyber Security Organization Chart**



Source: DR 3.

The alignment of PSEG LI with the National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF) and other cyber security best practices began in 2020.<sup>16</sup> NIST is a part of the U.S. Department of Commerce. The NIST mission is to promote US innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve quality of life.<sup>17</sup> The NIST CSF is a voluntary set of standards, guidelines and best practices to manage cyber security risk. NIST CSF is summarized in **Exhibit XV-4**.

<sup>14</sup> Second A&R OSA, Appendix 4.3(C).

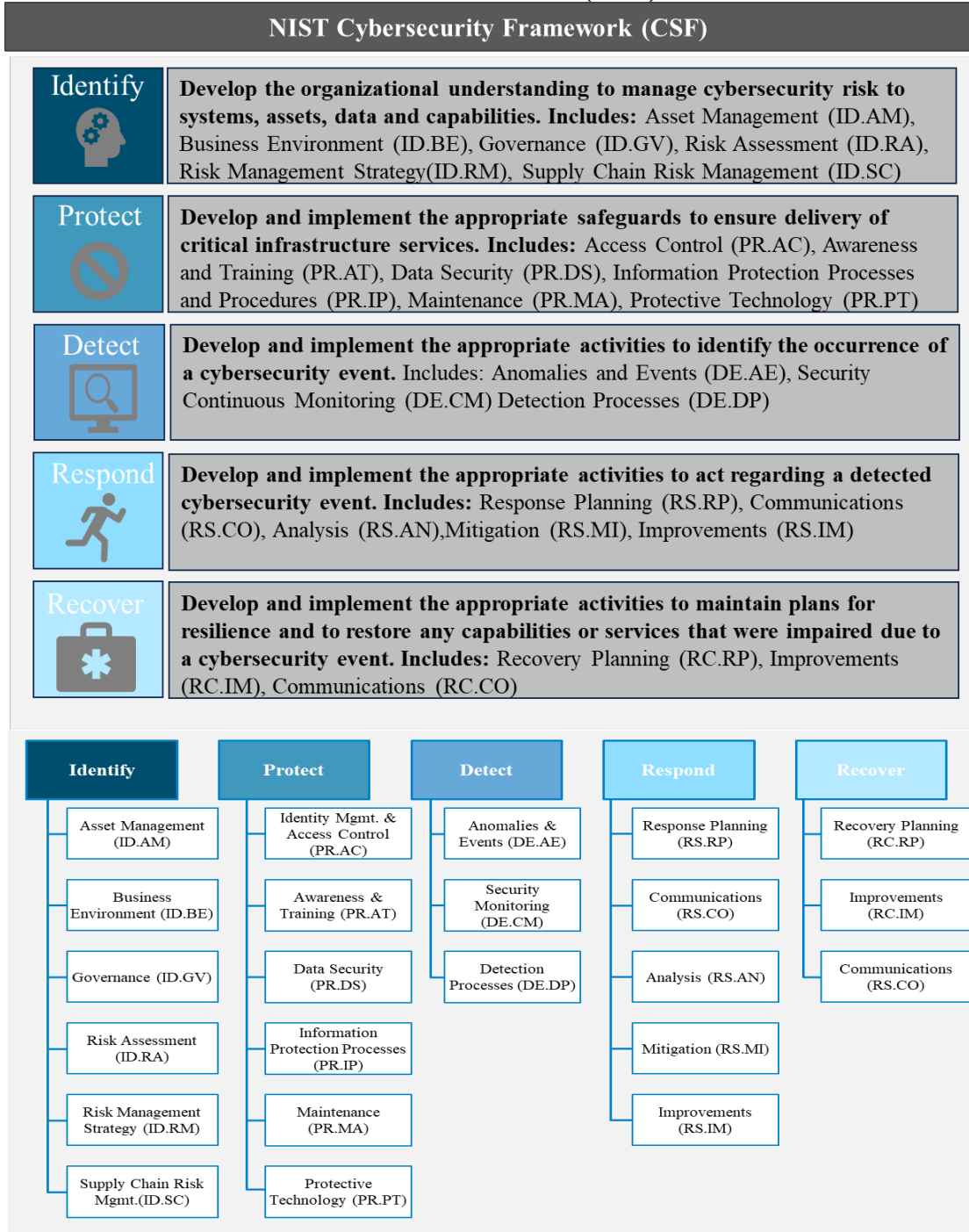
<sup>15</sup> DRs 922 Attachment 1 and 1194.

<sup>16</sup> DR 902 Attachment 12.

<sup>17</sup> [www.nist.gov](http://www.nist.gov)



**Exhibit XV-4  
NIST CSF Standards (v.1.1)**







Source: <https://www.nist.gov/cyberframework/framework>

According to the Second A&R OSA, PSEG LI is to achieve and maintain a Tier 3 maturity level for the NIST CSF in all functions, categories/subcategories.<sup>18</sup> NIST CSF Tier maturity ratings range from Partial (Tier 1) to Adaptive (Tier 4) as shown in **Exhibit XV-5**. The Tiers

<sup>18</sup> Second A&R OSA, Appendix 4.3 (C).

describe an increasing degree of rigor, how well integrated cyber security risk decisions are into broader risk decisions, and the degree to which the organization shares and receives cyber security information from external parties.<sup>19</sup>

### Exhibit XV-5 NIST CSF Tier Maturity Ratings

NIST CSF Maturity Rating	
	<b>1</b> <u>Partial Tier</u> Processes are performed and managed but are not consistent throughout the company.
	<b>2</b> <u>Risk-Informed</u> Processes are managed and performed in a consistent manner throughout the company.
	<b>3</b> <u>Repeatable</u> Processes are consistently managed and quantitatively measured for performance consistency.
	<b>4</b> <u>Adaptive</u> Process improvement is routinely incorporated to make the process more effective as a standard operating procedure.

Source: <https://www.nist.gov/cyberframework/online-learning/cyber-security-framework-components#tiers>

Both PSEG LI and LIPA have systems containing personally identifiable information (PII). Both organizations have inventories of systems/applications that use PII. In August 2013 the NYSPSC issued an Order in Case 13-M-0178 that accepted nine PSC Staff recommendations addressing the protection of customer PII.

- Planning for a possible network breach and compromise of personally identifiable customer information should include specific post-incidents response and recovery drills.
- Improve inventory control of customer information.
- Upgrade physical security measures for the protection of critical cyber equipment and to limit unauthorized physical access to that equipment.
- Improve segregation of personally identifiable customer information from less sensitive business data.
- Upgrade technical security controls by procuring and deploying next-generation intrusion detection systems and security information event management solutions.
- Conduct regular third-party vulnerability assessments of the protection of sensitive customer information.
- Conduct frequent customer privacy related security training for both employees and contractors.
- Establishment of a contractual relationship with a third-party forensics expert.

<sup>19</sup> <https://www.nist.gov/cyberframework/online-learning/cyber-security-framework-components>

- Establishment of a contractual relationship with a credit monitoring service.

The PSC Staff recommendations identified several areas where companies could both improve their practices and procedures or upgrade their technical networks. The Order recognized that a compromise of customer data resulting from a cyber-intrusion remains a possibility in spite of robust defenses and the companies need to prepare for such contingency.

PSEG LI is responsible for LIPA's compliance with NERC CIP. PSEG LI has policies and procedures to guide compliance with NERC CIP requirements and has been audited by the Northeast Power Coordinating Council (NPCC) in 2018 and 2021.<sup>20</sup> PSEG LI's uses a decentralized approach to delegating NERC CIP compliance responsibilities. Overall responsibilities are documented in a NERC CIP RACI chart listing six business units, 11 departments, and a number of SMEs and other personnel.<sup>21</sup> This decentralized approach requires significant governance, coordination and communication, and strong adherence to procedures for evidence collection for NERC CIP audits and other activities to demonstrate compliance. Review of Bulk Electric System (BES) Cyber System Information (BCSI) documentation requires background checks and certifications. Without proper credentials, the review of sensitive NERC CIP documents requires the presence of an authorized PSEG LI employee.<sup>22</sup>

## **B. WORK TASKS**

- Review the performance of the current Outage Management System (OMS), as reflected in the full-scale simulation performed as required by the Business Continuity Plan.
- Review the integration points between the OMS and the rest of PSEG LI's core systems.
- Review the integration of the OMS with PSEG LI's outage communication strategy and connections with the information provided to/accessed by customers during an outage.
- Assess the quality assurance process used by PSEG LI to ensure data is accurately captured in OMS.
- Assess the process, including the development of testing scenarios for routine monitoring and stress testing OMS and related systems, used to ensure the systems are functional and capable of operating appropriately when 90 percent of customers are without power.
- Assess the process, including the development of testing scenarios, for routine monitoring and stress testing of the Communication systems to ensure the systems are functional and capable of operating appropriately when 90 percent of customers are without power.

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<sup>20</sup> DR 385.

<sup>21</sup> DR 384 Attachment 1.

<sup>22</sup> Most of the data responses associated with Information Systems and Cyber Security work tasks were designated as containing CEII and BCSII and made available to NorthStar in limited capacity through onsite viewing only. In addition, the results of system testing made available for on-site review were related to testing done prior to Q2 2022. Therefore, LIPA's IV&V work is the most current.

- Examine PSEG LI's process to test and troubleshoot the OMS and associated systems prior to placing them in a production environment, including when a current application vendor batch has been recommended for system update.
- Examine PSEG LI's process to test and troubleshoot the OMS and associated systems after placing them in a production environment.
- Examine PSEG LI's process to test and troubleshoot the Communication systems prior to placing them in a production environment.
- Examine PSEG LI's process to test and troubleshoot the Communication systems after placing them in a production environment.
- Assess the IT trouble ticket reporting, triage and escalation processes and whether items are elevated properly.
- Assess the ability to obtain OMS and CAD vendor support, including pre-arranged contracts.
- Review PSEG LI's capability to operate the OMS and CAD systems in "manual" mode if one or more systems fail. The review should consider storm response and normal operating conditions, following the deliverables of 2022 Metric IT-7 System Segregation prior to the 2023 actual separation.
- Examine the auditing processes of outage data and identify lessons learned and/or other areas of outage management improvement as a result of the audit process.
- Assess any corrective action plans regarding OMS issues, the status of the corrective action plans being implemented, and all documentation related to the implementation of those corrective action plans.
- Assess how the corrective action plans and information provided above has changed or been updated to improve data collected from OMS.
- Evaluate whether the Authority and PSEG LI's main information systems (included in the system separation plan) are sufficiently robust to provide new functionalities in light of actual experiences, changing conditions, and new priorities.
- Assess the development and implementation of PSEG LI's System Separation Plan, including cost, and the impact on Operations Services and customers.
- Evaluate PSEG LI's project management standards, quality management standards, and processes for the development, operation and improved efficiency of its IT systems under the System Separation Plan.
- Evaluate the adequacy of PSEG LI's disaster recovery plan for the IT system and any potential gaps.
- Review results associated with latest cyber security assessment as noted in RFP issued by LIPA in September 2021.
- Review NIST cyber security framework assessment results as noted in RFP issued by LIPA in January 2022.
- Validate if the policies, procedures, and controls for critical business Information Technology & Operational Technology systems comply with NERC, NIST and other relevant industry standards.
- Identify any areas that exceed NERC, NIST and other relevant industry standards.
- Verify that the standards outlined in the Public Service Commission's Order issued August 2013, in Case 13-M-0178 are being met.

- Review any deficiencies that do not meet the standards outlined in Commission Order 13-M-0178 and whether concerns were remediated within an acceptable timeframe. If not, identify the failures in the processes that led to delays.
- Validate the procedures for preventing, detecting, reporting (both internally and externally), and resolving data breaches that may involve customer data, or affect the operation of the system from a reliability and public safety perspective while meeting NERC, NIST and other relevant industry standards.
- Assess the cyber security framework for DER interconnection and AMI meter data.
- Review how LIPA and PSEG LI responded to the recent SolarWinds vulnerability, and the steps taken to remediate the issue.
- Review examples of the proper implementation of their policies, procedures and controls for meeting NERC, NIST and other relevant industry standards.
- Assess the process for conducting third party and internal cyber audits.
- Validate that third party and internal audits are performed at least every 18 months and that any gaps discovered have been remediated.
- Review PSEG LI and LIPA’s internal network security monitoring requirements.

## C. FINDINGS AND CONCLUSIONS

### 1. **Although the OMS performed favorable during the December 2022, 24-hour 90 percent customer out performance test, the goal of determining system and application limitations was not achieved as the design of the test limited peak event input to 350k and the duration of peak event input was <1 hour.**

- Smart meter integration into OMS was deployed in June 2022. Performance (stress) testing on OMS-AMI integration was completed in September 2022.<sup>23</sup> The 24-Hour 90 percent Customer Out Performance testing of the updated version of the OMS was performed between 12/12/2022 and 12/13/2022. The performance test excluded AMI integration.<sup>24</sup>
- The stated purpose of the test was to determine the system and applications limitations by simulating multi-channel transactions directly into the ESB to view the system’s ability to receive and respond to extraordinarily high customer call volumes. This was to provide insights into response times and system throughput.<sup>25</sup>
- Multi-channel transaction comprised of simulated events such as HVCA, MyAccount (Web), Text, and Call Center Reps (CSRs PWEB), and SCADA alarm events were simulated and loaded through scripts throughout the 24-hour period.<sup>26</sup>
- NorthStar’s observation of testing found:<sup>27</sup>

<sup>23</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

<sup>24</sup> Fact Verification

<sup>25</sup> DR 515 Onsite Review

<sup>26</sup> DR 515 Onsite Review

<sup>27</sup> DR 515 Onsite Review

- The test design and/or documentation did not account for activity from upstream systems such as AMI, CAS, and GIS.
  - The test design did not evaluate the ability to create service jobs.
  - Events were loaded in 1-hour blocks throughout the 24-hour test period with the maximum event input of ~350,000 events between hour 12-13.
  - Test metrics criteria outcomes all “Passed” with most indicating “No Issues Observed”.
- The goal of the test was to determine system and applications limitations, but the design of the test did not “stress” the systems to determine limits. The volume of transaction loads for each hour was pre-planned with a ramp up in the first 12 hours and a ramp down of event loads in the last 12 hours. However, there was no specific requirement set for how to achieve the 90% customer outage performance test.<sup>28</sup>

**2. LIPA’s Independent Validation and Verification (IV&V) efforts related to PSEG LI OMS testing found deficiencies in multiple areas and proposed several recommendations.**

- Following the redeployment of an updated version of its Outage Management System (OMS) on February 6, 2022, LIPA initiated an Independent Validation and Verification (IV&V) of the OMS and associated systems, sub-systems and internal processes, with the overall objective of reducing risk to LIPA and its customers.<sup>29</sup>
- The primary goal for this IV&V effort was to independently evaluate the functional and performance tests developed by PSEG LI, and to confirm their successful execution. A secondary goal was to evaluate PSEG LI’s internal business processes, including but not limited to those related to testing, quality assurance, project management, and vendor management; and verify whether they are aligned with industry standard practices. The LIPA IV&V Team, consisted of LIPA internal staff and consultants.<sup>30</sup>
- LIPA’s IV&V team scope for OMS validation and verification included:<sup>31</sup>
  - Review of OMS design specifications, configurations, and interface implementations.
  - Review of the design of PSEG LI’s functional tests to ensure the tests are adequate to evaluate whether the updated version of the OMS complies with functional requirements.

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<sup>28</sup> Fact Verification

<sup>29</sup> <https://www.lipower.org/wp-content/uploads/2023/05/8.-Isaias-Task-Force-Outage-Management-System-Independent-Verification-and-Validation-Testing-Update.pdf>

<sup>30</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

<sup>31</sup> [Note: NorthStar did not audit LIPA to verify that the IV&V team executed scope indicated.](#)

- Running a sample of PSEG LI’s functional tests to independently repeat and verify test results. Based on those sample results, running all of PSEG LI's functional tests until all tests were successful.
  - Independent ad-hoc testing, including Positive Testing, Negative Testing, Boundary Value Testing, and End-to-End Testing.
  - Review of custom code written by PSEG LI and its consultants, including the implementation of the asynchronous queueing mechanism (async queue) for the Enterprise Service Bus (ESB), and the duplicate outage detection logic.
  - Monitoring and analysis of PSEG LI’s performance tests.
  - Review of PSEG LI’s Performance Testing Storm Scenario and Data Model.
  - Revise PSEG LI’s Performance Testing Data Model to better capture expected storm scenarios.
  - Independently run a Performance Test using the revised model.<sup>32</sup>
- OMS IV&V Functional Testing – LIPA IV&V Team ran 645 tests and 527 eventually passed. The 107 tests that failed were deemed obsolete. Eleven tests remain pending because the current test environment is not set up to execute these scripts.<sup>33</sup> As of May 2023, 8 out of the 11 failed-to-run tests are awaiting re-enablement of the test phone number for making interactive voice response system calls. The remaining 3 are with the OMS Vendor.<sup>34</sup>
  - OMS Performance Testing – LIPA and PSEG LI conducted several performance tests throughout 2023, with mixed results as shown in **Exhibit XV-6**. The OMS Vendor has been unable to find the root cause of the failure of January 12, 2023. The IV&V test conducted on April 27<sup>th</sup> attempted to reproduce the failures but did not.

**Exhibit XV-6**  
**2023 Final Testing Outcomes**

Date	Test	Outcome
1/12/2023	LIPA executed a dry-run performance test simulating Isaias conditions.	OMS call processing module failed and could not be recovered => Overall test failed.
1/18/2023	LIPA re-executed its dry-run performance test simulating Isaias conditions.	Test passed without major hiccups.
4/26/2023	IV&V 5-Hour Performance Smoke Test	Test passed
4/27/2023	IV&V 5-Hour Performance Smoke Test	Test passed
6/14/2023	90% Customer Out DPS Formal Performance Test	OMS call processing module failed again but was able to be re-started by rebooting services.

<sup>32</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

<sup>33</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

<sup>34</sup> <https://www.lipower.org/wp-content/uploads/2023/05/8.-Isaias-Task-Force-Outage-Management-System-Independent-Verification-and-Validation-Testing-Update.pdf>



Source: <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

- A summary of LIPA’s general findings of performance testing include:<sup>35</sup>
  - Planning was deficient.
  - PSEG LI does not have sufficient internal technical resources.
  - Vendor management was deficient.
  - Cost Control and Management was poor.
  - Test planning was deficient.
  - Test script development and management was deficient.
  - Test execution was deficient.
  - Requirements management processes are inadequate.
  - Configuration and release management processes are inadequate.
  - System and process documentation practices are poor.
  - The root cause of the failures during OMS performance testing was not concretely identified but the risk of occurrence was mitigated.
  - Some performance tests have exhibited sporadic, non-reproducible and potentially critical issues.
  
- The IV&V review noted that PSEG LI had great difficulty in managing the remediation processes for the OMS and customer communications systems. The unfortunate outcome of this deficiency is the length of time (> 2 years) and the amount of expenditure (\$47 million) that remediation has consumed.<sup>36</sup>
  
- LIPA IV&V crafted fourteen (14) recommendations as part of the IV&V Final Report (Phase 1 and 2). The recommendations are shown in **Exhibit XV-7**.

**Exhibit XV-7  
IV&V Final Report Recommendations**

Rec. Num.	Recommendation	General Classification
1	PSEG LI should develop clear and documented policies on IT systems governance. The application and enforcement of these policies must be the responsibility of PSEG Long Island staff, not consultants.	Governance
2	Business ownership of the systems should be guard-railed by clear and well-enforced policies	Governance
3	PSEG LI should develop a comprehensive training program for its technical and line of business staff in the following areas: <ul style="list-style-type: none"> <li>• Technology project management</li> <li>• Vendor management</li> <li>• Requirements of engineering and management</li> <li>• Configuration Management</li> <li>• System documentation best practices</li> </ul>	Training

<sup>35</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

<sup>36</sup> <https://www.lipower.org/wp-content/uploads/2023/05/8.-Isaias-Task-Force-Outage-Management-System-Independent-Verification-and-Validation-Testing-Update.pdf>, Fact Verification

Rec. Num.	Recommendation	General Classification
	<ul style="list-style-type: none"> <li>Test management (including test design, scripting, automation, metrics and test environment management)</li> </ul>	
4	PSEG Long Island should prioritize proactive employee recruitment strategies and reduce dependence on consultants by hiring more permanent staff.	Staffing and Employee Retention
5	PSEG Long Island should be more proactive in employee retention Vendor Management.	Staffing and Employee Retention
6	PSEG Long Island should develop an enterprise-wide vendor management policy to establish clear performance expectations and accountability long term planning.	Vendor Management
7	PSEG Long Island should develop a long-term plan around the future of the current OMS system.	Long term planning
8	PSEG Long Island should use formal tracking of problems (in one place) using ITIL practices.	Process Improvements
9	PSEG Long Island should automate functional testing. PSEG Long Island should embark on a test automation initiative that, initially, aims to automate a large portion of the regression testing scripts.	Process Improvements
10	PSEG Long Island should develop focused project management processes.	Process Improvements
11	PSEG Long Island should expand on the current Business Continuity Plans to make sure that they are consistent with industry best practices.	Business Continuity Plans
12	PSEG Long Island should review all their existing functional test scripts and re-test each script until all the tests pass on a “repeatable” basis.	IT Quality Control and Assurance
13	PSEG Long Island should focus on improving test management practices, which will involve staff training and appropriate use of Software Development Life Cycle (SDLC) and test management tools.	IT Quality Control and Assurance
14	PSEG Long Island should ensure that system, integration, and user acceptance testing follows a defined cadence and is organized accordingly.	IT Quality Control and Assurance

Source: <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

- NorthStar concurs with the findings and recommendations presented by the IV&V team.

