BURNS McDONNELL

Biennial Report for the Years Ended December 31, 2014 and December 31, 2015

LIPA
Long Island Power Authority

Long Island Power Authority

Project No. 92907

8/31/2016

Biennial Report for the Years Ended December 31, 2014 and December 31, 2015

prepared for

Long Island Power Authority
Uniondale, New York

Project No. 92907

8/31/2016

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

August 31, 2016

Thomas Falcone
Chief Executive Officer
Long Island Power Authority
333 Earle Ovington Boulevard, Suite 403
Uniondale, New York 11553

Re: Long Island Power Authority
Biennial Report for the Years Ended December 31, 2014 and December 31, 2015
Project Number 92907

Dear Mr. Falcone:

In compliance with the requirements pursuant to the role of Consulting Engineer and Rate Consultant stated in Section 702(b) of the General Bond Resolution (General Resolution) and Section 7.02 of the General Subordinated Resolution (Subordinated Resolution and together with the General Resolution, the Resolutions), Burns & McDonnell submits this Long Island Power Authority Biennial Report for the two years ended December 31, 2015 (the Report). This Report summarizes our review and assessment of the Long Island Power Authority (LIPA or the Authority) electric system. This report documents the examination of the electric system, the system organization and management, and an assessment of the utility's financial condition. Financial, statistical, and operating data utilized in preparing the Report were provided by the Authority.

In the preparation of the Report, Burns & McDonnell reviewed documents pertaining to the generation system and completed assessments of the transmission and distribution system of the Authority. Assessments involved interviews, observations, and review of annual expenditures from 2014 through 2015 and the year 2016 budget. Burns & McDonnell also reviewed the adequacy of the revenues provided by current retail rates in relation to the requirements of the Resolutions.

Based on its reviews and assessments, it is the opinion of Burns & McDonnell that the electric system is being operated and maintained in a manner that is consistent with current electric utility practices. In addition, the current retail rates have provided sufficient revenues to satisfy the debt service coverage requirement in the Resolutions. Further, it is the opinion of Burns & McDonnell that the balances in the various reserve funds maintained by the Authority are sufficient for their intended purposes.

We appreciate the opportunity to work with the Authority and the cooperation and assistance provided by staff in the preparation of this Report. We will be happy to discuss the Report with you at your convenience.

Sincerely,
Burns & McDonnell

Ted J. Kelly
Principal and Project Manager
Business & Technology Services

Thomas K. Bristow
Project Analyst
Business & Technology Services

INDEX

Long Island Power Authority
Biennial Report for the Years Ended
December 31, 2014 and December 31, 2015
Project No. 92907

Report Index

TABLE OF CONTENTS

EXECUTIVE SUMMARY

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
CAIDI	Customer Average Interruption Duration Index
CEO	Chief Executive Officer
CL&P	Connecticut Light & Power
CSC	Shoreham to East Shore - Cross Sound Cable
CSC Agreement	Cross Sound Cable Firm Transmission Capacity Purchase Agreement
DOE	US Department of Energy
DPS	NYS Department of Public Service
EIA	US Energy Information Administration
ELI	Efficiency Long Island
Exelon	Exelon Corporation
GCB	Gas circuit breaker
GENCO	National Grid Generation LLC
IRP	Integrated Resource Plan
kV	Kilovolt
LILCO	Long Island Lighting Company, a wholly owned subsidiary of the Authority, which does business under the name LIPA
LIPA/LILCO Merger	LIPA's acquisition of LILCO
MSA	Amended & Restated Management Services Agreement
MW	Megawatt
Neptune Cable	Sayreville to Levittown Cable
NGRID	National Grid
NMP	Nine Mile Point
NMP1	Nine Mile Point Generating Station Unit 1
NMP2	Nine Mile Point Generating Station Unit 2
NNC	Northport to Norwalk Harbor Cable
Northport	Northport Electric Generating Station
NRC	Nuclear Regulatory Commission
NYPA	New York Power Authority