### 3. As of June 2023, PSEG LI has largely implemented the OMS remediations pursuant to the Task Force Recommendations.

- PSEG LI has largely implemented the OMS remediations pursuant to the Task Force Recommendations in the updated version of the OMS, though with significant delays, as shown in **Exhibit XV-8**.<sup>37</sup>

<sup>37</sup> <https://www.lipower.org/wp-content/uploads/2023/06/5.-ITF-Outage-Management-System-Verification-and-Final-Report.pdf>

**Exhibit XV-8  
OMS Related ITF Recommendations**

<b>Rec. Number</b>	<b>Description</b>	<b>Start Date</b>	<b>Planned End Date</b>	<b>Actual End Date</b>	<b>Project Delay</b>
3.2.2.3 (2022 IT-6)	Work with CGI to obtain and implement fixes for identified application defects, which could include upgrading to a more recent version of the OMS software.	12/3/2022	3/31/2022	10/25/2022	7 months
3.2.2.4 (2022 IT-6)	Automate monitoring of OMS and CAD performance at the application level to detect application failures and give administrators an opportunity to adjust the configuration settings that affect performance.	11/2/2020	3/31/2022	3/17/2022	11.5 months
3.2.2.5	Automate monitoring of the OMS and CAD at the infrastructure level to detect infrastructure failures and give administrators an opportunity to restore normal operating conditions.	11/23/2020	5/3/2021	2/11/2022	9 months
3.2.2.7	Automate monitoring of inbound outage reports to the OMS, to be able to detect and eliminate erroneous reports that may arrive from any source.	11/2/2020	5/3/2021	2/11/2022	9 months
3.2.2.8	Irrespective of whether the failure mode is corrected within the IVR, the OMS should have automated monitoring of data quality arriving from IVR to detect potentially duplicate or otherwise bad information.	11/2/2020	5/3/2021	2/18/2022	9.5 months
3.2.2.9	The IVR and OMS communication protocol should be reviewed in detail and redesigned so that all messages between the two components are agreed, understood, verified to be operational and tested against error conditions such as sending duplicate outage reports.	11/2/2020	5/11/2021	2/6/2022	8 months
3.2.3.1	At the beginning of storm planning and throughout the storm, designate a system data administrator dedicated to monitor, on a continuous basis, the timeliness, accuracy, and integrity of the information coming from OMS to Kubra.	12/1/2020	3/22/2021	9/17/2021	5.5 months
3.2.4.3	Introduce the capability to quickly decouple the web and mobile apps from the OMS, so that when unresponsiveness is detected, alternate messaging can be provided to the customer and the OMS can be relieved of incoming transactional pressure.	4/7/2021	11/12/2021	2/11/2022	3 months
4.07	Ensure that the Municipal Portal is more resilient and prepare a backup Mode of Operation in case of OMS failure.	8/31/2020	8/16/2021	11/21/2022	15 months

Rec. Number	Description	Start Date	Planned End Date	Actual End Date	Project Delay
4.12	Systematically test the OMS system to ensure that concrete root causes are identified and remedied. If the errors are due to system defects, then demand accountability from the system vendor for timely fixes. Ensure that root causes, not just symptoms, are addressed.	4/23/2021	2/28/2022	4/13/2022 [Note 1]	1.5 months
4.13 (2022 IT-6)	After the OMS faults are diagnosed and repaired, thoroughly stress-test the CAD system and the ESB to ensure there are no independent defects affecting either system.	1/7/2021	3/31/2022	10/25/2022	7 months
4.15 (2022 IT-6)	Performance test OMS and “feeder” systems to establish peak capacity.	1/13/2021	3/31/2022	Open	➤
4.17	Re-architect the inter-system message queuing applications for greater dynamic stability under highly demanding workloads.	11/13/2020	7/9/2021	2/15/2022	8 months
4.18 (2022 IT-6)	Monitor application performance and error logs of all mission critical application systems, such as OMS, CAD, SCADA, ESB, etc	2021Q1	3/31/2022	3/17/2023	12 months
4.19	As part of storm preparation, ensure that all application errors and debug conditions have been cleared and the system is operating normally.	1/7/2021	5/3/2021	2/11/2022	9 months

Note: While the concrete root causes were not identified, LIPA accepted the recommendation as completed since the issue had effectively been remediated by ESB level design changes that protect the OMS from the heavy load conditions under which the issues arise.

Source: [Slide 1 \(lipower.org\)](#) pg. 7 (as of June 28, 2023)

#### 4. PSEG LI has implemented a wide range of analytical tasks and internal processes to ensure data is accurately captured within the OMS.

- PSEG LI states Reliability Management reviews daily outage data captured in the OMS to validate the correctness of outage incidents. This includes:<sup>38</sup>
  - Customers Interrupted discrepancy – Jobs where total number of Customers Interrupted by the outage incident are greater than the Customers Served on the affected circuit or device. For example, jobs that contain more than one circuit are as a result of tied configuration. In some instances, customers are part of another incident that doesn’t properly belong to that outage.
  - Overlapping Incidents – Customer has an outage that shows up in two incidents with one restoration time within the other. Review that there is no overlapping incidents in outage data.
  - Fictitious calls – Customers on a different circuit phase than the one affected by an outage. For example, a customer on B-phase is part of an outage that affects only the customers on A-phase.

<sup>38</sup> DR 1463

- Missing Information of Jobs – Review that jobs are not missing information such as Job Number, Cause of outage, Damage Description, Repair Description, etc. in the outage records.
  - Long duration Intentional Outage – Review Intentional outage jobs with additional focus on restoration times greater than 3 hours.
  - Review Specific Jobs – Review all jobs with additional focus on specific jobs with 100 or more customers having restoration times greater than 3 hours.
  - AMI Single Outage Jobs – Single customer outage jobs captured in the OMS (based on power notification from customer AMI meter) are reviewed on a daily basis to check that AMI singles are valid since these types of jobs could be part of other hierarchy jobs.
  - Cause Code – Review outage data check that correct cause codes are accurately captured in the OMS. This helps in identifying types of failures needed to be addressed in reliability programs.
  - Verify Date/Times – Verify outage date and energized date times with AMI power outage/restoration notifications and switching logs to ensure off and on times are accurate.
  - Review Breaker Operation Logs – Review Breaker operation logs to ensure breaker trips are captured in the OMS accurately and there is no missing Breaker trips. Verify customer counts and reach out to other departments as needed for information and clarification. Missing Breaker trips are entered into the OMS when identified.
  - Enter Momentary Events into OMS – When there is a Transmission and Substation momentary event, the Reliability team request that the OMS team enter the incident in OMS. This type of incident is not automatically captured in OMS.
  - Review Categories – review effect categories to ensure that structure numbers are accurate and consistent with the damage/repair description and corrective actions.
  - Underground Repair Process – When an underground outage is repaired, a copy of the cable fault form is sent to Reliability, Distribution Materials & Standards, and Mapping. This helps the accuracy in cable failures to splices, dig-ins, or outside interference.
  - Inspection – Large tree outages are inspected by Vegetation Management to determine whether a tree/limb caused an outage.
- The OMS has not undergone an independent data quality audit in several years.<sup>39</sup> PSEG LI asserts the last OMS data quality audit was done in 2014.<sup>40</sup>

**5. PSEG LI’s arrangement for vendor response time for OMS CAD issues is based on priority level of the incident. Vendor service level performance is not tracked.**

- PSEG LI vendor support arrangements for Outage Management System Computer Aided Dispatch (OMS CAD) are as follows:<sup>41</sup>

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<sup>39</sup> DR 1467

<sup>40</sup> Fact Verification

<sup>41</sup> DR 1466

- The vendor provides general support during business hours, 8:30am to 5pm eastern time, Monday to Friday, Canadian holidays observed by vendor excluded. In the event of Priority 1 (P1) or Priority 2 (P2) critical issue, then vendor hotline technical support is engaged to assist with issue resolution.
- Response times for a P1 or P2 severity is within 15mins of receiving a call via the vendor hot-line number and for Priority 3 (P3) or Priority 4 (P4), within 72 business hours of receiving the call. Vendor shall then carry out problem analysis & resolution. A Software Trouble Report (STR) is created, and vendor will formally respond back with a hotfix upon mutual agreement as per the issue priority.
- The defined priority levels include:<sup>42</sup>
  - P1 – Fatal – Software component is not operational. This is an issue with no known work-around. P1 / P2 severity levels are addressed immediately.
  - P2 – Critical – Errors result in a lack of functionality or causing intermittent failures. This is a production critical problem.
  - P3 – Non-critical – Errors result in a lack of functionality or causing intermittent failures but have a defined work-around to continue operations and not inhibit production. P3 / P4 are prioritized based acceptable work around minimizing operational impact (if any) and mutual agreement between PSEG LI & Vendor.
  - P4 – Minor – Errors that cause attributes and/or options of software programs not to operate in accordance with software specifications. It is a nuisance to end users, but is not a production limiting problem.
  - P5 – Suggestion/Enhancement – This is suggestions and requests for enhancements of the software.
- PSEG LI does not currently track the actual service level versus the contract service level for OMS CAD vendor support.<sup>43</sup>
- The OMS CAD vendor resources are not involved in day-to-day operations but are engaged under the following circumstances:<sup>44</sup>
  - In the event of P1 or P2 severity level production issues for problem resolution.
  - Part of JIRA deliver.
  - Resolution details and steps to reproduce issues and validation.
- Post-production support requests are managed through PSEG LI ServiceNow tool and vendor defect ticketing system (JIRA).
- The vendor tests the software releases in their lab and notifies PSEG LI with delivery notes that include reproducible test scenarios with steps to validate. PSEG LI performs functional testing and determines whether the solution given is pass/fail. Failed test scenarios are reported back to vendor for re-review. Upon successful completion of all

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<sup>42</sup> DR 1466

<sup>43</sup> DR 1466

<sup>44</sup> DR 1466

tests in non-production environment, the release is scheduled to deploy in production during the monthly maintenance window, 3<sup>rd</sup> Thursday of every month.

**6. PSEG LI uses IT ticketing system software (ServiceNow) as the system of record for recording and managing trouble tickets and the escalation process. PSEG LI has a documented process to manage escalation using a hierarchical severity criteria.**

- PSEG LI IT utilizes ServiceNow as the system of record for recording and managing the escalation process of trouble tickets.<sup>45</sup> In general, the Incident Management process consists of three steps:<sup>46</sup>
  - Step 1 – Incident creation and prioritization.
  - Step 2 – Working on the incident.
  - Step 3 – Closing the incident.
- The primary objective of the Incident Management process is to restore normal service operation as quickly as possible, minimizing the duration of a service disruption. The initial step is to define the severity of the situation or “SEV”. The SEV level is determined based on impact level. For example:
  - SEV 1 is Critical Service Impact – The issue caused a complete and immediate work stoppage affecting a primary business process or a broad group of end users where no workaround is available.
  - SEV 2 is High Service Impact – A business process is affected in such a way that business functions are impacted, multiple end-users are impacted. A workaround may be available but not easily sustainable.
  - SEV 3 is Moderate/Low Service Impact – A business process is affected in such a way that certain functions are unavailable to End Users or a system and/or service is degraded. A workaround may be available.
- An individual or team may play a role in resolution, depending on the nature of the incident as shown in **Exhibit XV-9**.

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<sup>45</sup> DR 1465.

<sup>46</sup> DR 508 Attachment 1.



**Exhibit XV-9  
SEV Support Levels**

Team or Individual	Level 1	Level 2 Support Group	Level 2 and Level 3 Incident Analyst(s)	Incident Manager	Major Incident Response Team	Major Incident Manager
IT Self Service Portal	✓				✓	
Vendor Support	✓	✓	✓	✓	✓	✓
Application Development		✓	✓			
Infrastructure		✓	✓	✓	✓	
Incident Manager (Process Owner within Service Management team)				✓	✓	✓

Source: DR 508 Attachment 2

- PSEG has several defined processes coincide with incident management support. This includes:<sup>47</sup>
  - Availability Management – This This process assists Incident Management in increasing the uptime of a service and component, by reducing downtime and disruptions through reactive and proactive Incident Management activities. Availability Management helps in investigating Availability related issues and Incidents.
  - Capacity Management – This process assists in measuring proactive capacity measures and also while investigating capacity related Incidents.
  - Change Management – When an Incident Resolution or Workaround needs a change to a CI then a CR is submitted to the Change Management process. This process will monitor the progress of the Change and keep Incident Management informed.
  - Configuration Management (CMDB) – This process is used by Incident Management to identify the related CI for a given Incident and also to perform Impact assessment and subsequently derive the resolution. The Configuration Management process helps in integrating the CI with the Incident Records.
  - Continual Service Improvement (future) – Incident Management contributes to improvement in service levels and hence user satisfaction.
  - Problem Management – When the Incident is resolved by the PSEG support teams (Level 1, 2 or 3), if there is a need to perform causal analysis of the Incident Record, the Incident details are handed over to Problem Management by creating a Problem Record. Problem Management performs Cause Analysis and comes up with a solution to prevent similar Incidents from recurring in the future.
  - Release Management – This process assists Incident Management in increasing the uptime of a service and component, by reducing downtime and disruptions through reactive and proactive Incident Management activities. Additionally, this process ensures that the Known Errors are transitioned from development database to live

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<sup>47</sup> DR 508 Attachment 2.

KEDB. Release Management helps in investigating Incidents that occur due to a Release.

**7. PSEG LI's process documentation for pre- and post-production testing and troubleshooting for OMS, CAD and associated systems was not made available for audit.**

- NorthStar requested information on PSEG LI processes for testing and troubleshooting in pre- and post-production environments. PSEG LI was not responsive to NorthStar's requests.<sup>48</sup>
- NorthStar requested a working session on a number of issues regarding OMS, CAD and associated systems including pre- and post-production testing and troubleshooting. PSEG LI was not prepared for the working session and did not provide suitable working session materials.<sup>49</sup>
- Material submitted late was considered nonresponsive.<sup>50</sup>

**8. PSEG LI Business Continuity and Disaster Recovery Plans are inadequate. PSEG LI efforts to improve plans were insufficient.**

- PSEG LI Business Continuity Plans (BCSs) and Disaster Recovery Plans (DRPs) are part of OSA metric IT-03 (System Resiliency). OSA metric IT-03 aims to minimize the probability and impacts of system failures through well-designed, robust, and thoroughly exercised BCPs and DRPs for critical systems and processes. PSEG LI's achievement of IT-03 goals and objectives were not achieved in 2022 and is experiencing significant challenges in 2023.<sup>51</sup>
- PSEG LI's 21 critical IT systems are grouped in Waves for the purposes of IT-03. Wave 1 comprises the main storm-related systems (11 applications/systems), Wave 2 includes systems that provide indirect storm support (6 applications/systems), and Wave 3 includes other critical systems (4 applications/systems). The metric requires submission of BCPs and DRPs for each in-scope system as well as realistic test of LIPA-approved BCPs and DRPs.<sup>52</sup>
  - The test of a BCP requires a LIPA-observed, full-scale functional exercise based on real-life failure scenarios.
  - The test of a DRP requires a LIPA-observed, realistic drill where a primary system's production workload is transferred to failover/recovery system for a period of time and then returned to the primary system.
  - LIPA must approve the respective test plans or exercise designs in advance.

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<sup>48</sup> DRs 1471, 1472, 1473, 1626 and 1627.

<sup>49</sup> IR 139.

<sup>50</sup> Nonresponsive is insufficient material or material not provided during the audit period.

<sup>51</sup> <https://www.lipower.org/wp-content/uploads/2023/06/4.-Quarterly-REport-on-Status-of-PSEGLI-Performance-Metrics-ITF-Recommendations.pdf>

<sup>52</sup> DR 1135 Supplement 2.

- PSEG LI did not achieve OSA metric IT-03 in 2022. PSEG LI submitted Wave 1 BCPs and DRPs with multiple deficiencies. Tests that were performed resulted in one system exercise ending prematurely due to system failure.<sup>53</sup>
- The IT-03 metric in 2023 required PSEG LI to submit BCPs, DRPs as well as Business Impact Analyses (BIAs) to LIPA for review and approval. LIPA stated that initial submissions of artifacts fall short of requirements.<sup>54</sup> As of June 2023, LIPA continues to express concerns regarding a lack of alignment between PSEG LI approach and the metrics requirements and objectives.<sup>55</sup> PSEG LI concerns regarding IT-03 include, but not limited to, an objective success criteria for the IT-03 metric, LIPA interpretation of ISO 22301:2019, evolving scope of metric deliverables, and multiple cycles of feedback on BCP and DRP documentation without approval being obtained.<sup>56</sup>
- NorthStar reviewed the assessments of PSEG LI BIAs, BCPs, and DRPs for Wave 1 and 2 applications/systems.
  - Fourteen PSEG LI Wave 1 and 2 BIAs were rejected for a number of reasons including, but not limited to, not including any identified Recovery Point Objective (RPO) information, responses with no or insufficient organizational oversight and standardization, and no process interdependencies identified within the BIAs. All 14 BIAs resubmittals were rejected for similar reasons in the initial review.
  - Fourteen PSEG LI Wave 1 and 2 BCPs were rejected for not providing detailed, prioritized, and sequenced activities to continue or recover critical functions, incomplete BIAs (discussed previously), unclear guidelines to activate the BCP, and multiple failure modes were not identified for technology and physical asset availability.<sup>57</sup> PSEG LI resubmission of BCPs were rejected for similar reasons from the initial review.
  - Eight PSEG LI Wave 1 DRPs were rejected for incomplete BIAs, unrealistic and limited failure scenarios, unclear guidelines to activate the DRP. All eight PSEG LI DRP resubmissions were rejected for similar issues for the initial review.<sup>58</sup>

**9. PSEG LI has established governance processes and a Program Management Office (PMO) for the System Separation Project. PSEG LI’s PMO is comprised of outside contractors and PSEG NJ personnel.**

- In the Second A&R OSA between LIPA and PSEG LI, the parties agreed that it would be beneficial for all IT Systems serving LIPA to be separate and distinct from the system, data, reports, and information of PSEG LI and its Affiliates and established a System Separation Program.<sup>59</sup> PSEG LI and LIPA formed a joint cross-functional

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<sup>53</sup> DR 1135.

<sup>54</sup> DR 1135.

<sup>55</sup> <https://www.lipower.org/wp-content/uploads/2023/06/4.-Quarterly-REport-on-Status-of-PSEGLI-Performance-Metrics-ITF-Recommendations.pdf>

<sup>56</sup> Fact verification. Letter to LIPA from PSEG LI dated October 5, 2023.

<sup>57</sup> Fact verification.

<sup>58</sup> LIPA OSA Metric Sharepoint Site – IT-03

<sup>59</sup> DR 1510 Attachment 1.

team to develop a plan for System Separation in April 2022. A Plan was to be delivered by July 29, 2022.<sup>60</sup>

- PSEG LI and LIPA established a System Separation Steering Committee, which meets every week, and includes representatives of LIPA, PSEG LI and PSEG NJ.<sup>61</sup>
- System Separation Program management is led by a Program Oversight Manager hired in January 2023. A PMO Manager was onboarded in February 2023. An Organizational Change Management Manager was onboarded in March 2023.<sup>62</sup> All are contract resources.<sup>63</sup>
- The System Separation Program consisted of three “bundles” of systems targeted for separation from PSEG NJ in July 2022.<sup>64</sup>
  - Bundle 1 – Enterprise Resource Management and Ancillary Systems
  - Bundle 2 – Email and Communications Infrastructure
  - Bundle 3 – Hosted (Cloud) Systems<sup>65</sup>
- Each bundle has a Manager, Technical Architect and associated analysts and change management personnel. All personnel are contract resources. Bundles 1 and 2 are expected to have a System Integrators to perform the necessary work.<sup>66</sup>

**10. PSEG LI and LIPA have a very different understanding of the potential cost of System Separation, and the resources required for ongoing post-separation maintenance.**

- LIPA’s 2023 Budget includes a \$21.2 million dollar capital cost for the System Separation project, with approximately \$3.5 million in project expenditures incurred through December 31, 2022, \$12 million approved for 2023 and \$8 million projected for 2024. The entire project has a scheduled in-service date of 2024.<sup>67</sup>
- During an interview with PSEG LI personnel about System Separation Program, it was stated that the \$21.2M was just for the first bundle.<sup>68</sup> During a second interview with PSEG LI about the System Separation Program, it was indicated that the cost estimate would be approximately \$80M in capital and \$30M in O&M for post-separation maintenance.<sup>69</sup> NorthStar requested further information supporting PSEG LI cost

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<sup>60</sup> DR 1510 Attachment 6.

<sup>61</sup> DR 1513 Attachment 1.

<sup>62</sup> DR 507 Attachment 1.

<sup>63</sup> DR 1513 Attachment 1.

<sup>64</sup> DR 1510 Attachment 6.

<sup>65</sup> DR 500 Supplement 1. A Bundle 4 was added in a response to DPS recommendations on August 29, 2022.

<sup>66</sup> DR 1513 Attachment 1.

<sup>67</sup> DR 213 Supplement 1.

<sup>68</sup> IR 81.

<sup>69</sup> IR 143 and DR 1512 Attachment 1.

estimate for the System Separation Program in October 2023. PSEG LI was nonresponsive.<sup>70</sup>

**11. The System Separation Program has experienced delays due to an increase in scope and disagreements between LIPA and PSEG LI. The 2023 System Separation budget was significantly underspent.**

- The 2023 OSA metric IT-07 System Segregation requires that all planned scope and work for 2023 in the LIPA Board-approved IT System Separation Plan (“the Plan”), and in any approved detailed plans, roadmaps and strategies subsequently developed by the joint LIPA and PSEG LI IT Team pursuant to the Plan, will be completed in 2023 in accordance with the Plan and associated planning materials.
- The number of IT systems in the System Separation Program has grown from 44 intermingled systems originally identified in July 2022 to over 70 by April 2023.<sup>71</sup>
  - In July 2022, the PSEG LI team completed an initial analysis and identified 44 intermingled systems.<sup>72</sup>
  - LIPA and PSEG LI delivered the Plan to DPS in July 2022. The Plan identified 46 IT systems designated for separation from PSEG NJ.<sup>73</sup>
  - In a Quarterly Report that included information through April 2023, the number of systems identified as in-scope for the System Separation Program increased to over 70.<sup>74</sup>
- Disagreement between PSEG LI and LIPA led to two RFPs for a Bundle 1 System Integrator.
  - PSEG NJ issued the first RFP for a System Integrator in November 30, 2022 on behalf of PSEG LI. Responses were due by January 13, 2022.<sup>75</sup> Contract award was targeted for February 15, 2023. The RFP due date was extended for two additional bidders.<sup>76</sup>
  - LIPA and PSEG LI had disagreements related to the November 2022 RFP including lack of transparency by PSEG LI, project execution methodology, vendor selection process, scope change, and other issues.<sup>77</sup> As a result, PSEG NJ issued a revised

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<sup>70</sup> DR 1509. Nonresponsive is insufficient material or material not provided during the audit period.

<sup>71</sup> DR 1211 Attachment 1 and 2023 LIPA OSA Tracking/Metric IT-07. PSEG/PSEG LI Executive Steering Committee Monthly Program Report – through April 2023.

<sup>72</sup> DR 1211 Attachment 1.

<sup>73</sup> DR 1510 Attachment 6.

<sup>74</sup> DR 1211 Attachment 1 and 2023 LIPA OSA Tracking/Metric IT-07. PSEG/PSEG LI Executive Steering Committee Monthly Program Report – through April 2023.

<sup>75</sup> DR 501 Supplement 2.

<sup>76</sup> DR 501.

<sup>77</sup> 2023 LIPA OSA Tracking/Metric IT-07. Email dated May 3, 2023 Subject 5/2 RFP Recommendation Meeting Follow up.

RFP for the Bundle 1 System Integrator on June 9, 2023 with a response due date of June 29, 2023.<sup>78</sup>

- PSEG LI created over 70 IT system separation white papers for LIPA review and approval. According to PSEG LI, LIPA was to approve papers in two weeks.<sup>79</sup> Review of the Tracker provided by PSEG LI indicates LIPA reviews took between one to three months for approval or revision.<sup>80</sup>
- NorthStar requested Project Execution plans for the System Separation Program, PSEG LI’s response on October 23, 2023 states:  
  
“No Project Execution Plans have been created to date as no projects have received approval to move forward yet.”<sup>81</sup>
- PSEG LI System Separation Program status from monthly reports for period of April 2023 compared to September 2023 are provided in **Exhibit XV-10**. As shown in this exhibit, System Separation Project Status has increased risk in Overall Health, Cost, Resources, and Schedule. Furthermore, the current delivery date shifted six months from March 2025 to September 2025. Program budget remains significantly underspent at \$3.6M compared to a 2023 budget of \$12M.

**Exhibit XV-10**  
**System Separation Program Status for April and September 2023**

April 2023														
System Separation Program														
Program Name	GPM	PM	Phase	Overall Health	Cost	Resources	Schedule	Scope	Total Budget	Actuals to Date	Variance to Plan	Original Delivery Date	Current Delivery Date	Planned Closeout Date
System Separation		Various	Initiation	●	●	●	●	●	\$12,000,000	\$538,171	\$1,600,927	12/31/2025	3/31/2025	6/30/2025
September 2023														
System Separation Program														
Program Name	GPM	PM	Phase	Overall Health	Cost	Resources	Schedule	Scope	2023 Total Budget	Actuals to Date	Variance to Plan	Original Delivery Date	Current Delivery Date	Planned Closeout Date
System Separation	T. Derting	Various	Initiation	●	●	●	●	●	\$12,000,000	\$3,591,837	\$4,681,438	12/31/2025	9/30/2025	12/31/2025

Source: 2023 OSA Metric Sharepoint Site – IT-7 System Segregation.

- PSEG LI provided a System Separation Program schedule for November 2023 that extends into Q3 and Q4 2025 for certain IT applications.<sup>82</sup> PSEG LI states:  
  
“Updates to the schedule are currently in progress, including alternative scenario options for LIPA consideration, as the complete expanded scope of work is not able to be completed in LIPA’s desired timeline.”<sup>83</sup>

<sup>78</sup> DR 1212 Attachment 1.

<sup>79</sup> DR 1512.

<sup>80</sup> DR 1512 Attachment 1. See Chapter III – Corporate Governance and Executive Management regarding staffing issues.

<sup>81</sup> DR 1527.

<sup>82</sup> DR 1510 Attachment 7.

<sup>83</sup> DR 1510.

## 12. The success of the System Separation Program is questionable.

- PSEGLI’s program management plan update June 2023 stated that:

“At the onset of the program in 2022, it was envisioned that there were 4 bundles with 46 total products that remained to be separated, and that the work would take 12-24 months in total to execute. A stated goal was to complete all separation activities by the end of 2024 with only transition activities planned to occur in the first quarter of 2025.”<sup>84</sup>
- Implementation of Bundle 1 was scheduled to be completed by the end of 2023.<sup>85</sup> This has not happened.
- The December 20, 2022 Utility Review Board (URB) established the initial baseline budget for IT-07 System Segregation/Separation at \$21.3M, as shown in **Exhibit XV-11**.

**Exhibit XV-11**  
**System Separation Program Budget (\$MM)**

2023	2024	2025	Total
\$12.0	\$8.0	\$1.3	\$21.3

Source: DR 1508 Attachment 1

- LIPA Senior VP and COO along with a LIPA consultant stated the entire cost was System Separation Program cost was \$21.3 million during a Board of Trustee meeting in February 2023. The presentation material provided to the Board reported the entire System Separation was \$21.3 million.<sup>86</sup>
- Baseline Budget was \$21.3 million in 2022 as stated in the Program Management Plan, then increased to \$78 million.<sup>87</sup>

“Bottom-up estimates for all projects, including the newly-discovered scope systems for separation, completed as part of initial discovery in 2023 led to revised cost projections totaling \$78M, which were then input into the annual budget request process. Once budgets are settled, an update will be presented to URB for approval.”<sup>88</sup>
- PSEG LI most recent Steering Committee update date in October 2023 reported that there were 26 new systems/applications requiring separation and an additional \$12.9 million to the budget.<sup>89</sup>

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<sup>84</sup> DR 1508 Attachment 1.

<sup>85</sup> DR 1508 Attachment 1.

<sup>86</sup> LIPA Board of Trustee Meeting, February 15, 2023.

<sup>87</sup> DR 1508 Attachment 1.

<sup>88</sup> DR 1508 Attachment 1.

<sup>89</sup> DR 1508 Attachment 12.



- The System Separation Program schedule continues to be extended.
- PSEG LI’s management of IT projects is ominously deficient. A January 27, 2023 report entitled “Additional Comments for Executive Management” related to a Capability Maturity Model Integration (CMMI) v.2.0 assessment of PSEG LI EPMO IT project delivery practices stated:

“Our evaluation assessment covered only a partial set of the complete CMMI model practice areas. We cannot generalize our evaluations in the form of a proper complete assessment, especially due to the fact that even an informal Evaluation Appraisal should have included Governance, Implementation Infrastructure, and Configuration Management practice areas; these were excluded since the organization was not yet prepared for these types of practice areas at the time. We do not see this as a valid reason (especially for an organization such as PSEG), which outsources an estimated (more than) 95% of its development work and thereby needs to set the stage for how it will run its core management processes. This takes into consideration the fact that outsourced project management, requirement analysis, software development, and performance measurement need governance and implementation infrastructure in order to be successfully managed and measured.

These three excluded practice areas are critical because they help to evaluate whether or not the organization achieves consistency in their organization-wide practices, as well as how PSEG would manage product development with extensive outsourcing. Consistency refers to the presence of high standardization in all process executions between various types of projects by different outsourced groups. If this is the case, then we can conclude that the practices have become an organizational habit and will most likely persist even after the CMMI assessment.

Regarding the EPMO projects that we have assessed, we cannot make this conclusion.”

- NorthStar reviewed certain System Separation Program’s program management artifacts.
  - The work breakdown structure (WBS) provided does not represent a hierarchical decomposition of the scope of work.
  - The WBS is at a summary level and does not map to deliverables as described in System Separation PIPs.
  - PSEG LI System Separation Program management WBS is not integrated with the Program’s schedule. PSEG LI cannot measure program progress or earned value.
  - The program schedule does not demonstrate how PSEG LI will manage system separation at a program level.
  - The Program schedule does not identify a critical path.<sup>90</sup>

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<sup>90</sup> DR 1510 Attachment 7 and 8.

**13. LIPA and PSEG LI are using a “carve-out” and “lift-and-shift” approach to system separation. New or enhanced system functionality is kept at a minimum to reduce program costs and risk.**

- The objective of the LIPA/PSEG LI System Separation Program is to separate the LIPA portion of the system functionality from PSEG NJ corporate infrastructure (“carve-out”) without making major changes to system architecture, business processes, etc. (“lift-and-shift”). The alternative to “carve-out/lift-and-shift” is what is known as “business transformation”. Business transformation implies re-engineering business processes and re-implementation of pieces and/or whole systems. LIPA and PSEG LI agreed that such an initiative would require significantly more funding, time, resources, and a greater risk of failure.<sup>91</sup>
- The LIPA/PSEG LI “carve-out/lift-and-shift” approach was explained in a letter to DPS on August 29, 2022 as it pertains to the System Separation Plan.<sup>92</sup> The LIPA/PSEG LI letter states:

“This approach is common and considered to be low risk because it keeps the original system design and system configuration intact but instead slices out the Long Island data and stands up a separate infrastructure and separate instance of the original SAP system. Existing integrations and customizations are reused, and no other changes are implemented.”<sup>93</sup>

**14. PSEG LI’s cyber security program is still developing. PSEG LI has not achieved and maintained a NIST CSF Tier 3 in all functions, categories/subcategories as required in the Second A&R OSA – including cyber assets governed by NERC CIP. PSEG LI’s plan to achieve NIST CSF Tier 3 may not be implemented until at least Q2 2024.**

- PSEG LI is developing its own cyber security function, however, recruiting and hiring cyber security resources is difficult given the demand for these skill sets.<sup>94</sup> Except the Chief Information Security Officer (CISO) and a Cyber Security Analyst, all PSEG LI Cyber security team transferred from PSEG NJ as shown in **Exhibit XV-12**.

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<sup>91</sup> DR 1518.

<sup>92</sup> During factual accuracy LIPA noted that the final system separation program implementation scope departs slightly from the strict “lift-and-shift” approach by upgrading the ERP platform version to bring the system back under vendor support.

<sup>93</sup> DR 1518 Supplement 1.

<sup>94</sup> See Chapter III – Corporate Governance and Executive Management regarding staffing issues.

**Exhibit XV-12  
PSEG LI Cyber Security Team (August 2023)**

<b>Title</b>	<b>Date of Hire</b>	<b>New Hire/Transfer</b>
CISO	7/11/2022	New Hire
Manager Cyber Security	6/1/2023*	NJ Transfer to LI
Sr Cyber Security Analyst	6/1/2023	NJ Transfer to LI
Cyber Security Associate	6/1/2023	NJ Transfer to LI
Cyber Security Analyst	1/11/2021	NJ Transfer to LI
Cyber Security Analyst	5/2/2022	

Source: DR 1194.

(\*) Started at PSEG LI in January 2021 through Internal Services - DRs 3 and 902 Attachment 12.

- The alignment of PSEG LI with the NIST CSF and other cyber security best practices began in 2020.<sup>95</sup>
- PSEG LI NIST CSF score has yet to achieve the OSA required Tier 3 rating as described in **Exhibit XV-13**.<sup>96</sup> A LIPA sponsored NIST CSF assessment was completed in early 2023. This assessment identified 293 key gaps in PSEG LI’s NIST CSF. To attain a Tier 3 NIST CSF score, PSEG LI initiated a set of nine projects and four workstreams to address the gaps identified. This effort is not expected to be completed until May 2024.<sup>97</sup>

- With regard to the maturity of the NERC CIP operational technology (OT) environment, PSEG LI stated:

“The CIP networks and systems are architected to operate and exist in a segregated OT (Operational Technology) environment, separate from corporate network, to support associated compliance requirements. PSEG LI general computing controls are designed to address NERC CIP requirements and are reviewed on a regular basis and as needed to consider changing requirements.”<sup>98</sup>

- NorthStar requested ES-C2M2 maturity model assessments of the PSEG LI NERC CIP. PSEG LI stated:

“We have not performed Maturity model assessment (C2M2) of NERC CIP program because we perform NIST CSF assessments.”<sup>99</sup>

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<sup>95</sup> DR 902 Attachment 12.

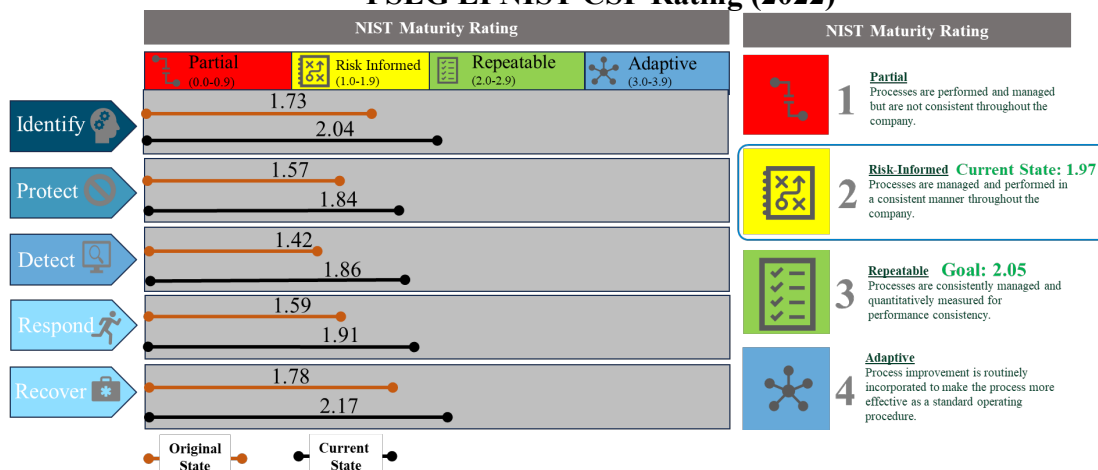
<sup>96</sup> DR 177 Attachment 1.

<sup>97</sup> DR 1193 Attachment 1.

<sup>98</sup> DR 383.

<sup>99</sup> DR 1474.

## Exhibit XV-13 PSEG LI NIST CSF Rating (2022)



Source: DR 177 Attachments 1 and 2.

### 15. PSEG LI did not complete vulnerability assessments and penetration testing in 2023. PSEG LI does not remediate issues resulting from these assessments and tests in a timely manner. Therefore, program effectiveness is questionable.

- PSEG LI had third-parties perform vulnerability assessments and penetration testing for each year from 2018 to 2022. PSEG LI did not complete third-party penetration testing or vulnerability assessments in 2023.<sup>100</sup>
- Certain vulnerability assessment and penetration test reports contain statements where the scope of work was not the degree of scrutiny that normally would be performed for cyber security assessments and tests.<sup>101</sup>
- NorthStar’s review of vulnerability assessments and penetration test identified certain common themes such as configuration/patch management, certificates and encryption, inventory/asset management, and network segmentation issues. In one instance, a report described the ability to exploit a vulnerability to obtain customer information.<sup>102</sup>
- NorthStar reviewed meeting materials from a PSEG LI Cyber Security Oversight document describing progress on network and system vulnerabilities. The document shows that as of September 2022 there were a significant number of vulnerability assessments and penetration tests findings dating back to 2021. PSEG LI had many open security vulnerabilities with no due dates for remediation.<sup>103</sup>

<sup>100</sup> For 2022, PSEG LI provided a third-party contract with scope of work that reconciled with assessments and penetration testing documents in DR 178 during fact verification. PSEG LI indicated a third-party vendor began penetration testing in December 2023 and should be completed by March 2024.

<sup>101</sup> DR 178 Attachment 19.

<sup>102</sup> DR 178 Attachments 1-3, 7-8, 10-14, 17-20.

<sup>103</sup> DR 177 Attachment 2.

- NorthStar requested information on Third-Party data breaches that were reported in 2021. PSEG LI was nonresponsive to NorthStar’s request for information.<sup>104</sup>

**16. PSEG LI NERC CIP program was recognized in the 2018 and 2021 Northeast Power Coordinating Council (NPCC) certain positive observations. Efforts to improve PSEG LI’s NERC CIP compliance program are ongoing. However, there were a number of NERC CIP violation self-reports as well as delays in upgrading PSEG LI’s physical access management solution.**

- NPCC conducted onsite audits of LIPA for the Critical Infrastructure Standard Compliance Audits of the LIPA in 2018 and 2021.
  - The 2018 NPCC audit included 39 NERC CIP Standards and associated requirements.<sup>105</sup> LIPA was found to have three areas of possible non-compliance and one self-reported violation.<sup>106</sup> There were a number of positive observations resulting from the 2018 audit that include, but not limited to the level of physical protection of BES assets, comprehensive Reliability Standard Audit Worksheets (RSAWs), and an effective access authorization process known as the “Man-In-Sub” program.<sup>107</sup>
  - The 2021 NPCC audit scope included 46 NERC CIP and Operations and Planning (O&P) Standards and associated requirements.<sup>108</sup> LIPA was found to have one NERC CIP Potential Non-Compliance (PNC) and two NERC O&P PNCs. There were a number of positive observations resulting from the 2021 audit. One observation described the Physical Access Control System (PACS). NPCC audit found that it had enhanced functionality/capabilities that supported analysis not required by the standards.<sup>109</sup>
- PSEG LI filed eight additional self-reported violations to the NPCC. Many of the issues described in the self-reported violations are similar to the theme from PSEG LI’s vulnerability assessments and penetration tests – configuration/patch management.<sup>110</sup> Enforcement decisions for each of the self-report violations are pending.<sup>111</sup>
- PSEG LI adopted a “decentralized” approach to NERC CIP compliance.<sup>112</sup> A NERC Best Practices Review from April 2022 identified several deficiencies in PSEG LI’s NERC compliance program including staffing levels, work management, training, and governance.<sup>113</sup>

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<sup>104</sup> DR 1622 and DR 43 Attachment 12. PSEG LI provided insufficient information or information was not provided in the audit period.

<sup>105</sup> DR 385.

<sup>106</sup> DR 385.

<sup>107</sup> DR 385 Attachment 1.

<sup>108</sup> DR 385.

<sup>109</sup> DR 385 Attachment 7.

<sup>110</sup> DR 391 Attachments 2-9. See earlier discussion on PSEG LI OT environment and NIST CSF.

<sup>111</sup> DR 1268.

<sup>112</sup> DR 384 Attachment 1.

<sup>113</sup> DR 391 Attachment 1.

- PSEG LI has begun to address certain issues identified in the report, however, there remain important remediation initiatives considered “in process”, “being planned” or “open”. These include, but not limited to, implementation of a Governance, Risk, and Compliance (GRC) tool (being planning), third-party assessment of Reliability Standards Audit Worksheets (RSAWs) and associated evidence (in process), and hiring and retention plans (in process).<sup>114</sup> There remains many “open” recommendations from the NERC Best Practices Review document (e.g., augment existing performance metrics, develop audit process checklists, process automation for recurring tasks, etc.).
- PSEG LI’s project to upgrade is electronic card access and video surveillance system for NERC CIP covered facilities has experienced a number of implementation delays and software issues increasing the risk of non-compliance and significant fines.
  - NERC CIP requires a registered utility to restrict physical access to BES assets. Unauthorized physical access to NERC CIP covered facilities could result in significant penalties to the registered utility.
  - PSEG LI utilizes a number of methods to prevent physical access to NERC CIP covered facilities including an electronic card access and video surveillance system. Loss of electronic card system for physical entry risks unauthorized access to critical facilities, potentially serious physical injury as well as NERC penalty/fine.
  - The electronic card access and video surveillance system used by PSEG LI is from a known PACS vendor. The current PACS software version has been out of support with the vendor. The supporting software is out of support as well.<sup>115</sup>
  - PSEG LI documentation from December 2021 and February 2022 describes significant issues with the PACS upgrade project.

“System is outdated and past end of life (~15 years). The access control system software [PACS] currently in operation is Version [X], which is currently not supported by the manufacturer, creating potential cyber vulnerabilities.”<sup>116</sup>

“Due to several scheduling conflicts internally, the infrastructure (hardware) work is delayed, and the [PACS] vendor is no longer available to complete their part of the work until the early part of 2022.”<sup>117</sup>

“Original completion date was 12-31-2019. Previous completion date was 2-28-2022. Project delayed due to IT infrastructure issues (root cause unknown) impacting the normal operation of PACS software. New completion date TBD. Corporate Security has stated that the root cause issue adversely impacting the PACS software has not been identified and

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<sup>114</sup> DR 1484 Attachments 1-3.

<sup>115</sup> DR 43 Attachment 5.

<sup>116</sup> DR 902 Attachment 10.