Abbreviation	Term/Phrase/Name
OSA	Amended & Restated Operations Services Agreement
PILOT	Payment in Lieu of Taxes
PJM	Pennsylvania-New Jersey-Maryland Region
PSC	NYS Public Service Commission
PSEG	Public Service Enterprise Group
PSEG-LI	PSEG Long Island, a PSEG subsidiary dedicated to Long Island operations
REV	Reforming the Energy Vision
RFP	Request for Proposal
SAIDI	System Average Interruption Duration Index
SAIFI LONG	System Average Interruption Frequency Index for Long interruptions
Service Area	Nassau & Suffolk Counties and the Rockaway Peninsula of Queens County
T&D System	Transmission & Distribution System
The Act	Long Island Power Authority Act
The Authority	Long Island Power Authority
The Report	Long Island Power Authority Biennial Report for Two Years Ending December 31, 2015
The Resolutions	Subordinated Resolution, and together with the General Resolution
Trap bags	Temporary sand barriers
UDSA	Utility Debt Securitization Authority
Y-49	East Garden City to Sprain Brook Interconnection
Y-50	Dunwoodie to Shore Road Cable

STATEMENT OF LIMITATIONS

In preparation of the Long Island Power Authority Electric System Biennial Report for the two years ended December 31, 2015, Burns & McDonnell relied upon information provided by the Authority, and its service provider, PSEG Long Island (PSEG-LI), during the reporting period. The information included various analyses, computer-generated information and reports, audited financial statements, and other financial and statistical information, as well as other documents such as operating budgets and current retail electric rate schedules. While Burns & McDonnell has no reason to believe that the information provided, and upon which Burns & McDonnell has relied, is inaccurate or incomplete in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness.

Estimates and projections prepared by Burns & McDonnell relating to performance and costs are based on Burns & McDonnell's experience, qualifications, and judgment as a professional consultant. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, contractors' procedures and methods, unavoidable delays, economic conditions, government regulations and laws (including interpretation thereof), competitive bidding, and market conditions or other factors affecting such estimates or projections, Burns & McDonnell does not guarantee the accuracy of its estimates or predictions.

1.0 EXECUTIVE SUMMARY

1.1 Introduction

LIPA owns an electric transmission and distribution system (T&D System) serving most of Nassau and Suffolk Counties and the Rockaway Peninsula of Queens County, including assets, facilities, equipment, and contractual arrangements used to provide the transmission and distribution of electrical capacity and energy to electric customers within the Service Area.

LIPA provides retail electric service to approximately 1.1 million customers. During 2015, the maximum annual peak demand for LIPA reached 5,049 megawatts (MW). Total system revenues were $3.505 billion, of which approximately $3.481 billion, or approximately 98 percent, was from electric sales.

Table 1-1 provides summary information on annual retail energy sales and total electric revenues during the 2011 through 2015 period.

Table 1-1: Historical Sales and Customers

	2011	2012	2013	2014	2015
Peak Demand (MW)	5,771	5,333	5,602	4,859	5,049
Energy (MWh)					
Residential	9,848,965	9,735,407	9,536,151	9,389,926	9,611,160
Commercial and Industrial	9,818,456	9,666,106	9,800,324	9,700,047	9,730,214
Other	489,362	552,104	594,617	597,089	584,264
Total Sales	20,156,783	19,953,617	19,931,093	19,687,062	19,925,638
Lost and Unaccounted For	1,203,364	1,358,398	1,414,620	1,098,435	1,134,879
Total Energy Requirements	21,583,426	21,312,015	21,345,713	20,785,497	21,060,517
System Load Factor (Percent)	42.7%	45.6%	43.5%	48.8%	47.6%
Customer					
Residential	997,599	997,940	996,442	999,565	1,002,942
Commercial and Industrial	115,370	115,128	114,692	114,663	114,648
Other	5,446	5,486	5,149	5,094	5,514
Total Customers	1,118,415	1,118,554	1,116,283	1,119,322	1,123,104
Total Electric Revenues ($000)	$3,684,596	$3,546,152	$3,755,832	$3,613,982	$3,505,209

1.2 Biennial Report

In compliance with the requirements pursuant to the role of Consulting Engineer and Rate Consultant within the provisions of the Section 702(b) of the General Bond Resolution and Section 7.02 of the General Subordinated Resolution (Subordinated Resolution, and together with the General Resolution, the

Resolutions), LIPA retained Burns & McDonnell to conduct the efforts required to prepare this Biennial Report (the Report) for the two years ended December 31, 2015.