<sup>117</sup> DR 902 Attachment 10.

as such, security is not willing to accept the risk of a flawed access control system.”<sup>118</sup>

- NorthStar requested additional information on the PACS system upgrade project. PSEG LI was nonresponsive to NorthStar’s request for information.<sup>119</sup>
- NorthStar requested LIPA’s description of its oversight activities of the PACS system upgrade project. LIPA’s oversight is inadequate, consisting of metrics, weekly and quarterly meetings.

“While there is no formal agenda nor meeting materials issued, [PACS] (as a discrete item in the Physical Security PIP/2023 metric) is a standing discussion item at these meetings.”<sup>120</sup>

## **17. LIPA and PSEG LI do not have adequate processes in place to comply with the PSC Order in Case 13-M-0178.**

### **LIPA**

- LIPA’s Incident Response (IR) Plan dated May 2023 applies to all IT assets and data owned by the Authority.<sup>121</sup> The LIPA IR plan is a copy of the New York State Information Technology Standard “NYS-S13-005, Cyber Incident Response” with minor modifications.<sup>122</sup> The IR Plan describes testing through mock incident training or tabletop exercises using scenarios in the event of a cyber incident. The IR Plan also describes lessons learned sessions to provide a record of steps taken to respond to an attack, investigation into root causes, and potential improvements.<sup>123</sup>
- LIPA has an inventory of computer systems that contain Personally Identifying Information (PII).
  - LIPA has 11 computer systems that contain PII information – nine are classified as cloud-based systems or SaaS.<sup>124</sup>
  - Information stored on these systems include customer account numbers as part of audits, employee social security numbers and other data for direct, banking information and other sensitive data.
- LIPA has two on-premise computer systems and an off-site location. NorthStar requested a description of how these systems are physically protected. NorthStar’s review of physical security protection at an offsite data center was adequate providing multi-layer physical security. LIPA’s description included front desk guard, building camera monitoring, badge/RFID access with PIN code at entrances, separated server

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<sup>118</sup> DR 43 Attachment 5.

<sup>119</sup> DR 1475. Nonresponsive is insufficient material provided or not provided during the audit period.

<sup>120</sup> DR 1476.

<sup>121</sup> DR 1023 and 1023 Supplement 1.

<sup>122</sup> <https://its.ny.gov/system/files/documents/2023/04/nys-s13-005-cyber-incident-response.pdf>

<sup>123</sup> DR 1023.

<sup>124</sup> DR 826 Supplement 1.



room with server racks protected by cage doors requiring badge/RFID to unlock the front and rear cage doors.<sup>125</sup> The second site's physical protection of computer systems was not as robust. LIPA's description of security in place did not indicate any protocols for protection of computer equipment (e.g., cages for server racks, badge/RFID readers where computer equipment is operating, etc).<sup>126</sup>

- LIPA does not segment PII data from other less sensitive business information.
  - The March 17, 2020 LIPA ERMC meeting focused on the potential cyber security risks to LIPA. A presentation was made by LIPA's CIO. The CIO stated that there was a need for improvements.

“For instance, during the PII audit with Internal Audit there were 14k different individual files/records (incidents) of PII on employee's computers.”<sup>127</sup>
  - In fact, the number of files/records (incidents) of PII is over 16,000.<sup>128</sup> LIPA stated that it has remediated the PII issues, but did not provide any information to NorthStar.<sup>129</sup>
- LIPAs has implemented intrusion detection and prevention security controls using firewalls at the network perimeter to protect against unauthorized access to the LIPA network. For internal intrusion detection and prevention, LIPA has Network Access Control (NAC) and firewalls for network detection controls. LIPA uses Endpoint Detection and Response (EDR) to protect the endpoints against malicious activity.<sup>130</sup>
- LIPA does not frequently engage a third-party to perform external and internal vulnerability assessments. LIPA has not engaged a third-party to perform penetration testing.<sup>131</sup> An audit of LIPA's PII practices has not been completed since 2020.<sup>132</sup>
- LIPA does not conduct PII-specific training to employees or contractors. LIPA's PII training is bundled with annual cyber security awareness instruction for employees only, it does not include contractors.<sup>133</sup> LIPA provided list of training for 2021 and 2022 only.<sup>134</sup> Those lists are not inclusive of all LIPA employees and do not support the spirit of the PSC Order regarding increased frequency of training.

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<sup>125</sup> Fact verification.

<sup>126</sup> Fact verification.

<sup>127</sup> DR 903 Supplement 31.

<sup>128</sup> DRs 29 Supplement 1 and 1103 Supplement 1.

<sup>129</sup> LIPA's information to support disposal of computer equipment with PII information was inadequate. Certain files were corrupted or did not contain information.

<sup>130</sup> DR 1532.

<sup>131</sup> DRs 178 and 1507.

<sup>132</sup> DRs 29 Supplement 1 and 1103 Supplement 1

<sup>133</sup> DR 1104.

<sup>134</sup> DR 1104 Supplements 1 and 2.

- LIPA does not have a contractual relationship with a third-party forensics expert.<sup>135</sup>
- LIPA does not maintain a relationship with a credit monitoring service. LIPA states that it does not maintain customer information on its systems.<sup>136</sup> However, LIPA does have computer systems with PII.

## PSEG LI

- PSEG Instruction 282-4-2 Computer Information Systems Security Instruction applies to PSEG LI. The instruction defines the specific methods, processes, procedures, and general security guidance relevant to securing the company's IT environment. The document includes training and annual review of incident response which can consist of a paper drill, full operational exercise, or the response to an actual cyber event. Instruction 282-4-2 also includes lessons learned to update procedures as necessary.<sup>137</sup> Details of PSEG LI's response to a data breach is found in Cyber Incident Response Plan which includes post-incident lessons learned session. The Cyber Incident Response Plan is tested annually, at a minimum. The exercise can be a tabletop or a response to an actual cyber incident.<sup>138</sup>
- PSEG LI has an inventory of 17 computer systems that contain PII information.<sup>139</sup>
- Physical access to sensitive areas is governed by PSEG LI's Access Control Policies and Procedures. Access to restricted areas is managed by PSEG LI Security department. Unescorted access is also handled by the Security department based on business need and controlled by electronic card access. Access to NERC CIP covered facilities is regulated by NERC CIP requirements.<sup>140</sup> As previously discussed, PSEG LI is challenged by the delays in upgrading its PACS access control solution.
- PSEG LI has experienced issues in segregating of PII data from less sensitive business data.
  - The LIPA audit in 2019, found a number of concerns related to customer PII.
    - Data Leak Prevention (DLP) was not fully configured to protect all customer PII elements. System rules to scan for Sensitive PII (SPII) data types such as bank account numbers and driver's license numbers were not configured in the DLP system.
    - PSEG LI customer PII records do not follow the PSEG Records Retention Schedule.<sup>141</sup>
    - CAS and EBO users can access customer account information, including customer SPII.

<sup>135</sup> DR 1537.

<sup>136</sup> DR 1539.

<sup>137</sup> DR 212 Attachment 3.

<sup>138</sup> DR 212 Attachment 2

<sup>139</sup> DR 825.

<sup>140</sup> DR 212 Attachment 9.

<sup>141</sup> For more information see Chapter III – Corporate Governance.

- No defined data owner is identified for customer PII. A data owner is typically responsible for determining the types of data stored, location of the data, and data protection and destruction methodologies utilized.<sup>142</sup>
- Similar issues were found in a 2023 audit of PSEG LI PII practices.
  - SPII was retained in the CAS without a valid business purpose, and a current inventory of PII was not actively maintained.
  - Customer Operations personnel had access to retrieve an individual’s SPII from a credit bureau, without a valid business purpose, and monitoring was not established to detect instances of potential insider threat.<sup>143</sup>
- PSEG LI, through PSEG NJ, utilizes several tools for intrusion detection systems and security information event management. These tools cover a spectrum of functionality including security event monitoring, threat hunting, rapid response services, anomaly investigation, and endpoint security to prevent and detect malicious activity.<sup>144</sup>
- PSEG LI engages a third-party to perform vulnerability and penetration testing on its IT environment.<sup>145</sup> PSEG LI and LIPA Internal Audit (IA) programs have conducted customer data protection and related audits in the past. Most recent audit of customer data protection was performed by PSEG LI IA in May 2023. LIPA IA performed an audit of Third-Party Risk Management in June 2023.<sup>146</sup>
- PSEG LI PII training is inadequate. According to PSEG LI, Customer Operations requires anyone requesting access to the CAS complete PSEG LI Red Flag training prior to access being granted. Training is done annually.<sup>147</sup>
  - The 2023 Customer Data Protection Audit identified a number of deficiencies in PSEG LI’s “Red Flag” training controls. In summary:
 

“Red Flag Training is not always completed prior to granting new users access to customer PII, or annually thereafter, and metrics are not used to evaluate the effectiveness of training.”<sup>148</sup>
  - CAS is not the only system with PII data. The Red Flag training program does not account for the entire PII universe.
  - PSC Order states “frequent customer privacy related security training”.

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<sup>142</sup> DR 1032 Attachment 1.

<sup>143</sup> DR 1032 Attachment 2.

<sup>144</sup> DR 1027

<sup>145</sup> DR 178 Attachments 1-20. See Conclusion 2. NorthStar was only able to view a select number of NERC CIP tests.

<sup>146</sup> DR 1032 Attachments 1, 2, Supplement 2, and 1486 Attachment 5.

<sup>147</sup> DR 211.

<sup>148</sup> DR 1032 Attachment 2.

- PSEG LI has contracted with a third-party forensics expert vendor.<sup>149</sup>
- PSEG LI’s Cyber Incident Response Plan discusses credit monitoring services for a data breach event.<sup>150</sup> PSEG LI utilizes a subscription-based credit monitoring service in the event of a data breach involving customer information.<sup>151</sup>

**18. PSEG LI does not have an industry standard cyber security framework for DER interconnections and AMI meter data.**

- PSEG LI did not fully respond to NorthStar’s information request.<sup>152</sup>

**19. PSEG LI did not have a significant role in responding to the SolarWinds event. LIPA did not have a comprehensive incident response in place at the time the vulnerability was discovered.**

- At the time of the SolarWinds event, PSEG NJ was providing cyber security services to PSEG LI. PSEG NJ’s Incident Response Team (IRT) took a lead role and activated the Incident Response Plan as events unfolded in December 2020. Duties performed by PSEG NJ’s IRT largely followed procedures to mitigate and remediate issues that occurred in the PSEG NJ and PSEG LI environments.

- PSEG LI President informed the LIPA the same day the Incident Response Plan was activated.<sup>153</sup>

- LIPA’s response to the SolarWinds issue does not demonstrate the existence of a comprehensive, coordinated cyber security incident response plan. LIPA states:

“When SolarWind's vulnerability was discovered and announced publicly in 2020, the SolarWinds LEM/SEM products LIPA had in production were unaffected. LIPA has recently decommissioned the SolarWinds products and migrated to a different log aggregation platform.”<sup>154</sup>

- LIPA supplemented its original response with the following statement:

“LIPA did not have the SolarWinds Orion product installed on its network when the vulnerability was announced publicly in 2020.”<sup>155</sup>

- LIPA did not provide any information as to the management decision making during the event. Furthermore, LIPA states that it had SolarWinds products in production, then later states that it did not have SolarWinds products installed on its network. Key

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<sup>149</sup> Fact verification.

<sup>150</sup> DR 212 Attachment 2.

<sup>151</sup> DR 1540.

<sup>152</sup> DR 1026.

<sup>153</sup> DR 1027 Attachment 1.

<sup>154</sup> DR 1028 original response.

<sup>155</sup> DR 1028 supplement response.

component to a robust cybersecurity program is an accurate inventory of platforms/applications.

**20. PSEG LI and LIPA do not have policies and procedures governing internal network monitoring.**

- PSEG LI states that the lack of internal network monitoring documentation is a known gap that is being addressed under a separate effort.<sup>156</sup>
- LIPA states that its internal network monitoring policy and procedure document is under development.<sup>157</sup>

## **D. RECOMMENDATIONS**

1. Implement the fourteen (14) recommendations as included in the LIPA’s June 2023 IV&V Final Report.
2. Continue the development of the PSEG LI cyber security program. Implement a cyber security framework for AMI data.
3. Engage a third-party to perform comprehensive vulnerability assessments and penetration tests of the PSEG LI environment on a frequent and consistent basis that is contracted and overseen by LIPA.
4. Develop a comprehensive plan and implement each open recommendation from the NERC Best Practices Review.
5. Perform independent audits of the following areas:
  - The IT System Separation Program
  - OMS data quality.
  - PSEG LI’s NERC CIP program (after implementation of each recommendation from the NERC Best Practices Review).
  - PSEG LI’s PACS access control system project.
  - LIPA’s cyber security incident response plan and practices.
6. Implement each requirement noted in the PSC Order in Case 13-M-0178.
7. Identify and hire a Chief Privacy Officer (CPO) and develop a comprehensive privacy program.
  - If PSEG LI’s service provider contract is extended with LIPA, identify and hire CPO reporting to the PSEG LI President. Provide the CPO the authority and resources to develop a privacy program.

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<sup>156</sup> DR 1502.

<sup>157</sup> DR 1503.

- If the PSEG LI service provider contract is not extended, the successful service provider should be contractually required to have a CPO reporting to the President/CEO of the service provider. Provide the CPO the authority and resources to develop a privacy program.
  - If New York legislation concerning the Future of LIPA authorizes a municipal model, identify and hire a CPO reporting to the President/CEO. Provide the CPO the authority and resource to develop a privacy program.
8. Identify a deadline and expedite development LIPA and PSEG LI internal network monitoring policies and procedures. Assign a LIPA team to provide effective oversight of PSEG LI's development of their internal network policies and procedures.

## **XVI. PERFORMANCE MANAGEMENT**

Corporate Performance Management is used to describe the ongoing method of business planning, process and system development, results measurement, review, and feedback, along with the establishment of a corrective action plan. Key elements of an effective performance management program include the design and establishment of meaningful metrics and targets, proper monitoring, reporting and communication of performance, and the design and implementation of an appropriate employee performance review process that links employee objectives and performance targets to the achievement of the overall stated corporate goals and objectives. Measures should be meaningful and appropriately linked to the organization's mission, objectives, and strategic and operational plans. Performance should be reviewed and adjusted to reflect changing business conditions.

Corporate Performance Management and strategic planning are interconnected. As described by the Balanced Scorecard Institute, a strategic plan is a document used to communicate the organization the enterprise's goals, the actions needed to achieve those goals, and the other critical elements necessary to achieve the goals that are developed during the planning exercise. Strategic planning is the process in which an organization's leadership define their vision for the future and identify their organization's goals and objectives at a high level that align with that vision. These goals are then cascaded downward into business plans and objectives such that smaller functional units have individual objectives designed to help achieve a broader corporate or organizational goal. A goal must be an achievable outcome that is generally broad and long-term while an objective defines the measurable actions necessary to achieve the overall goal. Objectives typically have metrics associated with them and are cascaded throughout the organization, typically down to the employee performance evaluation process.

NorthStar's review of Corporate Performance Management encompassed the following RFP Scope Areas:

- Performance and Results Management
- PSEG LI's Data Collection
- Metric Calculation
- Modification/Addition of new metrics

### **A. BACKGROUND**

To appreciate the critical importance of performance management at LIPA, it is important to note recent events that provide context, the current LIPA business model, and key aspects of the current Second Amended and Restated Operations Services Agreement (Second A&R OSA).

Tropical Storm Isaias struck Long Island on August 4, 2020, causing 650,000 LIPA customers to lose power. On the afternoon of the storm, PSEG LI's critical restoration and communication systems failed. Over 1 million customer calls received busy signals, and



300,000 text messages bounced back. The outage map, the municipal portal for government officials, and the mobile phone application also failed. PSEG LI's recently implemented outage management system – used to dispatch trucks, estimate restoration times, and coordinate outage restoration – also failed, hampering restoration efforts. PSEG LI was not sure how many customers were without power throughout the storm. The information PSEG LI did communicate with customers was inaccurate. Estimated restoration times – initially estimated at 24 to 48 hours – were lengthened to as many as eight days. Some customers received more than a dozen estimated restoration times, all incorrect, hampering their ability to plan. Customers with critical emergencies such as wires down were also unable to communicate with PSEG LI.

The New York State Department of Public Service (DPS) and LIPA convened a Task Force to investigate PSEG LI's response to Tropical Storm Isaias. The investigation found that PSEG LI management knew that critical information technology systems were not working prior to the storm. PSEG LI had also failed to maintain or sufficiently test the telephone system in accordance with standard industry practices. Ultimately, the Task Force, DPS and the LIPA Board of Directors recommended, among other things, that the existing A&R OSA be substantially revised.

On June 26, 2021, LIPA and PSEG LI signed a nonbinding term sheet providing for, among other things, the revising and restating of the A&R OSA and other considerations to be provided by PSEG LI in exchange for LIPA's release of certain of its claims. The Second A&R OSA significantly changed the way PSEG LI performance would be determined, as discussed in the Findings and Conclusions section of this chapter. Performance Metrics are now set annually by LIPA and DPS and voted on by the LIPA Board in a public meeting at the end of each year.<sup>1</sup>

In accordance with the Second A&R OSA, PSEG LI must submit its calculation of the incentive compensation due for the incentive year; along with supporting data and information to LIPA within 90 days following the end of the incentive year. LIPA is required to submit its evaluation of PSEG LI's performance to the DPS within 45 days after receipt. The DPS is required to make recommendations to LIPA by 30 days later, and LIPA must notify PSEG LI of its acceptance or disagreement with the calculation and to pay any undisputed portion by 90 days after receipt. **Exhibit XVI-1** provides the maximum timeline for non-leap years.

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<sup>1</sup> For example, see December 14, 2023 BOT Meeting - <https://www.lipower.org/wp-content/uploads/2022/12/5.-Approval-of-2023-LIPA-Budget-Performance-Metrics-Amendment-of-2022-Budget-1-1.pdf>.

**Exhibit XVI-1**  
**Incentive Compensation Claim Maximum Timeline – Non-Leap Year**

Activity	Due Dates
Incentive Year Ends	December 31
PSEG LI Submits Claim with Supporting Documentation	March 31
LIPA Submits its Evaluation to DPS	May 15
DPS Recommendation	June 14
LIPA Notifies PSEG LI of its Acceptance of or Disagreement with the Claim and Pays any Undisputed Amounts <sup>2</sup>	June 29

Source: DRs 503 and 504.

## B. WORK TASKS

- Examine PSEG LI’s management accountability and tracking of performance improvements, e.g., cost savings and productivity gains anticipated from specific capital and O&M (referred to as Operations in LIPA’s budget) programs and projects, and specific corporate goals.
- Review and assess LIPA’s and PSEG LI’s goals, key performance indicators, and metrics, as well as any additional performance measures or indicators that are used to facilitate attainment of the corporate mission, company objectives and goals, State policy objectives and goals (e.g., CLCPA) and/or will help improve performance.
- Evaluate PSEG LI’s change management and continuous improvement processes, including staffing & metrics related to continuous improvement, and any impediments that might constrain performance improvements and necessary changes.
- Assess the extent to which PSEG LI’s management compensation and employee-based performance targets promote corporate goals, grid modernization, safety, and reliability standards, environmental, and CLCPA goals.
- Identify the data inputs and source systems that are used in reporting for the performance metrics and incentive compensation.
- Evaluate whether PSEG LI has an adequate process for ensuring that data collection is accurate and complete, including a review of data integrity and whether there is sufficient detail to trace the data to the source documents with an easily traceable audit trail (on a sample basis if needed).
- Evaluate the timeline for reporting monthly and annual performance results.
- Assess LIPA’s processes for auditing the PSEG LI reported metrics. (New.) Determine the associated level of effort and identify potential redundancies.
- Review the business rules for the calculation of selected metrics, and ensure calculations are accurate, sufficiently documented, reviewed, and approved appropriately.
- Determine if there are any gaps in metrics based on the related scope areas from the Second A&R OSA and recommend new metrics where appropriate.

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<sup>2</sup> There is a dispute resolution process.

## C. FINDINGS AND CONCLUSIONS

**1. LIPA and the DPS have placed a significantly higher proportion of PSEG LI’s compensation at risk in the Second A&R OSA. PSEG LI’s annual compensation at risk increased from \$10 million to \$40 million with the Second A&R OSA. This represents over 51 percent at risk (versus about 15 percent in the previous 6 years) of the total management fees paid to PSEG LI each year by LIPA.**

- **Exhibit XVI-2** provides the fixed fees paid to PSEG LI and the amount of incentive compensation for which PSEG LI was/is eligible based on the achievement of performance metrics.

**Exhibit XVI-2  
PSEG LI Fixed Fees and Eligible Incentive Compensation Amounts**

Contract Years	Fixed Fee	Compensation at Risk [Note 1]	Total Eligible Compensation
2014 – 2015	\$36.3 million	\$5.4 million (13%)	\$41.7 million
2016 – 2021	\$58.0 million	\$10.2 million (15%)	\$68.2 million
2022 – 2025	\$38.0 million	\$40.0 million (51%)	\$78.0 million

Note 1: In 2021 dollars. Includes both PSEG LI’s variable compensation and its compensation that is at risk subject to DPS reduction.

Source: Second A&R OSA.

- For contract years 2022-2025, PSEG LI is eligible for annual variable compensation amounts of \$20 million each year based on the achievement of: (a) certain performance metrics, and (b) an annual compensation pool subject to DPS reduction of up to \$20 million (in 2021 dollars).
  - There is \$20 million of variable compensation at-risk and is based on performance metrics set by LIPA, with an independent recommendation to the LIPA Board by the DPS. These performance standards tie PSEG LI’s compensation to delivering meaningful results for Long Island and Rockaways electric customers.
  - The \$20 million of DPS-evaluated compensation is at-risk if PSEG LI violates its Emergency Response Plan or fails to provide safe and adequate service, as determined by an independent DPS investigation and recommendation to the LIPA Board.

**2. LIPA and the DPS have significantly increased the number of performance metrics and enhanced their depth and breadth with the Second A&R OSA. Performance metrics are better defined and specific.**

- The number of performance metrics more than quadrupled from 26 metrics in four categories (cost management, customer satisfaction, technical and regulatory performance, and financial performance) to 96 metrics in five categories (for 2022) and 93 metrics in five categories (for 2023) under the Second A&R OSA.
- The scope of services provided by PSEG LI under the Second A&R OSA, was categorized into five scope functions, each with sub-functions as shown in **Exhibit**

**XVI-3**, which summarizes the 2022 and 2023 metrics. Specific performance metrics are established for each function/sub-function, and a portion of the \$20 million variable compensation pool is assigned to each metric.

**Exhibit XVI-3**  
**Summary of 2022 and 2023 Second A&R OSA Performance Metrics**  
**(2021 Dollars)**

<b>OSA Scope Function</b>	<b>2022</b>	<b>2023</b>
Information Technology	7 metrics \$3 million Avg: \$429,000 Range: \$250,000-\$800,000	7 metrics \$3 million Avg: \$429,000 Range: \$100,000-\$650,000
Transmission and Distribution (T&D)	40 metrics \$8 million Avg: \$200,000 Range: \$50,000-\$600,000	42 metrics \$8 million Avg: \$190,000 Range: \$50,000-\$600,000
Customer Services	19 metrics \$4 million Avg: \$211,000 Range: \$75,000-\$600,000	22 metrics \$4 million Avg: \$182,000 Range: \$50,000-\$400,000
Power Supply and Clean Energy Programs	9 metrics \$2 million Avg: \$222,000 Range: \$100,000-\$375,000	8 metrics \$2 million Avg: \$250,000 Range: \$100,000-\$600,000
Business Services	21 metrics \$3 million Avg: \$143,000 Range: \$50,000-\$250,000	14 metrics \$3 million Avg: \$214,000 Range: \$150,000-450,000
<b>Total</b>	<b>96 metrics</b> <b>\$20 million</b>	<b>93 metrics</b> <b>\$20 million</b>

Source: Second Amended and Restated Operations Services Agreement between Long Island Lighting Company d/b/a LIPA and PSEG Long Island LLC, dated as of December 15, 2021, as approved by NYS Attorney General and Office of State Comptroller, incorporating Amendment No. 1, dated March 30, 2022, in effect April 1, 2022. (<https://www.lipower.org/wp-content/uploads/2022/04/2nd-AR-OSA-in-effect-on-4-1-2022-1.pdf>), LIPA/PSEG LI 2022 Performance Metrics (<https://www.lipower.org/wp-content/uploads/2021/11/LIPA-PSEG-2022-Performance-Metrics-Package-.pdf>). LIPA 2023 Performance Metrics <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2023-Performance-Metrics.pdf>.

- Additional and stronger gating and default metrics were also established in the Second A&R OSA to address previous failures to achieve minimum performance. PSEG LI’s compensation pool is automatically reduced if it does not stay within budget, or it fails to meet minimum levels of performance in a number of business areas.
- PSEG LI’s incentive compensation was subject to one performance gate in the original OSA contract – cost management. Failure to achieve spending levels of less than or equal to 102 percent of the approved operating budget or less than 102 percent of the approved capital budget would result in a maximum of only 50 percent of the annual incentive compensation target. Failure to achieve both cost management targets would mean PSEG LI was not eligible for any incentive compensation.

- Three gating metrics were established in the Second A&R OSA, as shown in **Exhibit XVI-4**. Commencing in 2024, a fourth customer satisfaction gating metric is added.

**Exhibit XVI-4**  
**Second A&R OSA Gating Performance Metrics**

Gating Metric	Discussion
Cost Management	Same as initial OSA requirement (i.e., 102% of capital and O&M budget in any contract year to be eligible for 100 percent of variable compensation pool). Failure to achieve both metrics for two consecutive years (i.e., at least missed in two consecutive years) reduces the eligible variable compensation pool in the second year to 0%.
SAIDI	Failure to achieve SAIDI performance of 37.5 percentile or better in any contract year reduces the eligible variable compensation pool by 50%.
Emergency Preparation and Response	Failure to achieve a passing score of at least 47% for the respective Emergency Preparation and Response Scorecards results in the following reductions in the variable compensation pool. <ul style="list-style-type: none"> <li>• 48-Hour Metric Storm Event – reduces the pool by 25%</li> <li>• 72-Hour Metric Storm Event – reduces the pool by 50%</li> <li>• Non-Storm Event (subject to DPS determination and contract requirements) – reduces the pool by 50%</li> </ul>
Customer Satisfaction (Beginning in 2024)	Failure to achieve at least a third quartile Customer Satisfaction result in either residential or business for any two consecutive years reduces the variable compensation pool by 15%.

Source: Second Amended and Restated Operations Services Agreement between Long Island Lighting Company d/b/a LIPA and PSEG Long Island LLC, dated as of December 15, 2021, as approved by NYS Attorney General and Office of State Comptroller, incorporating Amendment No. 1, dated March 30, 2022, in effect April 1, 2022. (<https://www.lipower.org/wp-content/uploads/2022/04/2nd-AR-OSA-in-effect-on-4-1-2022-1.pdf>).

- The overall total number of performance metrics was reduced slightly from 96 to 93 in 2023. Metrics were added or eliminated in 2023 to reflect the completion of projects or the achievement of objectives as well as the addition of new requirements, as shown in **Exhibit XVI-5**. Customer Service saw the greatest increase in the number of metrics and Business Services saw the greatest decrease in the number of metrics between years. Deliverables associated with a longer-term project also changed from year to year and definitions may have been modified or clarified. Those changes are not reflected in **Exhibit XVI-5**.

**Exhibit XVI-5**  
**Metrics Eliminated or Added from 2022 to 2023**

Metrics Eliminated in 2023		Metrics Added in 2023	
Transmission and Distribution (T&D)			
T&D-19	Work Management Enhancements – Improve Planning and Tracking of Work	T&D-41	Program Effectiveness – Vegetation Management
T&D-20	Work Management Enhancements – Improve and Standardize Compatible Unit Estimates (CUEs)	T&D-42	Estimated Time of Restoration (ETR) Process Enhancements
T&D-22	Work Management Enhancements – Clarify and Rationalize Work Management Roles	T&D-44	Regulatory Compliance
T&D-32	Estimated Time of Restoration (ETR)	T&D-45	Physical Security
		T&D-46	Root Cause Analysis (RCA) Execution and Compliance
		T&D-48	Program Effectiveness – Storm Hardening
Customer Service (CS)			

Metrics Eliminated in 2023		Metrics Added in 2023	
CS-6	Billing – Inactive Accounts (LTEs)	CS-21	Outage Information Satisfaction
CS-7	Billing – Active Accounts (LTEs)	CS-22	Advance Metering Infrastructure Roadmap and 2023 Improvements
CS-8	Unauthorized Use/Advanced Consumption Resolution	CS-23	Deferred Payment Agreement (DPA) Improvement
CS-12	Customer Email Closure Rate	CS-24	Payment Transaction Ease
CS-16	Days Sales Outstanding (DSO)	CS-25	Interactive Voice Response (IVR) Containment Rate
CS-18	Low to Moderate Income (LMI) Program Automation	CS-26	Life Sustaining Equipment (LSE) Customer Compliance
		CS-27	Estimated Bill Percent
		CS-28	Move Process Improvements
		CS-29	AMI Meter Validation, Estimation, Editing Enhancements and Data Reporting
<b>Information Technology (IT)</b>			
IT-2	Organizational Maturity Level - Managing	IT-8	Cyber Security Organization – Structure, Staffing and Capabilities Review
<b>Business Services (BS)</b>			
BS-2 (ERM-2)	ERM Key Risk Indicators (KRIs)	BS-22	Timely, Accurate and Supported Storm Event Invoicing
BS-3 (HR-1)	Employee Engagement - Participation Rate	BS-23	FEMA Tropical Storm Isaias – Engineering to Support Grant Application
BS-4 (HR-2)	Employee Engagement – Score	BS-24	Improve the Accuracy of Asset Records for Outside Plant
BS-6 (PMA-1)	Contract Administration Manual (CAM) Completion	BS-32	Update Low and Moderate Income (LMI) Tariff and Billing
BS-9 (ACC-1)	Substation Property Tax Report	BS-33	Consolidate Real Estate Footprint
BS-11 (RT-1)	Long Island Choice Reform		
BS-12 (RT-2)	Advanced Metering Infrastructure (AMI) Opt Out Fees		
BS-13 (LEG-1)	Information Request (IR) Responses		
BS-14 (LEG-2)	Legal Staffing		
BS-15 (LEG-3)	Contractor Performance Evaluation System		
BS-16 (E&C-1)	Government & Legislative Affairs		
BS-17 (E&C-1)	Project Outreach		
<b>Power Supply &amp; Clean Energy</b>			
PS&CE-4 (CE-2)	Utility 2.0 – Distribution Energy Resources (DER) Hosting	PS&CE-11	Implementation of Utility 2.0 Projects
PS&CE-7 (CE-5)	Distribution Energy Resources (DER) Interconnection Process	PS&CE-13	Heat Pump Strategy to Address Barriers to Customer Adoption
PS&CE-9 (CE-7)	TOU Pricing Pilot – Year 1 Marketing		

Source: LIPA PSEG LI 2022 Performance Metrics and LIPA PSEG LI 2023 Performance Metrics (<https://www.lipower.org/wp-content/uploads/2022/11/PSEGLI-2022-Performance-Metrics.pdf> and <https://www.lipower.org/wp-content/uploads/2023/03/LIPA-2023-Performance-Metrics.pdf>).

**3. The unique nature of the Second A&R OSA performance metric objectives and the relationship between LIPA and PSEG LI pose challenges in terms of metric development, oversight, and performance management. Although the metrics have increased in number and improved overall, they are not a replacement for an appropriate level of management oversight.**

- Utilities typically recognize a limited number of critical metrics that are used to monitor the organization’s overall performance relative to its mission. These are largely quantitative in nature.
- The number of performance metrics established for PSEG LI has rapidly grown to 96 in 2022 and are 93 in 2023.
- The 2022 performance metrics are split between quantitative measures (60 percent) and qualitative measures (40 percent).



- The qualitative performance measures are generally based on project milestone achievements and deliverables rather than being truly performance-level measurable. A few of the performance measures are a hybrid having both quantitative and qualitative elements. A breakdown of quantitative versus qualitative metrics by functional category for 2022 is provided in **Exhibit XVI-6**.

**Exhibit XVI-6**  
**2022 Metrics by Category (Quantitative/Hybrid vs. Qualitative)**

Quantitative/Hybrid		Qualitative/Project	
<b>Transmission and Distribution (T&amp;D)</b>			
T&D-01 (Hybrid)	Asset Management (AM) Program Implementation - Asset Inventory	T&D-02	Asset Management (AM) Program Implementation - AM Governance
T&D-04	T&D System Relay Operations - Relay Mis-Operations	T&D-03	Enterprise Asset Management (EAM) System Implementation Plan
T&D-05	T&D Inadvertent Operation Events	T&D-06	PTCC/ATCC Replacement
T&D-07	SAIDI (System Average Interruption Duration Index)	T&D-17	Work Mgmt. Enhancements - Short-Term Scheduling
T&D-08	SAIFI (System Average Interruption Frequency Index)	T&D-18	Work Mgmt. Enhancements - Workforce Mgmt. Plans
T&D-09	MAIFI (Momentary Average Interruption Frequency Index)	T&D-19	WME - Improve Planning & Tracking of Work
T&D-10	Sustained Multiple Customer Outages (MCO) - 4 or more	T&D-20	WME - Improve and Standardize Compatible Unit Estimating
T&D-11	Reduce Repeat Customer Sustained MCOs	T&D-21	WME - Work Mgmt. KPIs & Dashboards
T&D-12	Momentary MCO (6 or more)	T&D-22	WME - Clarify and Rationalize Work Mgmt. Roles
T&D-13	Serious Injury Incident Rate (SIIR)	T&D-29	Storm Hardening Work Plan - Transmission Load Pockets
T&D-14	OSHA Recordable Incidence Rate	T&D-33	Real Estate Strategy
T&D-15	OSHA Days Away Rate (Severity)	T&D-34	Construction – Quality and Timely Completion of PJDs
T&D-16	Motor Vehicle Accident Rate		
T&D-23	Employee Overtime		
T&D-24 (Hybrid)	Vegetation Management (VM) Work Plan - Cycle Tree Trim With Veg Intelligence		
T&D-25 (Hybrid)	VM Work Plan - Trim-To-Sky (TTS) Circuits		
T&D-26 (Hybrid)	VM Work Plan - Hazard Tree Removal		
T&D-27 (Hybrid)	Storm Hardening Work Plan - Overhead Hardening		
T&D-28 (Hybrid)	Storm Hardening Work Plan - Underground Hardening		
T&D-30 (Hybrid)	Storm Hardening Work Plan - ACRV Commissioning Program		
T&D-31 (Hybrid)	Storm Hardening Work Plan - LT5H (ASUV) Program		
T&D-32	Estimated Time of Restoration (ETR)		
T&D-35	Construction - Project Milestones Achieved		
T&D-36	Construction - Cost Estimating Accuracy		
T&D-37	Completion of Program Planned Units Per Workplan		
T&D-38	Program Unit Cost Variance		
T&D-39	Project Completion Consistent with Project Design		
T&D-40	Double Woods		
<b>Customer Service (CS)</b>			
CS-02	JD Power Customer Satisfaction Survey (Residential)	CS-01	Delivery of Strategic Customer Experience & Billing Projects
CS-03	JD Power Customer Satisfaction Survey (Business)	CS-04	CIS Modernization – Phase 1
CS-05 (Hybrid)	Customer Transactional Performance	CS-18	Low to Moderate Income Program Automation
CS-06	Inactive Accounts Long Term Estimates (LTEs)		
CS-07	Active Accounts Long Term Estimates (LTEs)		
CS-08	Unauthorized Use/Advanced Consumption		
CS-09	Billing Exception Cycle Time		
CS-10	Billing Cancelled Rebill		
CS-11	Contact Center Service Level with Live Agent Calls		



Quantitative/Hybrid		Qualitative/Project	
CS-12	Customer Email Closure Rate		
CS-13	First Call Resolution (FCR)		
CS-14	Net Write-Offs per \$100 Billed Revenue		
CS-15	AR > 90 (No Exclusions)		
CS-16	Days Sales Outstanding		
CS-17	Low to Moderate Income Program Participation		
CS-19 (Hybrid)	Customer Complaint Rate		
<b>Information Technology (IT)</b>			
		IT-1	Organizational Maturity Level – Doing
		IT-2	Organizational Maturity Level – Managing
		IT-3	System Resiliency
		IT-4	System and Software Lifecycle Management
		IT-5	System Implementation – 2022 Budget Projects
		IT-6	System Implementation – Board PIPs
		IT-7	System Segregation
<b>Business Services</b>			
BS-01 (Hybrid)	Enterprise Risk Management (ERM) Report	BS-02	ERM Key Risk Indicators (KRIs)
BS-03	Employee Engagement - Participation Rate	BS-06	Contract Administration Manual (CAM) Completion
BS-04	Employee Engagement Score	BS-07	Affiliate Cost Benefit Justification
BS-05	Full Time Vacancy Rate	BS-08	Capital Project Impact Analysis
BS-13	Information Request (IR) Response	BS-09	Substation Property Tax Report
BS-16	Government & Legislative Affairs	BS-10	Substation Property Tax Module Plan
BS-17	Project Outreach	BS-11	Long Island Choice Reform
BS-19	Reputation Management – Positive Media Sentiment	BS-12	Advanced Metering Infrastructure (AMI) Opt Out Fees
BS-20	Reputation Management – Share of Voice	BS-14	Legal Staffing
BS-21	Social Media Engagement and Following	BS-15	Contractor Performance Evaluation System
		BS-18	Customer Segmentation
<b>Power Supply &amp; Clean Energy</b>			
PS&CE-3	Energy Efficiency Annualized Energy Saving	PS&CE-1	Integrated Resource Plan (IRP)
PS&CE-5	Beneficial Electrification	PS&CE-2	Energy Storage Request for Proposal (RFP)
PS&CE-6	Electric Vehicle (EV) Make Ready	PS&CE-4	Utility 2.0 - DER Hosting
PS&CE-9	Time of Use Pricing Pilot - Year 1 Marketing	PS&CE-7	DER Interconnection Process
		PS&CE-8	TOU Pricing Options - Space Heating & Large Commercial

Source: DR 502 Attachment 6 – CONFIDENTIAL (PSEG Long Island OSA Performance Metrics, December 2022).

- Both quantitative and qualitative metrics have value, but their limitations need to be understood. Quantitative metrics typically set a pre-defined desired operational target value at a desired level of achievement. Qualitative metrics usually cover areas of operation with standards that are harder to quantify. They are often used to provide the company with timely insight into the status of various projects or improvement efforts.
- The metrics eliminated from 2022 to 2023 were split between quantitative and qualitative measures, but the qualitative metrics that were added were almost double the number of quantitative measures. It appears LIPA/PSEG LI are substituting quantitative metrics for qualitative metrics.
- For 2022, quantitative measures had performance incentives of \$10.8 million (54 percent) and qualitative measures had performance incentives of \$9.2 million (46 percent).
- LIPA oversees PSEG LI, but PSEG LI operates the system in a largely autonomous manner. The OSA, in its various forms, has been the primary tool available to LIPA to hold PSEG LI management accountable for its performance.

- As performance metrics are LIPA’s primary oversight tool, adding performance metrics would logically result in stronger management oversight and operating performance. However, LIPA’s small organization is challenged to provide adequate oversight of PSEG LI activities. For example, in 2022 there were 40 T&D metrics, yet the LIPA T&D organization had six resources (FTEs) below VP-level.<sup>3</sup> That requires each FTE to oversee approximately seven metrics. LIPA utilizes third-party firms for oversight support.<sup>4</sup>
- Comparative examples of quantitative versus qualitative performance measures within both the Transmission and Distribution and Business Services areas are shown in **Exhibit XVI-7**. These examples illustrate the typical difference in qualitative performance objective descriptions related to Work Management Enhancements (WME) processes (T&D-17 through T&D-22) and a quantitative performance metric related to managing employee overtime (T&D-23). A similar comparison is made between qualitative performance measures (BS-9 and BS-10) and a quantitative measure within Business Services (BS-7):

**Exhibit XVI-7**  
**Comparison of Qualitative vs. Quantitative Performance Objectives**

Metric	Objective
T&D-17 through T&D-22 Work Management Enhancements (Qualitative Measure)	Develop Work Management Process Enhancements that optimize staffing levels, productivity, and overtime in support of the scheduled T&D work.
T&D-23 Employee Overtime (Quantitative Measure)	Cost effectively manage T&D employee overtime hours. Overtime targets will be established at the work group level for the following work groups and the associated targets will be established: <ul style="list-style-type: none"> <li>– Overhead/Underground Lines - 33.0%</li> <li>– Distribution Ops - 38.0%</li> <li>– Substation/Relay Maintenance - 32.0%</li> </ul>
BS-09 and BS-10 Substation Property Tax Report (Qualitative Measure)	<ul style="list-style-type: none"> <li>• Develop and complete the first annual Substation PILOT and Valuation Report.</li> <li>• Update the Substation Valuation Report.</li> </ul>
BS-05 Full Time Vacancy Rate (Quantitative Measure)	<ul style="list-style-type: none"> <li>• Achieve an annual vacancy rate no greater than 5.0% for each of the following four categories: <ul style="list-style-type: none"> <li>– Overall PSEG LI</li> <li>– Transmission and Distribution,</li> <li>– Customer Services,</li> <li>– Business Services including Power Markets, and</li> </ul> </li> <li>• Achieve a vacancy rate no greater than 7.0% for the following one category: <ul style="list-style-type: none"> <li>– Information Technology</li> </ul> </li> </ul>

Source: Source: LIPA PSEG LI 2022 Performance Metrics (<https://www.lipower.org/wp-content/uploads/2022/11/PSEGLI-2022-Performance-Metrics.pdf>).

<sup>3</sup> DR 2.

<sup>4</sup> See Chapter XII – Outside Services.

**4. LIPA and PSEG LI do not track the specific cost savings and productivity gains from specific capital and O&M programs and projects.**

- As part of its annual budget development process, PSEG LI requests that each of its business areas provide potential savings opportunities relative to both capital and O&M. They do not routinely track any realized cost savings or productivity gains.<sup>5</sup>
- LIPA requests that PSEG LI submit a supplemental contingency plan which reflects a five percent reduction of the targeted amounts in each of the capital and O&M areas. The plan specifies and itemizes the reductions along with the potential operational and customer impacts.
- Although the 2022 OSA metrics reflect programs intended to improve productivity and operational efficiency, performance is not assessed based on achievement of savings. These programs are intended to inform the development of budget estimates and work plans.

**5. NorthStar found little correlation between PSEG LI’s Performance Incentive Plan (PIP) and achieving grid modernization, safety and reliability, environmental CLCPA goals, and the Second A&R OSA performance metrics for PSEG LI executive management (Grades LX and 31-33).**

- The Second A&R OSA required PSEG LI’s executive management compensation to be substantially determined by, and linked to, function-specific performance metrics and gating performance metrics.
- PSEG LI provides varying structures for PIP based on management and straight time (MAST) employee grades shown in **Exhibit XVI-8**.