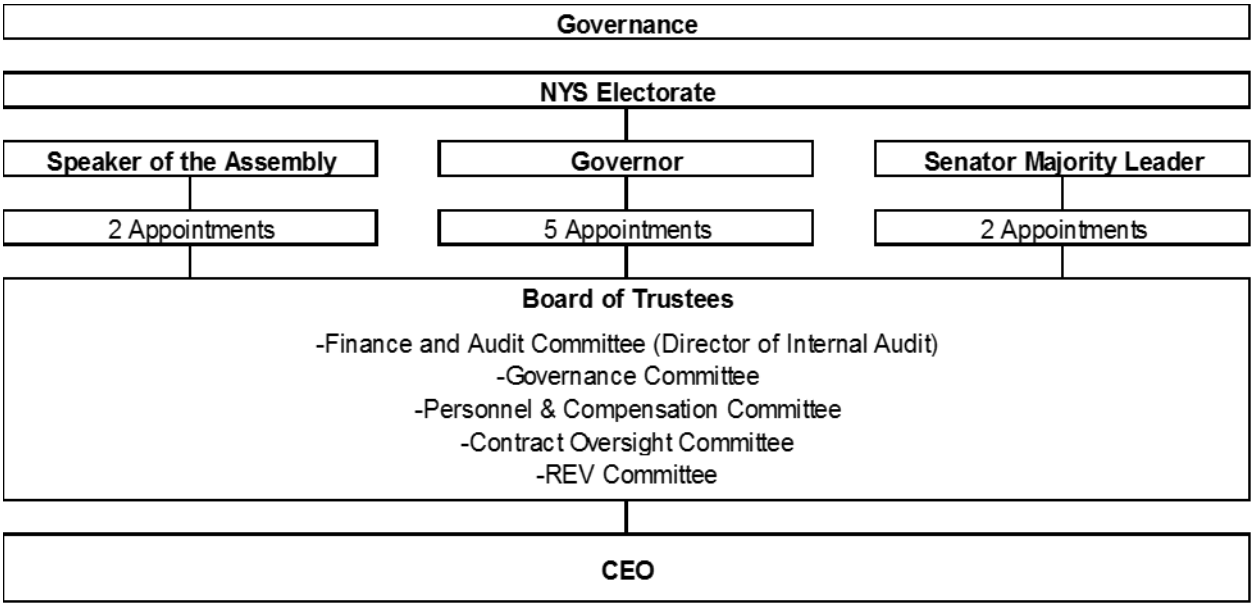
1.3 Organization and Management

1.3.1 Board of Trustees

During the period of this report, the Authority was governed by a nine-member Board of Trustees whose members were required under the Act to be residents of the Service Area. The Board of Trustees assumed many committee roles including: finance and audit, governance, contract oversight, personnel and compensation, and REV committees. The CEO of the Authority reports directly to the Trustees. Figure 1-1 displays the organizational structure of the Board of Trustees and the Authority management during the Study Period.

Additional details pertaining to the Board of Trustees are provided in Section 3 of the Report.

Figure 1-1: Trustees Organization During Reporting Period



1.3.2 Authority Management

1.3.2.1 Chief Executive Officer

John McMahon was the Chief Operating Officer (COO) of the Authority at the beginning of 2014. Mr. McMahon performed the duties as stated within the Authority's By-laws and reported directly to the Board of Trustees. During February 2014, Mr. McMahon was appointed CEO. In April of 2015, Mr. McMahon announced his resignation, effective August 31, 2015. Subsequently, on August 31, 2015,

Thomas Falcone assumed the role of Chief of Staff in which he performed the day-to-day activities of CEO. On March 21, 2016 Mr. Falcone was appointed CEO. Additional Authority management details are provided in Section 3 of this Report.

1.4 Organizational Policies

1.4.1 LIPA Reform Act

The LIPA Reform Act in 2013 was enacted in response to concerns related to the organizational relationship between the Authority and its service provider. The LIPA Reform Act was intended to bring accountability and transparency to the delivery of electricity by:

1. Authorizing the reformulation of the relationship between LIPA and PSEG-LI, such that PSEG-LI assumed more responsibility related to operations in the service area; the Authority's role is to oversee the activities of PSEG-LI and to meet its obligations with respect to its bonds and notes and all applicable statutes and contracts.
2. Creating a new Long Island based office in the Department of Public Service (DPS), which is the staff arm of the New York Public Service Commission (PSC) to assist with oversight of core utility operations of PSEG-LI.
3. Authorize the retirement of a portion of the Authority's outstanding debt from the proceeds of Utility Debt Securitization Authority (UDSA) bonds at lower interest rates than existing indebtedness and capping or eliminating certain categories of payments in lieu of taxes (PILOTs), with savings passed on to ratepayers.