**Exhibit XVI-8  
PSEG LI Performance Incentive Plan for 2022**

<b>PSEG LI Employee Grade</b>	<b>PART 1 Corporate Factor- PSEG Operating Earnings Per Share</b>	<b>PART 2 Business Unit Financial Factor</b>	<b>PART 3 Business Unit Scorecard</b>	<b>PART 4 Strategic Goal</b>
<b>Grade EX</b> President & COO Senior Vice Presidents Business Unit Vice Presidents	35%	30%	25%	10%
<b>Grade LX</b> PSEG LI Management Company	30%	30%	30%	10%
<b>Grades 31-33</b> PSEG LI Management Company	30%	20%	40%	10%
<b>All Grades</b> PSEG LI ServCo LLC			90%	10%

Source: DR 10 Attachment10. It is worth noting that all factors and final results may be adjusted up or down by corporate, business, and individual PIP modifiers.

<sup>5</sup> For example, see DR 772 Supplements 3-5 and Chapter XI – Work Management Conclusion #4.

- Where:
  - **Part 1** – is defined as PSEG Corporation Earnings per Share (Non-GAAP).

“The corporate factor is based on PSEG’s operating earnings per share (EPS) non-GAAP. The payout range is from 0.5 for threshold results to a maximum of 2.0 for exceptional results, with a 1.0 for achieving the EPS target.”<sup>6</sup>

- Achieving EPS is a benefit to PSEG Corporation shareholders and not to LIPA.
- **Part 2** – is defined as PSEG LI Unit Financial Targets. The business unit financial factor is an earnings-based financial measure that links to PSEG Corporation’s business plan. The business unit financial factor represents PSEG LI operating earnings.

“For PSEG Long Island operating earnings Business unit leadership communicates targets for the business unit financial factor. The payout range is from 0.5 for threshold results to a maximum of 2.0 for exceptional results, with a 1.0 for achieving the business unit financial target. A limited number of Services Corporation employees may have a financial component of the line of business they support.”<sup>7</sup>

- NorthStar believes that achieving business unit earnings is of benefit to PSEG Corporation and PSEG Corporation shareholders and not to LIPA.
- **Part 3** – is defined as the Second A&R OSA Variable Compensation Achievement.

“For PSEG Long Island the scorecard remains aligned to the Second Amended and Restated Operations Service Agreement (OSA). PSEG Long Island Incentive Compensation is based on target achievement levels of the 96 performance metrics and also avoiding New York State Department of Public Service fines (under 25a construct) associated with Service Provider Failure. The Service Provider’s failure is a violation of one or more of the provisions of the applicable Emergency Response Plan, or the Service Provider’s failure to provide safe, adequate, and reliable service to Long Island and Rockaway customers.”<sup>8</sup>

- This portion of the incentive compensation plan benefits LIPA in the areas of grid modernization, safety and reliability, environmental CLCPA goals, and achieving the Second A&R OSA performance metrics.

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<sup>6</sup> DR 10 Attachment 10.

<sup>7</sup> DR 10 Attachment 10.

<sup>8</sup> DR 10 Attachment 10.

- **Part 4** – is defined as Strategic Goals for PSEG LI. In 2022, there were two goals in this category: Diversity, Equity, and Inclusion and workplace culture, and Community.<sup>9</sup>

“Companies that are built to last do business in a way that delivers value not only for customers but also for their workforce. As one of those companies, PSEG recognizes that diverse talents, backgrounds and experience, across teams and individuals, bring a strength and positive force that create a competitive edge. With that in mind, the 2022 People Strong Goal highlights our Core commitment to Diversity, Equity and Inclusion (DEI) as well as our vision for Powering Progress, both internally and externally.”<sup>10</sup>

- This portion of the incentive compensation plan benefits LIPA but not in the areas of grid modernization, safety and reliability, environmental CLCPA goals, and achieving the Second A&R OSA performance metrics.
- As shown in **Exhibit XVI-8**, PSEG LI executive management, Grades LX and 31-33 can receive 70 percent and 60 percent, respectively, of their incentive pay and not achieve any of the performance metrics within the Second A&R OSA. The correlation between incentive pay and managing the PSEG LI business unit is not appropriately weighted for “at-risk” compensation.<sup>11</sup>
- PSEG LI MAST PIP does not mention incentives for achieving grid modernization, safety, reliability standards, environmental, or CLCPA goals.<sup>12</sup>

#### **6. The Second A&R OSA performance metrics have gaps with LIPA’s mission as well as its Five-Year Strategic Roadmap plan.**

- The LIPA’s mission has not substantially changed since the previous management audit in 2018. The LIPA’s mission is to provide clean, reliable and affordable energy to customers in Long Island and the Rockaways.<sup>13</sup>
- The Board Policy on Strategic Planning and Performance Management directs the LIPA CEO in consultation with the Service Provider to develop five-year roadmaps for each key business area to advance the Board’s strategic objectives. The Five-Year Strategic Roadmap for 2023 to 2027 was approved by the Board in March 2023.<sup>14</sup>

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<sup>9</sup> DR 10 Attachment 10.

<sup>10</sup> DR 10 Attachment 10.

<sup>11</sup> DR 10 Attachment 10.

<sup>12</sup> DR 10 Attachment 10.

<sup>13</sup> LIPA Board Policy #1683 as amended on November 17, 2021. [www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf](http://www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf).

<sup>14</sup> LIPA Board Policy # 1777 as amended on February 15, 2023. [www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf](http://www.lipower.org/wp-content/uploads/2023/09/Board-Policies-9-2023.pdf). For more information on Strategic Planning, see Chapter III – Governance.

- There are five strategic priorities containing 21 strategic goals in the Five-Year Strategic Roadmap plan as shown in **Exhibit XVI-9**. The Five-Year Strategic Roadmap includes a number of initiatives to facilitate the achievement of the strategic goals.

**Exhibit XVI-9**  
**Five-Year Strategic Roadmap Strategic Priorities and Goals for 2023 to 2027**

Transmission & Distribution	Customer Experience	Finance	Information Technology	Performance Management
<ul style="list-style-type: none"> <li>• Adopt a programmatic approach to asset management</li> <li>• Apply modern system design and innovative technology</li> <li>• Facilitate interconnection of renewable and distributed resources</li> <li>• Reduce outages caused by storms and other emergencies</li> <li>• Protect the LIPA grid from natural hazards and unauthorized access and disruption</li> <li>• Provide a safe environment for LIPA's dedicated workforce and the public</li> </ul>	<ul style="list-style-type: none"> <li>• Use customer and operational data to enhance customer transactions</li> <li>• Optimize customer channel experience and self-service utilization</li> <li>• Modernize core customer systems</li> <li>• Improve energy affordability through rate design and targeted programs</li> <li>• Provide proactive and personalized communications and customized offerings</li> <li>• Strengthen customer operations capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease LIPA's financial leverage and cost of capital</li> <li>• Advance a "value for money" culture by strengthening budgets, financial plans, and financial reporting</li> <li>• Enhance LIPA's financial management capabilities (treasury, insurance, financial forecasting, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that system implementations deliver business benefits on time and on budget</li> <li>• Establish dedicated IT systems and support organizations for Long Island</li> <li>• Ensure technology platforms are robust and operationally stable</li> <li>• Protect IT systems and data from unauthorized access and disruption</li> <li>• Strengthen long-term systems planning</li> <li>• Strengthen the capacity of the IT organization</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that performance management mechanisms in the 2nd A&amp;R OSA are successfully implemented (IV&amp;V, metrics, service provider performance evaluations)</li> <li>• Create a performance management culture across LIPA and PSEG Long Island</li> <li>• Ensure that future management arrangements reflect LIPA's accumulated knowledge and experience on performance management</li> <li>• Prepare for the potential transition of PSEG affiliate functions at the end of the current contract</li> </ul>

Source: LIPA/PSEG LI Five-Year Strategic Roadmap 2023 to 2027, March 2023.

- **Exhibit XVI-10** provides a comparison of the LIPA's mission, strategic priorities, initiatives and Second A&R OSA performance metrics.
  - LIPA's mission to provide affordable energy does not have specific metrics to demonstrate progress. There is a gating metric to spend within 102 percent of the approved budget. If PSEG LI misses this gating metric for two consecutive years the variable incentive compensation is reduced to zero in the second year.
  - There are goals noted in the Five-Year Strategic Roadmap without metrics.
  - Many initiatives noted in the Five-Year Strategic Roadmap, including IT system implementations, are or have been delayed.
  - Finance goals and initiatives are not easily applied to performance metrics as they are specific to LIPA and not directly performed by PSEG LI.



**Exhibit XVI-10**

**LIPA Mission, Five-Year Strategic Roadmap and OSA Performance Metrics**

Mission/Strategic Priority/Goal/Initiative	Quantitative or Hybrid Metric	Qualitative Metric	Notes
<b>Mission<sup>15</sup></b>			
<b>Clean Energy</b> 1. Achieve a zero-carbon electric grid by 2040, while meeting or exceeding LIPA’s share of the clean energy goals of NY CLCPA, including those for renewables, offshore wind, distributed solar, and storage. 2. Demonstrate innovation and be recognized among the leading utilities in reducing economy-wide greenhouse gas emissions through energy efficiency and beneficial electrification. 3. Improve equity for disadvantaged communities, as measured by meeting or exceeding LIPA’s share of New York’s environmental justice goals as defined by the CLCPA	PS&CE-03 PS&CE-05 PS&CE-06	PS&CE-02 PS&CE-11 PS&CE-13	Five-Year Roadmap for Clean Energy is not due until May 2024.  Energy Storage RFP outcome is pending.  No metric for DACs.
<b>Reliable Energy</b> 1. Plan for a power supply portfolio that meets or exceeds industry standards for reliability, as demonstrated through Integrated Resource Plans (IRP) conducted no less than every five years		PS&CE-01	IRP developed but not approved.  Summary was presented to LIPA Board in November 2023.
<b>Affordable Energy</b> 1. Consider the benefits and costs of its clean energy programs and power supply 2. Competitively procure the least-cost resources and programs that meet our clean energy and reliability objectives 3. Regularly demonstrate efforts to minimize cost and maximize performance with contractual counterparties and through advocating with regulatory authorities for fair cost allocations			No metrics.
<b>Strategic Priority: Transmission &amp; Distribution (T&amp;D)</b>			
<b>Adopt a programmatic approach to asset management</b> 1. Implement an asset management program (ISO-55001) 2. Implement an Enterprise Asset Management System (EAMS)	T&D-01	T&D-02 T&D-03 IT-05 IT-06	EAMS is delayed.
<b>Apply modern system design and innovation technology.</b> 1. Advanced Distribution Management System (ADMS) 2. Advanced protection and control system 3. Improve operational efficiency from smart meter, distribution system, and sensor data. 4. New primary transmission control center (PTCC) 5. Convert LIPA fleet to EVs 6. Track and monitor technical innovations		T&D-06 IT-05 IT-06	PTCC Delayed. In service date was supposed to be Q1 2024. <sup>16</sup>
<b>Facilitate interconnection of renewable and distributed resources</b> 1. Enhance customer programs and interconnection rules 2. Deploy Distributed Energy Resource Management System (DERMS) 3. Strengthen DER forecasting to optimize hosting capacity.		PS&CE-11 IT-05	Metric related to execution of Utility 2.0 projects. Certain projects relate to interconnection and hosting capacity maps.
<b>Reduce number of storm and other emergency outages</b> 4. Storm hardening 5. Vegetation intelligence for storm hardening 6. Predictive storm impact modeling	T&D-07 T&D-08 T&D-09 T&D-10 T&D-11 T&D-12		

<sup>15</sup> Each Mission element defined in Board Policy on Clean Energy and Power Supply, #1727 as amended on May 18, 2022.

<sup>16</sup> PSEG LI PIP 10.01 Develop a comprehensive and formal strategy for the development of a new Primary Transmission Control Center (PTCC) and Alternate Control Center (ACC), April 2021



Mission/Strategic Priority/Goal/Initiative	Quantitative or Hybrid Metric	Qualitative Metric	Notes
	T&D-24 T&D-27 T&D-28 T&D-29 T&D-30 T&D-31 T&D-48		
Physical Security		T&D-45	AMAG system implementation delayed.
Safety for LIPA dedicated workforce and public	T&D-13 T&D-14 T&D-15 T&D-16		
<b>Strategic Priority: Customer Experience (CX)</b>			
<b>Enhance customer transaction performance</b> 1. Expand customer feedback and sentiment data collection 2. Utilize CX and operation data for improvements	CS-05		
<b>Optimize customer channel experience</b> 1. Ensure customer interactions are intuitive and efficient 2. Increase and optimize self-service utilization	CS-25	CS-23 CS-24	
<b>Modernize core customer systems</b> 1. New Customer Information System (CIS) 2. Call Center Solution to facilitate continuous improvement 3. Utilize AMI to improve CX	CS-09 CS-27	CS-01 CS-04 CS-22 CS-28 CS-29	CIS implementation is delayed.
<b>Improve energy affordability through rate design and targeted programs.</b> 1. Time-of-Day Rollout 2. CX considerations into rate and tariff decision-making 3. Expand LMI and benefits to DCAs	CS-17	PS&CE-08 BS-32	Delayed from ToD rates scheduled for September 2023; Go-Live scheduled for November 2023 was delayed.
<b>Provide proactive and personalized communications and offerings</b> 1. Timely and accurate communication with customers 2. Data driven segmentation for communications and offerings	CS-10 CS-21 BS-18	CS-26	
<b>Strengthen customer operations capacity</b>	CS-02 CS-03 CS-11 CS-13 CS-19		
<b>Strategic Priority: Finance</b>			
<b>Decrease LIPA's leverage and cost of capital</b> 1. Improve debt-to-asset ratio 2. Maximize grant and low-cost funding 3. Minimize costs through securitization and tax-exempt financing. 4. Reduce costs in real estate.	LIPA's debt-to-assets ratio from 92% to 70% or less by 2030  T&D-33		See Chapter V – Debt.
<b>“Value for Money” culture</b> 1. Business Process Optimization practice 2. Improving financial analysis and fiscal management capacities 3. Improve capital project review processes 4. Integrated operational and financial performance framework		BS-08	See Chapter III – Governance.  See Chapter X – Program & Project Management.
<b>Enhance LIPA Financial Operations</b> 1. Implement Treasury Management System 2. Insurance Management 3. Improve capabilities to assess and forecast			No metrics.
<b>Strategic Priority: Information Technology (IT)</b>			
<b>Ensure system implementations deliver on business requirements</b>		IT-01 IT-05	

Mission/Strategic Priority/Goal/Initiative	Quantitative or Hybrid Metric	Qualitative Metric	Notes
		IT-06	
Establish dedicated OT, IT, and Cyber Security Systems (separate 46 IT systems)		IT-07	System Separation project is delayed.  See Chapter XV – IT & Cyber Security.
Robust technology platforms for operational stability 1. Business continuity, disaster response, and incident response programs 2. IT and OT assets are within service life and have vendor support.		IT-03 IT-04	See Chapter XV- IT & Cyber Security.
Protect IT systems and data from unauthorized access or disruption 1. Dedicated cyber security organization and program 2. Regular vulnerability assessments and penetration testing 3. Communicate how customer information is collected, used and disclosed		IT-08  Cyber Security Default Performance Metric	See Chapter XV- IT & Cyber Security.
Strengthen long-term IT and OT systems planning			No meaningful initiatives in 2023  No metrics.
Strengthen the capacity of the IT organization 1. Dedicated IT management team and organizational maturity 2. IT governance structure 3. Establish PMO 4. Third party contracting resources	BS-05	IT-01 IT-05 IT-06	See Chapter XV- IT & Cyber Security.
<b>Strategic Priority: Performance Management (PM)</b>			
Ensure that performance management mechanisms in the Second A&R OSA are successfully implemented 1. Socialize key contractual changes 2. Build capacity to employ performance management mechanisms			No metrics.
Performance management culture			No metrics.
Lessons learned included in future OSA			No metrics.

Source: LIPA/PSEG LI Five-Year Strategic Road Map – March 29, 2023 and 2023 PSEG LI Performance Metrics.

**7. PSEG LI’s efforts at continuous improvement have mixed results. PSEG LI is challenged to deliver improvements in work management, project management, outside services, and other core operational processes.**

- Since the establishment of the original A&R OSA, it was critical that Long Island utility customers receive electric service that is both cost-effective and high quality comparable to what is demanded of other New York utilities. The Second A&R OSA again expanded PSEG LI’s role to assume management responsibility, while increasing the level of incentive compensation. **Exhibit XVI-11** shows changes in the Second A&R OSA quantitative metrics from 2022 to 2023 to achieve continuous improvement from PSEG LI.

**Exhibit XVI-11  
Comparison of 2022 and 2023 OSA Quantitative Metrics**

<b>2022 Metric No.</b>	<b>2022 Metric Name</b>	<b>2022 Target</b>	<b>2023 Target</b>	<b>2023 Metric Name</b>	<b>2023 Metric No.</b>
T&D-04	T&D System Relay Operations - Relay Mis-Operations	18	13	T&D System Relay Operations – Relay Mis-Operations	T&D-04
T&D-05	T&D Inadvertent Operation Events	34	26	T&D Inadvertent Operation Events	T&D-05
T&D-07	SAIDI (System Average Interruption Duration Index)	59.0	57.5	SAIDI (System Average Interruption Duration Index)	T&D-07
T&D-08	SAIFI (System Average Interruption Frequency Index)	0.76	0.70	SAIFI (System Average Interruption Frequency Index)	T&D-08
T&D-09	MAIFI (Momentary Average Interruption Frequency Index)	1.89	1.70	MAIFI (Momentary Average Interruption Frequency Index)	T&D-09
T&D-10	Sustained Multiple Customer Outages (MCO) – 4 or more	23,475	21,000	Sustained Multiple Customer Outages (MCO) – 4 or more	T&D-10
T&D-11	Reduce Repeat Customer Sustained MCOs	46	28	Reduce Repeat Customer Sustained MCOs	T&D-11
T&D-12	Momentary MCO (6 or more)	92,500	76,300	Momentary MCO (6 or more)	T&D-12
T&D-13	Serious Injury Incident Rate (SIIR)	0.11	0.00	Serious Injury Incident Rate (SIIR)	T&D-13
T&D-14	OSHA Recordable Incidence Rate	1.12	0.76	OSHA Recordable Incidence Rate	T&D-14
T&D-15	OSHA Days Away Rate (Severity)	12.50	8.51	OSHA Days Away Rate (Severity)	T&D-15
T&D-16	Motor Vehicle Accident Rate	9.20	6.93	Motor Vehicle Accident Rate	T&D-16
T&D-23	Employee Overtime	OH/UG 33% DO 38% Sub/RM 32%	OH/UG 31% DO 36% Sub/RM 32%	Employee Overtime	T&D-23
T&D-35	Construction - Project Milestones Achieved	85.0%	90.0%	Construction - Project Milestones Achieved	T&D-35
T&D-36	Construction - Cost Estimating Accuracy	85.0%	90.0%	Construction - Cost Estimating Accuracy	T&D-36
T&D-37	Completion of Program Planned Units Per Workplan	87.5%	95.0%	Completion of Program Planned Units Per Workplan	T&D-37
T&D-38	Program Unit Cost Variance	87.5%	Achieve +/-5% of the planned per unit and per-mile costs within the established target and based on the latest LIPA-approved PJD documentation.	Program Unit Cost Variance	T&D-38
T&D-40	Double Wood Poles	6,295	5,829	Double Wood Poles	T&D-40
PS&CE-3	Energy Efficiency Annualized Energy Savings	1,147,670	900,730	Energy Efficiency Annualized Energy Savings	PS&CE-3
PS&CE-5	Beneficial Electrification	100.0%	100.0%	Beneficial Electrification	PS&CE-5
PS&CE-6	Electric Vehicle (EV) Make Ready	100.0%	100.0%	Electric Vehicle (EV) Make Ready	PS&CE-6
CS-02	J.D. Power Customer Satisfaction Survey (Residential)	3rd Quartile	740 or 10th Rank	J.D. Power Customer Satisfaction Survey (Residential)	CS-02
CS-03	J.D. Power Customer Satisfaction Survey (Business)	3rd Quartile	9th Rank	J.D. Power Customer Satisfaction Survey (Business)	CS-03
CS-09	Billing Exception Cycle Time	95.0%	98.50%	Billing Exception Cycle Time	CS-09

2022 Metric No.	2022 Metric Name	2022 Target	2023 Target	2023 Metric Name	2023 Metric No.
CS-10	Billing Cancelled Rebill	0.50%	.18%	Billing Cancelled Rebill	CS-10
CS-11	Contact Center Service Level with Live Agent Calls	80.0%	80.0%	Contact Center Service Level with Live Agent Calls	CS-11
CS-13	First Call Resolution (FCR)	80.0%	81.0%	First Call Resolution (FCR)	CS-13
CS-14	Net Write-Offs per \$100 Billed Revenue	0.77	\$28,965,369	Net Write-Offs per \$100 Billed Revenue	CS-14
CS-15	AR > 90 (No Exclusions)	27.39%	48.04%	AR > 90 (No Exclusions)	CS-15
CS-17	Low to Moderate Income Program Participation	55,000	50,000	Low to Moderate Income Program Participation	CS-17
BS-05	Full-Time Vacancy Rate	100.0%	100%	Full-Time Vacancy Rate	BS-05
BS-19	Reputation Management – Positive Media Sentiment	28.0%	30.0%	Reputation Management – Positive Media Sentiment	BS-19
BS-20	Reputation Management – Share of Voice	50.0%	50.0%	Reputation Management – Share of Voice	BS-20
BS-21	Social Media Engagement and Following	100.0%	100.0%	Social Media Engagement and Following	BS-21

Source: 2022 and 2023 PSEG LI Performance Metrics and DR 1547.

- PSEG LI states that continuous improvement is a core commitment at PSEG and all its subsidiaries including PSEG LI. PSEG LI references PSEG’s corporate core commitment:

“We aspire to achieve excellence. We responsibly question the status quo and each other. We benchmark processes to streamline workflows and increase efficiency. We leverage teamwork to face complex issues and decisions. We take action to improve personal performance. We are accountable for our accomplishments and setbacks and learn from them to influence future decisions.”<sup>17</sup>

- NorthStar found that PSEG LI has not always embraced its core commitment to continuous improvement:
  - For 2022 PSEG LI performance metrics, LIPA evaluated each metric and determined that 66 of the 96 performance metrics were fully met, seven were partially met, and 23 were not met.
  - Work Management – The 2013 management audit recommended an integrated work management system to formalize planned work, support requirements, and provide continuous feedback on workforce effectiveness.<sup>18</sup> The 2018 management audit recommended an integrated a work management system covering all PSEG LI operations, maintenance and construction resources that are based on engineered time standards and cover routine operations, repetitive maintenance activities, planned work, support requirements, and provide

<sup>17</sup> DR 1577.

<sup>18</sup> Comprehensive Management and Operations Audit of Long Island Power Authority, Matter No. 12-00314, Final Report September 13, 2013. Recommendation 13.4.1.

continuous feedback on workforce effectiveness. PSEG LI still has not implemented a work management program as recommended in the 2013 and 2018 management audits.<sup>19</sup>

- Project Management – PSEG LI has not improved project estimating, cost management, and schedule management. PSEG LI still does not use an industry accepted WBS despite in 2018 management audit recommendations.<sup>20</sup>
- Outside Services – PSEG LI has not improved its methods to inventory management (i.e., use of MIN/MAX) and contactor services.<sup>21</sup>
- Cyber Security – PSEG LI had two audits of PII that identified similar issues. Furthermore, PSEG LI does not remediate in a timely manner findings from vulnerability assessments and penetration tests.
- Business Continuity and Disaster Recovery Planning – PSEG LI did not meet the requirements for the IT System Resiliency metric (IT-03) in 2022 and may not achieve the metric in 2023. IT-03 requires well-designed, robust, and thoroughly exercised Disaster Recovery and Business Continuity Plans for specified critical systems/processes.<sup>22</sup>
- PSEG LI does not perform employee surveys and feedback on training programs to improve training curriculum.<sup>23</sup>

#### **8. LIPA provides due diligence in its review of monthly performance metrics. LIPA “fails” PSEG LI on metrics for incomplete or poor-quality product.**

- **Exhibit XVI-12** provides 2022 and 2023 metrics. Metrics shaded in grey were reviewed in detail during NorthStar’s Audit. **Exhibit XVI-12** provides the metric requirements and how PSEG LI performed. The complete performance reports can be found on LIPA’s website. LIPA has divided the metrics into five categories:
  - Business Services (BS)
  - Customer Service (CS)
  - Information Technology (IT)
  - Power Supply and Clean Energy (PS&CE)
  - Transmission and Distribution (T&D)
- LIPA posts quarterly and annual performance reports for all metrics.<sup>24</sup>

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<sup>19</sup> See Chapter XI – Work Management for more information. Also, Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC, Matter N0. 16-01248, June 29, 2018.

<sup>20</sup> See Chapter X – Program and Project Management for more information. Also, see the NorthStar Consulting Group, Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC, Matter N0. 16-01248, June 29, 2018.

<sup>21</sup> See Chapter XII – Outside Services for more information.

<sup>22</sup> See Chapter XIV – Information Technology and Cyber Security for more information.

<sup>23</sup> See Chapter III – Governance.

<sup>24</sup> [www.lipower.org](http://www.lipower.org).

**Exhibit XVI-12  
Second A&R OSA 2022 and 2023 Metrics.**

<b>Metric No.</b>	<b>Metric Description</b>	<b>Type</b>	<b>Years</b>	<b>2022 Goal</b>	<b>2022 Actual</b>	<b>2022 Pass/Fail</b>
BS-01	ERM Report	Qualitative	2022 and 2023	5 Deliverables	5 Deliverables	Pass
BS-02	ERM KRIs	Qualitative	2022			
BS-03	Employee Engagement - Participation Rate	Quantitative	2022			
BS-04	Employee Engagement Scorecard	Quantitative	2022	Improve 4% in 4 out of 6 areas	2 areas met the criterium	Fail
BS-05	Full-Time Vacancy Rate	Quantitative	2022 and 2023			
BS-06	CAM	Qualitative	2022			
BS-07	Affiliate Cost Benefit Justification	Qualitative	2022 and 2023			
BS-08	Capital Project Impact Analysis	Qualitative	2022 and 2023			
BS-09	Substation Property Tax Report	Qualitative	2022			
BS-10	Substation Property Tax Module Plan	Qualitative	2022 and 2023			
BS-11	LI Choice Reform	Qualitative	2022			
BS-12	AMI Opt Out Fees	Qualitative	2022			
BS-13	IR Responses	Quantitative	2022			
BS-14	Legal Staffing	Qualitative	2022			
BS-15	Contractor Performance Eval System	Qualitative	2022			
BS-16	Government and Legislative Affairs	Qualitative	2022	28 Deliverables	28 Deliverables	Pass
BS-17	Project Outreach	Qualitative	2022	14 Deliverables	Poor quality	Fail
BS-18	Customer Segmentation	Qualitative	2022 and 2023	16 Deliverables	16 Deliverables	Pass
BS-19	Reputation Management - Positive Media Sentiment	Quantitative	2022 and 2023	>28%	63.1%	Pass
BS-20	Reputation Management - Share of Voice	Quantitative	2022 and 2023	>50%	100%	Pass
BS-21	Social Media Engagement and Following	Quantitative	2022 and 2023			
BS-22	Timely, Accurate, and Supported Storm Event Invoicing	Quantitative	New in 2023			
BS-23	FEMA Tropical Storm Isaias Grant -- Engineering to Support Grant Application	Qualitative	New in 2023			

Metric No.	Metric Description	Type	Years	2022 Goal	2022 Actual	2022 Pass/Fail
BS-24	Improve the Accuracy of Asset Records for Outside Plant	Qualitative	New in 2023			
BS-32	Update Low and Moderate Income (LMI) Tariff and Billing	Qualitative	New in 2023			
BS-33	Consolidate Real Estate Footprint	Qualitative	New in 2023			
CS-01	Delivery of Customer Experience and Billing Projects	Qualitative	2022 and 2023	17 Deliverables	16 Deliverables	Partial
CS-02	JD Power Customer Satisfaction Survey - Residential	Quantitative	2022 and 2023	3 <sup>rd</sup> Quartile	4 <sup>th</sup> Quartile	Fail
CS-03	JD Power Customer Satisfaction Survey - Business	Quantitative	2022 and 2023	3 <sup>rd</sup> Quartile	4 <sup>th</sup> Quartile	Fail
CS-04	CIS Modernization	Qualitative	2022 and 2023	11 Deliverables	Poor Quality	Partial
CS-05	Customer Transactional Performance	Qualitative	2022 and 2023			
CS-06	Inactive Accounts LTE	Quantitative	2022	<861	535	Pass
CS-07	Active Accounts LTE	Quantitative	2022	<700	623	Pass
CS-08	Unauthorized Use/Advanced Consumption	Quantitative	2022			
CS-09	Billing Exception Cycle Time	Quantitative	2022 and 2023	>95%	98.6%	Pass
CS-10	Bill Cancelled Rebill	Quantitative	2022 and 2023	<0.50%	0.23%	Pass
CS-11	Service Level with Live Agents	Quantitative	2022 and 2023	>80%	29.2%	Fail
CS-12	Customer Email Closure Rate	Quantitative	2022			
CS-13	First Call Resolution	Quantitative	2022 and 2023			
CS-14	Net Write-Offs	Quantitative	2022 and 2023			
CS-15	AR>90	Quantitative	2022 and 2023			
CS-16	Days Sales Outstanding	Quantitative	2022			
CS-17	Low to Moderate Income Program Participation	Quantitative	2022 and 2023	>55,000	42,365	Fail
CS-18	LMI Program Automation	Qualitative	2022	3 Deliverables	3 Deliverables	Pass
CS-19	Customer Complaint Rate	Quantitative	2022 and 2023			
CS-22	Advanced Metering Infrastructure Roadmap and 2023 Improvements	Qualitative	New in 2023			
CS-23	Deferred Payment Agreement (DPA) Improvement	Qualitative	New in 2023			



Metric No.	Metric Description	Type	Years	2022 Goal	2022 Actual	2022 Pass/Fail
CS-24	Payment Transaction Ease	Qualitative	New in 2023			
CS-25	Interactive Voice Response (IVR) Containment Rate	Quantitative	New in 2023			
CS-26	Life Sustaining Equipment (LSE) Customer Compliance	Qualitative	New in 2023			
CS-27	Estimated Bill %	Quantitative	New in 2023			
CS-28	Move Process Improvement	Qualitative	New in 2023			
CS-29	AMI Meter Validation, Estimation, Editing Enhancements and Data Reporting	Qualitative	New in 2023			
IT-01	Organizational Maturity - Doing	Qualitative	2022 and 2023	2 Deliverables	Not at Expected Levels <sup>1</sup>	Partial
IT-02	Organizational Maturity - Managing	Qualitative	2022	2 Deliverables	Not at Expected Levels <sup>1</sup>	Fail
IT-03	System Resiliency	Qualitative	2022 and 2023	9 Deliverables	About 1	Fail
IT-04	System and Software Lifecycle Management	Qualitative	2022 and 2023			
IT-05	System Implementation - 2022 Budget Projects	Qualitative	2022 and 2023	Over 50 deliverables	Project Management Deficiencies <sup>2</sup>	Partial
IT-06	System Implementation - Board Project Implementation Plans	Qualitative	2022 and 2023	Over 50 deliverables	Project Management Deficiencies but accepted. <sup>2</sup>	Pass
IT-07	System Segregation	Qualitative	2022 and 2023			
IT-08	Cyber Security Organization - Structure, Staffing and Capabilities Review	Qualitative	New in 2023			
PS&CE-01	IRP	Qualitative	2022 and 2023	4 Deliverables	4 Deliverables	Pass
PS&CE-02	Energy Storage RFP	Qualitative	2022 and 2023			
PS&CE-03	EE Energy Savings	Quantitative	2022 and 2023	>1,147,60	1,223,083	Pass
PS&CE-04	Utility 2.0 - DER Hosting	Qualitative	2022			
PS&CE-05	BE	Quantitative	2022 and 2023			
PS&CE-06	EV Make Ready	Quantitative	2022 and 2023			
PS&CE-07	DER Interconnection Process	Qualitative	2022			

Metric No.	Metric Description	Type	Years	2022 Goal	2022 Actual	2022 Pass/Fail
PS&CE-08	TOU - Space Heating and Large Commercial	Qualitative	2022 and 2023			
PS&CE-09	TOU Pilot - Year 1 Marketing	Quantitative	2022	>12,000	13,434	Pass
PS&CE-11	Implementation of Utility 2.0 Projects	Qualitative	New in 2023			
PS&CE-13	Heat Pump Strategy to Address Barriers to Customer Adoption	Qualitative	New in 2023			
T&D-01	Asset Management Program Implementation - Asset Inventory	Qualitative	2022 and 2023	12 Deliverables	10 accepted	Fail
T&D-02	Asset Management Program Implementation - Asset Management Governance	Qualitative	2022 and 2023			
T&D-03	EAMS Implementation Plan	Qualitative	2022 and 2023			Pass
T&D-04	T&D System Relay Operations - Relay Mis-operations	Quantitative	2022 and 2023	<18	18	Pass
T&D-05	T&D Inadvertent Operations Events	Quantitative	2022 and 2023	<34	23	Pass
T&D-06	PTCC/ATCC Replacement	Qualitative	2022 and 2023			
T&D-07	SAIDI	Quantitative	2022 and 2023	<59.0	56	Pass
T&D-08	SAIFI	Quantitative	2022 and 2023	<0.76	0.68	Pass
T&D-09	MAIFI	Quantitative	2022 and 2023	<1.89	1.67	Pass
T&D-10	S-MCO	Quantitative	2022 and 2023	<23,745	19,762	Pass
T&D-11	RS-MCO	Quantitative	2022 and 2023			
T&D-12	M-MCO	Quantitative	2022 and 2023	<92,500	72,198	Pass
T&D-13	SIR	Quantitative	2022 and 2023			
T&D-14	OSHA Recordable Incidence Rate	Quantitative	2022 and 2023			
T&D-15	DART	Quantitative	2022 and 2023			
T&D-16	MVA	Quantitative	2022 and 2023			
T&D-17	WM - Short-term Scheduling	Qualitative	2022 and 2023	2 Deliverables	2 Deliverables	Pass
T&D-18	WM - WF Management Plans	Qualitative	2022 and 2023			
T&D-19	WM - Planning and Tracking	Qualitative	2022			
T&D-20	WM - Stabilize CUEs	Qualitative	2022			
T&D-21	WM - KPIs and Dashboards	Qualitative	2022 and 2023	1 Deliverable	1 Deliverable	Pass
T&D-22	WM - Roles Clarification	Qualitative	2022			

Metric No.	Metric Description	Type	Years	2022 Goal	2022 Actual	2022 Pass/Fail
T&D-23	Employee Overtime	Quantitative	2022 and 2023			
T&D-24	VM - Cycle Tree Trim with Vegetation Intelligence	Qualitative	2022 and 2023	4 Deliverables	Failed to meet budget	Fail
T&D-25	VM - Trim to Sky Circuits	Qualitative	2022 and 2023			
T&D-26	VM - Hazard Tree Removal	Qualitative	2022 and 2023			
T&D-27	Storm Hardening - Overhead	Qualitative	2022 and 2023			
T&D-28	Storm Hardening - Underground	Qualitative	2022 and 2023			
T&D-29	Storm Hardening - Transmission Load Pockets	Qualitative	2022 and 2023	2 Deliverables	2 Deliverables	Pass
T&D-30	Storm Hardening - ACRV Program	Qualitative	2022 and 2023			
T&D-31	Storm Hardening - ASUV Program	Qualitative	2022 and 2023			
T&D-32	Estimated Time of Restoration	Quantitative	2022	>65.0%	71.6%	Pass
T&D-33	Real Estate Strategy	Qualitative	2022 and 2023			
T&D-34	Construction - PJDs	Qualitative	2022 and 2023			
T&D-35	Construction - Project Milestones Achieved	Quantitative	2022 and 2023	>85.0%	91.9%	Pass
T&D-36	Construction - Cost Estimating Accuracy	Quantitative	2022 and 2023	>85.0%	90.7%	Pass
T&D-37	Completion of Program Planned Units per Workplan	Quantitative	2022 and 2023	>87.5%	87.5%	Pass
T&D-38	Program Unit Cost Variance	Quantitative	2022 and 2023			
T&D-39	Project Completion Consistent with Project Design	Qualitative	2022 and 2023			
T&D-40	Double Wood Poles	Quantitative	2022 and 2023	<6,295	6,477	Fail
T&D-41	Program Effectiveness - Vegetation Management	Quantitative	New in 2023			
T&D-42	Estimated Time of Restoration (ETR) Process Enhancements	Qualitative	New in 2023			
T&D-44	Regulatory Compliance	Quantitative	New in 2023			
T&D-46	Root Cause Analysis (RCA) Execution and Compliance	Qualitative	New in 2023			
T&D-48	Program Effectiveness - Storm Hardening	Quantitative	New in 2023			

Note 1: LIPA's 2022 Year-End Report on PSEG LI Performance Metrics states: "Weak project management and organizational maturity significantly hampered the effectiveness of the IT organization and was a major factor in the performance shortfalls for the 2022 metrics. IT had the weakest performance of the five

scope areas with only 29% of the metrics fully met. Even for many of the initiatives that ultimately met the metric requirements, the performance was not at the expected levels. The two IT Organizational Maturity Level metrics (IT-1 and IT-2), designed to improve IT capability and performance, required PSEG Long Island to reach CMMI Maturity Level 3 in the ‘Doing’ and ‘Managing’ categories, respectively. An independent appraisal conducted by a LIPA-engaged CMMI Lead Appraiser found that PSEG Long Island failed to meet a number of the required practice areas, resulting in the metrics being Partially Met and Not Met, respectively.”

Note 2: LIPA’s 2022 Year-End Report on PSEG LI Performance Metrics states: “The two IT project performance metrics (IT-5 2022 Budget Projects and IT-6 Board Recommendation Projects), which incorporated 274 specific IT projects, were Partially Met and Met respectively. However, the projects all exhibited project management deficiencies, and our review indicates that none of the incorporated projects would have met the metric requirements without flexibility from LIPA. Almost all projects required corrective actions for deficient deliverables, some taking months to bring to an acceptable level; over a third of the projects required material exceptions; and numerous deliverables were submitted/resubmitted late but still accepted for review.”

Source: <https://www.flipsnack.com/lipower/lipa-2022-psegli-year-end-metric-report/full-view.html>, <https://www.lipower.org/wp-content/uploads/2023/09/September-Quarterly-Report-on-PSEG-2023-Performance.pdf> and DR 1574.

**9. PSEG LI and LIPA have well-defined structures for storing and reviewing metric data. However, NorthStar found gaps in the data.**

- PSEG LI uses SharePoint as the system of record for quantitative metrics. NorthStar received the same access privileges to the system as LIPA personnel. The site is divided into a simple file hierarchy: Year>Metric>Month.
- LIPA uses SmartSheets for its system of record for qualitative metric data and analysis. NorthStar received the same access privileges to the systems as LIPA personnel. The site is divided by metric and then a chronological order of actions and documents.
- Scorecards are maintained on the SharePoint system.<sup>25</sup>
- PSEG LI maintains some source data for its quantitative metrics in SharePoint. NorthStar reviewed and tested the 2022 performance metrics as shown in **Exhibit XVI-13**.
  - Based on the information provided, PSEG LI correctly calculated the metric results as data was available.
  - PSEG LI relies on numerous summary tables as opposed to the source data. Source data is often not stored on SharePoint.

**Exhibit XVI-13  
2022 Metric Data Sources**

<b>Metric No.</b>	<b>Metric Description</b>	<b>Data Source/Finding<sup>26</sup></b>
BS-04	Employee Engagement Scorecard	Unknown source data. NorthStar verified the metric results from the summary data provided.
BS-19	Reputation Management - Positive Media Sentiment	Source Data: Searches and queries from news outlets. NorthStar verified the metric results and tested several media stories to confirm PSEG LI's interpretation of the story.
BS-20	Reputation Management - Share of Voice	Source Data: Searches and queries from news outlets. NorthStar verified the metric results and tested several media stories to confirm PSEG LI's interpretation of the story.
CS-02	JD Power Customer Satisfaction Survey - Residential	NorthStar verified the metric results from the computed survey results prepared by JD Power..
CS-03	JD Power Customer Satisfaction Survey - Business	NorthStar verified the metric results from the computed survey results prepared by JD Power.
CS-06	Inactive Accounts LTE	Source Data: Customer Accounting System Verified the metric for December 2022.
CS-07	Active Accounts LTE	Source Data: Customer Accounting System Verified the metric for December 2022.

<sup>25</sup> DR 1574.

<sup>26</sup> DR 1553 requested data sources, organizational responsibilities, and frequency. PSEG LI was nonresponsive to this DR. Nonresponsive is insufficient material provided or not provided during the audit period.

Metric No.	Metric Description	Data Source/Finding <sup>26</sup>
CS-09	Billing Exception Cycle Time	Source Data: Customer Account System Verified the metric for December 2022 <sup>1</sup>
CS-10	Bill Cancelled Rebill	Source Data: Customer Account System Verified the metric for December 2022
CS-11	Service Level with Live Agents	Source Data: Customer Account System Verified the metric for December 2022
CS-17	Low to Moderate Income Program Participation	Source Data: Customer Account System Verified the metric for December 2022
PS&CE-03	EE Energy Savings	Source Data: Unknown with Tableau Query Verified for 2022
PS&CE-09	TOU Pilot - Year 1 Marketing	Source Data: Spreadsheet from Salesforce Verified for 2022.
T&D-04	T&D System Relay Operations - Relay Mis-operations	Source Data: Unknown Cannot verify due to unknown process
T&D-05	T&D Inadvertent Operations Events	Source Data: Unknown Cannot Verify due to unknown process
T&D-07	SAIDI	Source Data: Outage Historian Query Verified for 2022
T&D-08	SAIFI	Source Data: Outage Historian Query Verified for 2022
T&D-09	MAIFI	Source Data: Outage Historian Query Verified for 2022
T&D-10	S-MCO	Source Data: Outage Historian Query NorthStar verified the data flow process.
T&D-12	M-MCO	Source Data: Outage Historian Query NorthStar verified the data flow process
T&D-32	Estimated Time of Restoration	Source Data: Outage Historian Query NorthStar verified the data flow process
T&D-35	Construction - Project Milestones Achieved	Source Data: Unknown NorthStar verified reported metrics against claimed milestones.
T&D-36	Construction - Cost Estimating Accuracy	Source Data: Unknown Metric is meaningless as it reports total spend to total estimate and does not address individual project performance.
T&D-37	Completion of Program Planned Units per Workplan	Source Data: Unknown NorthStar cannot verify as no data has been uploaded into SharePoint.
T&D-40	Double Wood Poles	Source Data: Unknown NorthStar verified the metric results from the summary results

Sources: DR 973 Attachment 1. DR 1574, and DR 1556.