1.4.2 Primary Operating Agreement

Through a competitive procurement process, effective January 1, 2014 a wholly-owned subsidiary of PSEG fully dedicated to the Authority's Long Island operations (PSEG-LI) began providing operations, maintenance and related services for the T&D system under the OSA. The OSA expires December 31, 2025. Additionally it includes a provision that if PSEG-LI achieves certain levels of performance during the first 10 years, the parties will negotiate in good faith an eight year extension on substantially similar terms and conditions. Beginning January 1, 2015, PSEG-LI assumed certain power supply management, fuel procurement and related services that have historically been provided pursuant to separate agreements between the Authority and other service providers.

1.5 Electric System Assessment

1.5.1 Nine Mile Point 2 Generating Station

LIPA holds 18 percent ownership in the Nine Mile Point (NMP) Nuclear Power Station 2, located near Scriba, New York on the south shore of Lake Ontario. NMP has two separate nuclear power stations, designated as NMP1 and NMP2. Constellation Energy Nuclear Group (CENG) owns 100 percent of NMP1, and 82 percent of NMP2. NMP2 consists of a boiling water reactor and General Electric turbine generator, and operates under licensing from the Nuclear Regulatory Commission (NRC), set to expire in 2046.

LIPA has entered into an operating agreement with CENG for NMP2, which CENG assigned to its affiliate Exelon Generation (Exelon). As a part of the agreement, LIPA and Exelon each have one representative on a management committee, which meets to discuss plant matters. Final budgets are prepared by Exelon and sent to LIPA for annual approval. LIPA is responsible for its ownership portion of operating costs and capital investments associated with NMP2 each year.

1.5.2 Transmission System

LIPA's transmission system consists of overhead and underground facilities, vehicles, equipment, land parcels, easements, contractual arrangements, and other assets used to provide the transmission and distribution of electric capacity and energy to and within the Service Area. The T&D System includes seven transmission interconnections that link the T&D System to utilities outside the Service Area. These transmission interconnections are owned in part or under contract to LIPA.

1.6 Financial Assessment

1.6.1 Operating Results

Total system energy sales ranged from 19,687 GWh in 2014 to 19,926 GWh in 2015. During the period of this Report, total revenue from sales to electric customers was $3.586 billion for 2014 and $3.481 billion for 2015. The change was driven primarily by variations in the cost of fuel and purchased power. Total revenue, including non-product sales and miscellaneous other revenue was $3.614 billion and $3.505 billion, respectively for the years ending 2014 and 2015.

1.6.2 Adequacy of Electric Rates

In order to determine if LIPA has set rates to pay all of its operating costs as they come due, and to meet debt service and rate covenant requirements under the Resolutions, the Authority prepares a Rate

Covenant Calculation, which is reviewed by its independent accountants who in turn issues a report thereon which for the years of this Report found that LIPA's rates and charges were set at a level sufficient to meet its Rate Covenant requirements.

1.6.3 Status of Revenue Bonds

At the end of 2015, the Authority had revenue bonds and general revenue notes, subordinate commercial notes and restructuring bonds issued by UDSA. During 2014, debt increased by $579 million compared to 2013. During 2015, debt decreased by $159 million compared to 2014 resulting from the issuance of UDSA bonds but was offset by a reduction in General Revenue Bonds. As of December 31, 2015 LIPA had a total of $7.650 billion of outstanding debt principal and a total obligation including capitalized leases of $10.029 billion, including UDSA bonds. The UDSA bonds are not issued pursuant to the Resolutions and are not obligations of the Authority, LIPA, PSEG-LI, or any of their affiliates.

1.7 Conclusions

Based on statements and information provided, as well as the observations and reviews performed, it is the opinion of Burns & McDonnell that:

1. The Authority and PSEG-LI have provided services adequate for operation, maintenance, and repair of the system during the Study Period.

2. The Authority's electric transmission and distribution system and the associated facilities, including the Nine Mile Point 2 Generating Station partially owned by the Authority, are being operated and maintained consistent with accepted electric utility practice in the United States.

3. For the Forecast Period, it is reasonable to expect the Authority and PSEG-LI will continue to provide services adequate for operation, maintenance, and repair of the system consistent with that experienced during the Study Period.

4. The Authority's Efficiency Long Island program is on track to meet its goals. There has been substantial interest in renewable energy projects in the service area, with over 200 MW already in progress and another 210 MW for which proposals are being evaluated.

5. The Authority continues to be one of the most reliable overhead electric utilities in New York State based on SAIDI, SAIFI, and CAIDI measurements.