- Qualitative metrics are fulfilled through the development of various work products including planning documents, reports, briefings etc. **Exhibit XVI-9** provides a description of select metrics and the number of deliverables. In some cases, LIPA accepted deliverables and determined the metric was met.

**10. PSEG LI's process for developing OSA performance metric results is designed to provide timely deliverables that deliver monthly scorecards.**

- PSEG LI's Business Performance Excellence organization (BPE) is responsible for the OSA performance metric reporting process.<sup>27</sup>
- PSEG LI uses a thirteen-step process for developing performance results for quantitative metrics. The process begins early in the month with the establishment of the monthly schedule for the previous month's performance. Typically, by the third week of each month, the scorecard is available for DPS review. **Exhibit XVI-14** provides the flow of information.<sup>28</sup>

**Exhibit XVI-14  
Development of Quantitative Metrics Results**

Step	Event	Input	Output	Roles	Support	Oversight
1	Monthly Due Dates and Meetings	Schedule of meetings/duo dates	Schedule is sent out to Providers	Analysts	Scorecard Distribution Business Team leader (SD BTL)	Manager
2	Submit Data/Updates to BPE	Initial SharePoint slides	Data & slides submitted to BPE	Metric Data Providers	Metric Owners	Line Of Business (LOB) Directors
3	Validate data and process in Excel for use in Tableau	Raw Data	Reshaped (Tableau-ready) data	Analysts	SD BTL	Manager
4	Update/Build Analytical Sheets in Tableau	Reshaped data	Draft analytical sheet pending database updates	Analysts	SD BTL	Manager
5	Upload Data to Database and Process	Reshaped data	Processed data to feed scorecards and components of analytical sheets	Analysts	SD BTL	Manager
6	Update Scorecards and Analytical sheets with DB data	Access database and exported Excel data	Draft analytical sheets and scorecards	Analysts and SD BTL	SD BTL	Manager
7	Review Analytical Sheets and Page 2s	Analytical sheets and Page 2s	Approved Analytical sheets and Page 2s	Manager Team Leads	SD BTL	
8	Proofread Change Initiatives & Update Executive Summary	SharePoint Change Initiatives Documents	Validated/Revised Change Initiatives and Audit Rec's, Completed Executive Summaries	Analysts	SD BTL	Manager
9	Assemble and Send Draft Scorecard Package for Review	Analytical sheets, scorecards, PIP sheets, Page2s, change initiatives	Draft LOB packages and change initiatives	Analysts	SD BTL	Manager
10	Finalize Scorecards	Finalized scorecard package	Scorecard package emailed to directors/VPs, posted on SharePoint and printed	Analysts	SD BTL	Manager
11	Send LIPA PSEG LI Scorecard	PSEG LI Scorecard	LIPA has initial results	Scorecard Distribution Business Team leader		Manager

<sup>27</sup> DR 1560.

<sup>28</sup> DRs 505 and 1560 Attachment 1.



Step	Event	Input	Output	Roles	Support	Oversight
12	Legal Review and Approval	Final DPS Package	Final approved DPS package	Legal		
13	Legal Sends Scorecard Package to DPS	Final approved DPS package	DPS received Scorecard package	Legal		

Source: DR 1560 Attachment 1.

- PSEG LI’s qualitative metrics are posted and uploaded into Smartsheets as they are received.<sup>29</sup>
- PSEG LI has ninety days to submit to LIPA and DPS an end-of-year report that includes the calculation of incentive compensation. LIPA has ninety additional days to review and provide either its acceptance or disagreement.<sup>30</sup>

### 11. PSEG LI’s Internal Audit organization conducts annual audits of the Second A&R OSA to address twenty percent of compensation.

- PSEG LI uses a three-step methodology:
  - Governance
    - Process documentation, user training and guidance provided.
    - Metric reporting is understood by responsible business areas.
  - Completeness, accuracy and validity of information received from the metrics business areas.
    - Metric parameters have been addressed.
    - Information collected pertaining to metric are supported.
    - Appropriate review and approval process is in place.
  - Metrics Reporting
    - Information reported to LIPA is complete, accurate, valid and timely.<sup>31</sup>
- LIPA participated in the annual selection of performance metrics audited by PSEG LI’s Internal Audit group.<sup>32</sup>
- Internal Audit Reports from 2022 and 2023 and highlighted:
  - The 2022 Audit found that adequate governance is not in place to address LIPA Metric requirements.
  - The 2023 Audit found low-risk observations that were communicated directly to line management.<sup>33</sup>

<sup>29</sup> DRs 505 and 1560 Attachment 5.

<sup>30</sup> DR 1560 and Second A&R OSA, December 15, 2021.

<sup>31</sup> DR 1559.

<sup>32</sup> DR 1559.

## 12. PSEG LI's business rules for calculation of metrics are not sufficiently detailed.

- Data sources for each metric are not defined.
- The method for developing summary data is not defined.
- Roles and responsibilities by metric are not defined.
- Idiosyncrasies in calculating the metrics are not defined. For example:
  - CS-09: Billing Exception Timeline only includes billing exceptions handled by a representative. This is not explained in the document.
  - PS&CE-09: Time of Use Pilot Year 1 Marketing does not specify which customers are excluded from the metric.<sup>34</sup>

### D. RECOMMENDATIONS

1. Identify data sources, methodology for developing summary data, organizational roles and responsibilities, and identify all exclusion/exceptions for the 2025 performance metric “handbook”.<sup>35</sup>
2. Track cost savings and productivity gains from capital and O&M programs and projects.
3. Identify key operational performance metrics based on strategic goals and objectives and cascade down through the organization and in the OSA. Eliminate metrics that do not actively support these goals and objectives for contract year 2025.
4. Align a majority of PSEG LI executive management's (Grades LX and 31-33) incentive compensation with achievement of OSA metrics.

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<sup>33</sup> DR 1558 Attachments 1 and 2.

<sup>34</sup> DR 19 Attachment 5 and DR 1574.

<sup>35</sup> As an example, see DR 19 Attachment 5.

## **XVII. IMPLEMENTATION OF RECOMMENDATIONS FROM THE PRIOR MANAGEMENT AUDIT (MATTER NO. 16-01248)**

This chapter of our report provides the results of the audit review of the recommendations implementation from the Department’s prior Comprehensive Management and Operations Audit of the Long Island Power Authority and PSEG LI pursuant to Matter No. 16-01248.<sup>1</sup>

### **A. BACKGROUND**

Prior management audits provide a backdrop of issues that contribute to the review topics and shape the investigation of a current management audit. In 2016, the PSC commissioned a Comprehensive Management and Operations Audit of LIPA in Matter No. 16-01248. This prior audit was completed June 14, 2018. The final report provided results of audit analyses, including conclusions and recommendations, related to the following scope areas:

- Executive Management and Governance
- Enterprise Risk Management
- Budgeting and Financial Reporting
- Debt Management
- Load Forecasting, System Planning, and Distributed Platform (DSP) Development
- Transmission and Distribution
- Program and Project Planning and Management
- Work Management and Outside Services
- Customer Operations
- External Outreach and Communications
- Performance Management
- Fuel and Purchased Power
- Pension and OPEB

The 2018 DPS management and operations audit contained 49 LIPA/PSEG LI recommendations. Recommendation #3 was that “LIPA Internal Audit should perform a comprehensive audit of the implementation status of all audit recommendations annually until the next DPS audit is performed.”<sup>2</sup> LIPA’s Board of Trustees has adopted recommendations for improvement in these areas, and PSEG Long Island is required to implement those recommendations.<sup>3</sup>

Since 2018, LIPA and PSEG LI have also coordinated with staff at DPS by providing regular progress reports, supporting documentation, and written responses to questions as

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<sup>1</sup> Comprehensive and Regular Management and Operations Audit of Long Island Power Authority and PSEG Long Island, LLC Matter #16-01248, June 14, 2018.

<sup>2</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 16, 2022

<sup>3</sup> Management Audit Annual Report to the Board of Trustees November 15, 2023.

implementation plans were completed. DPS has also provided substantive comments and recommendations on certain audit recommendations. More recently, DPS directed LIPA Internal Audit to:

- Evaluate progress on all 49 DPS-approved implementation plans;
- Document completion of plans and those still in progress;
- Highlight any revisions to completion targets; and
- Report on the status to the LIPA Board of Trustees at least annually.

LIPA's Internal Audit department tested and validated the closure of 44 of the 49 prior audit recommendations. The remaining five (5) recommendations remain open. LIPA Internal Audit will continue to perform validation of the 5 remaining audit recommendations once each is deemed to be complete by Management.

LIPA stated that it has performed other related work, including oversight projects, internal audits, and work stemming from Tropical Storm Isaias, and determined that additional improvement is still needed for the following key audit recommendations in three areas:

- Asset Management
- Workforce Management
- Capital Project Outreach

The Board of Trustees (Board) of the Long Island Power Authority (LIPA) was requested to approve a resolution adopting this report detailing the status of the implementation plan and results from the 2018 NorthStar Management Audit.<sup>4</sup>

## **B. WORK TASKS**

Effective internal control systems involve follow-up on prior management audit recommendations to assess whether the intended results were achieved. The prior Management and Operations Audit of LIPA was completed in 2018 by NorthStar Consulting Group and resulted in 49 recommendations. As stated in the DPS request for proposal, the consultant will be required to review the implementation of some of these recommendations.

- Review and evaluate the implementation status of any recommendations deemed incomplete by the DPS, and/or where DPS has indicated or noted issues with LIPA and/or PSEG LI's implementation and provide additional recommendations or insight to ensure that LIPA and/or PSEG LI effectively implement these recommendations.
- Review any recommendations that LIPA and/or PSEG LI have re-opened and provide recommendations or insight to resolve the implementation or determine whether the implementation has already been completed and the intent of the recommendation has been successfully met.

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<sup>4</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 15, 2023

- Obtain justification for recommendations that are still pending implementation.

## C. FINDINGS AND CONCLUSIONS

### 1. LIPA's Audit Report Update on recommendations implemented to date and in process does not properly align with the prior audit recommendations.

- Table 1 of the management audit implementation update “lists those Management Audit implementation plans that LIPA deems to remain In Progress based on the assessments summarized in the LIPA Oversight Comments column below, and in the Feedback field appearing at the end of each implementation plan detail following this introduction.” Five In Progress audit recommendations were included in Table 1 (18, 26, 27, 28, and 36).
- Audit recommendation #18 was submitted within the Transmission and Distribution chapter to improve preventive maintenance and resource quantification. It specifically addressed improvements in computerized maintenance management and was not asset management.
- Audit recommendation #26 was submitted within the Program and Project Management chapter – focusing on capital programs/projects – to improve project management performance, cost estimating and schedule management. A number of specific elements were included, but this recommendation was not “workforce management” per se.
- Two audit recommendations #27 and #28 were submitted within the Work Management chapter that focused on all operations, maintenance and construction resources needing engineered time standards to quantify work as well as improvements in work reporting.
- Audit recommendation #36 focused on improvements to capital-project outreach, media relations and external affairs. LIPA accurately noted this within its three key areas, but has relegated it to belief in necessary improvements and a 2024 performance metric.

### 2. LIPA's update on Asset Management misrepresented the audit recommendations and concluded that implementation was on hold.

- Related to the first “key recommendation” noted, LIPA's update stated “Audit Recommendation directed PSEG Long Island to complete development of a Centralized Maintenance Management System [CMMS] to allow PSEG Long Island to leverage asset health data more effectively/efficiently.”<sup>5</sup>

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<sup>5</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 15, 2023 – slide #4.

- Audit Recommendation #18 states: Complete development of the CMMS. This recommendation does not include: “and asset management recommendations from 2013 Operations & Management Audit.”
- LIPA’s update included: “Auditors concluded in 2018 that implementation of the Centralized Maintenance Management System (CMMS), first noted in 2013, had still not been completed.”<sup>6</sup>
- Over a decade ago, the 2013 management audit recommendation to improve preventive maintenance (#12.4.3) which is related to asset management, stated:<sup>7</sup>
  - Establish an asset management model that supports the LIPA T&D preventive maintenance program. Key components of the asset management model used by PSEG should be brought to the PSEG LI T&D operations and maintenance program, and include:
    - Investment Evaluation System – This system collects demographic and cost information for each maintenance project as well as scoring data that is used to rank and prioritize each project. The tool allows decision makers to perform customized scenario analyses to maximize value or minimize risk. Results are used to form the investment plan for the upcoming budget cycle.
    - Centralized Asset Registry – This database serves as a central location for T&D system equipment type, operating specifications, and locations. Functionality also includes the ability to search for equipment by characteristics.
    - Reliability Centered Maintenance – This program is used to achieve improvements such as the establishment of safe minimum levels of maintenance, changes to operating procedures and strategies, and the establishment of capital maintenance plans. Reliability centered maintenance helps to improve cost effectiveness, equipment availability (uptime), and a greater understanding of the level of risk to be managed.
    - Computerized Maintenance Management System – This system serves as a repository for consolidating data about T&D system components and facilitates data analysis and reporting. The system supports the ranking and prioritization of projects, supplies data for reliability centered maintenance (RCM).
    - Work management – This system stores and tracks items included in the inspection and maintenance program. It provides notice when inspections need to be scheduled or when maintenance activities are overdue and stores the results of inspections, triggering alarms if necessary.
- LIPA’s progress update included:

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<sup>6</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 15, 2023, Table 1.

<sup>7</sup> Comprehensive Management and Operations Audit of Long Island Power Authority, Matter #12-00314, September 13, 2013.

- The 2023 update noted that an Asset Management Project Implementation Plan was finalized and expected to last through 2027.
- Three asset management performance metrics were related to this implementation:
  - Field verification of T&D asset attributes (in progress)
  - Strategic asset management plan (SAMP) (delivered)
  - Enterprise asset management system integrator selection (on hold)
- NorthStar addressed PSEG LI’s asset management initiative in detail in Chapter XI – Work Management. PSEG LI describes a broad spectrum of work management related improvement initiatives many of which are projected to be included in the development of the Enterprise Asset Management System (EAMS).
  - PSEG LI’s EAMS strategy and future state presentation as of September 2022 projected implementation in 2024/2025.<sup>8</sup>
  - PSEG LI stated that “Going thru the process of reviewing all of the leading EAMS systems, it is clear that there is not one system that will manage all work planning and management data and reporting.”<sup>9</sup>
- On September 27, 2023, LIPA presented the status of its asset management initiative.<sup>10</sup> Highlights included:
  - LIPA Staff recommended that the Board find LIPA has substantially complied with the Policy for the period since the review of the Policy last year.
  - As per PSEG LI performance metric T&D-03 for EAMS implementation, a System Integrator was to be selected in 2023 to implement the Maximo EAMS software.
  - PSEG LI was unable to negotiate a contract with an acceptable vendor to implement the software selected.
  - As discussed in the June 2023 Quarterly Board report on performance metrics, LIPA has had continuing concerns about PSEG LI’s ability to meet the asset management performance metrics.
  - Overall, the EAMS project has required extensive engagement from LIPA and PSEG LI senior leadership to mitigate deficiencies in PSEG LI’s planning and project management in 2022 and 2023. LIPA management believes it is not worth diverting focus from other critical and higher priority projects to address ongoing EAMS implementation challenges at this time. Consequently, LIPA management has recommended putting this project on hold until the completion of other higher-priority IT projects.
  - By placing the EAMS implementation project on hold, LIPA management recommends that this goal be achieved by the end of 2027.

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<sup>8</sup> DR 84 Attachment 2

<sup>9</sup> DR 84

<sup>10</sup> Consideration of Approval of the Annual Report and Amendments on the Board Policy on Asset Management, September 27, 2023.



**3. LIPA’s update on Workforce Management includes two recommendations that were contained in Work Management and one in Program / Project Management. Therefore, four of the five recommendations have been tied to EAMS – now on hold.**

- LIPA’s update stated “Audit Recommendations directed PSEG Long Island to develop an integrated work management system covering all PSEG Long Island operations, maintenance and construction resources, and fill gaps in the current management information reporting and organizational reporting relationships to support such a system.”
- Audit Recommendation #26 states: Define and report project management performance measures that focus on the effectiveness of cost estimation, earned value and schedule management. Project progress reports should be timely and contain all information which is pertinent for their target audience. Cost estimates and schedules developed for preliminary plans should be evaluated when a project is complete to determine where further enhancements to project estimating can be made. LIPA’s Internal Audit comments on oversight progress included the following:
  - In 2023, while LIPA Management has deemed that progress has been made in the area of reporting, improvement is still required for evaluating cost estimations and schedule management. Currently time is not tracked at the Compatible Unit Estimate (CUE), or task level, to properly evaluate and assess if estimates were appropriate.
  - Implementation of the LIPA Capital Budget recommendations outlined below in Recommendation No. 28 will be necessary to meaningfully achieve this recommendation. Therefore, implementation of this recommendation remains in progress for the same reason described below in Recommendation No. 28.
- Audit Recommendation #27 states: Develop an integrated a work management system covering all PSEG LI operations, maintenance and construction resources that are based on engineered time standards and cover routine operations, repetitive maintenance activities, planned work, support requirements, and provide continuous feedback on workforce effectiveness. The system should be in an easy-to-use format expressed in man-hours, along with the combined employee and contractor capacity available to perform the work, supported by real time reporting of capacity utilization.
- Audit Recommendation #28 states: Fill gaps in the current management information reporting and organizational reporting relationships to support an integrated work management system.
- LIPA’s progress update included:
  - LIPA Management agrees that improvements have been made in this area, however, further enhancements including detailed work and time accounting will strengthen work management.

- PSEG Long Island has implemented a framework of the Work Management Process. However, this does not include all organizations and will not be fully implemented until the Enterprise Asset Management System (EAMS) is in place.
  - LIPA Management has deemed that progress has been made in the area of reporting, however, improvement is still required for evaluating cost estimations and schedule management.
- LIPA’s Internal Audit comments on oversight progress included the following:
    - PSEG Long Island has implemented a framework for the Work Management Process. This has not yet been formalized, does not include all organizations, and will not be fully implemented until the EAMS is in place.

**4. PSEG LI believes that Recommendation #36 was completed and closed in 2021.**

- Recommendation #36 states: Measure the effectiveness of capital-project outreach, media relations and external affairs programs, to determine whether outreach efforts are cost-efficient, on target, and achieving results. Potential measurement options include surveys, focus groups, a media clip index, or attendance at public meetings.
- PSEG LI’s letter to LIPA dated December 2, 2022, stated the following:<sup>11</sup>
  - “A focus Group was conducted in February 2018. Input from that focus group was incorporated into project outreach process (*ie*: EA Handbook was updated and delivered to LIPA in February 2021).”
  - “Survey was posted online in March 2019. Survey was created and posted online in March 2019. Survey was updated to meet DPS additional requirements from this Audit in April 2021 per 2022 metric requirement in January 2022.”
  - PSEG LI stated that per the 2022 metric requirement in January 2022, survey responses were tracked and resolved.
  - The 2023 and 2024 proposed metrics for the surveys proposed by LIPA were removed by DPS Staff and therefore not implemented.
- The LIPA/PSEG LI Management & Operations Audit Implementation Plan Progress Report dated June 24, 2021, showed that the status of Recommendation #36 was complete.<sup>12</sup>
- Specifically, for the 2024 metrics, DPS Staff’s metric recommendation memorandum stated that “Staff recommends removal of this metric as there are existing procedures, developed by DPS, in place to monitor External Affairs Capital Project Outreach effectively and efficiently.”<sup>13</sup>

<sup>11</sup> Audit Recommendation #36 letter to LIPA – Fact Verification

<sup>12</sup> <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={4C941D32-209F-4114-AD2B-BE53DC3A30FD}> Fact Verification

<sup>13</sup> 2024 Staff Recommendation Memo, at 11, Fact Verification

**5. LIPA’s most recent update on Capital Project Outreach does not indicate that there has been any meaningful action over the prior five years, suggesting that agreement on implementation completion is unlikely.**

- LIPA’s update stated “Audit Recommendations directed PSEG Long Island to measure the effectiveness of capital-project outreach, media relations and external affairs programs, to determine whether outreach efforts are cost-efficient, on target, and achieving results.”
- The progress update included:
  - LIPA continues to believe that improvements are necessary to better align outreach activities with industry best practices and to meet customer expectations, including methods to achieve a higher participation rate and utilizing focus groups.
  - LIPA has proposed a 2024 Performance Metric to achieve the objectives of the recommendation.
- LIPA’s Internal Audit comments on Recommendation #36 oversight progress included the following:
  - PSEG Long Island issued surveys and reported this recommendation as complete. However, on October 28, 2022, PSEG Long Island External Affairs reported that an insufficient number of surveys had been completed to develop any recommendations for process improvement around their outreach activities for the associated 2022 Performance Metric.<sup>14</sup> Their efforts have resulted in a limited ability to evaluate the effectiveness of the proposed survey.
  - In 2023, “LIPA continues to believe that improvements are necessary for this area to better align outreach activities with industry best-practices and to meet customer expectations. Therefore, LIPA deems this recommendation to be In Progress.”<sup>15</sup>

## **D. RECOMMENDATIONS**

1. Record and status accepted management audit recommendations in their original text without revisions, reclassification into other management topic areas or combination with other recommendations that diffuse their intent and timetable for implementation.

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<sup>14</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 16, 2022.

<sup>15</sup> Consideration of Adoption of the Report Detailing the Status of the Implementation Plan and Results of the Annual Audit - 2018 NorthStar Management Audit, presented to the Finance and Audit Committee of the Board, November 16, 2022.