6. The Authority's three-year capital investment plan includes a major storm-hardening program, which should provide improved resiliency. Burns & McDonnell has observed that the Authority

has made appropriate system upgrades and improvements throughout the Study period, and this new program will build upon those efforts.

7. Revenues for the Study Period are sufficient to cover operation, maintenance, and repair expenses for the system during the Forecast Period. The electric revenues generated by the current electric rates are sufficient to fulfill the debt service coverage requirement defined in the covenants of the Resolutions.

8. The Authority is complying with the provisions of the Resolutions, each as amended by subsequent resolutions.

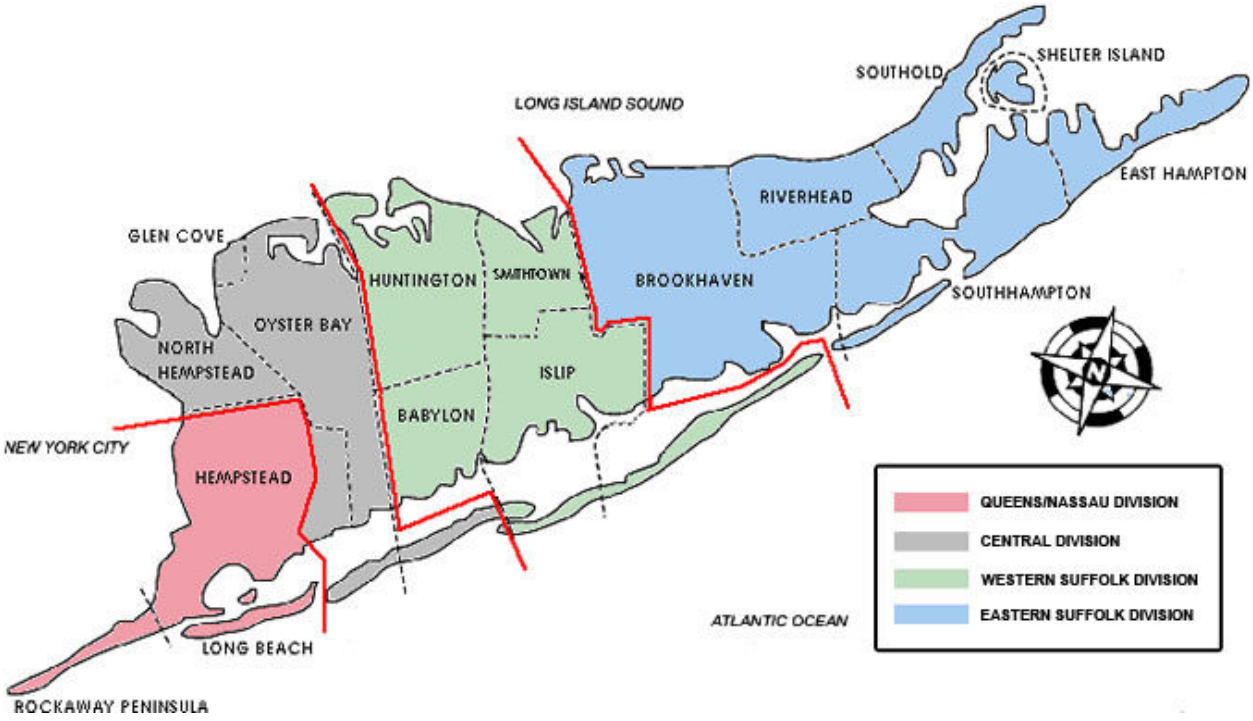
9. As of the date of this Biennial Report, the system is in good repair and sound operating condition to reliably deliver capacity and energy to the Authority's customers.

2.0 INTRODUCTION

The Authority is a corporate municipal instrumentality and political subdivision of the State of New York authorized under the Long Island Power Authority Act (the Act). The Authority became retail supplier of electric service in most of Nassau and Suffolk Counties and the Rockaway Peninsula of Queens County (the Service Area) on May 28, 1998 by acquiring the Long Island Lighting Company (LILCO) as wholly owned subsidiary of the Authority through a merger (LIPA/LILCO Merger). Since the LIPA/LILCO Merger, LILCO has done business under the names LIPA and Power Supply Long Island. Before the LIPA/LILCO Merger, LILCO was a publicly traded, shareholder-owned corporation that, since the early 1900s, was the sole supplier of both retail electric and gas service in the Service Area. LIPA no longer provides gas service in the Service Area. For the period prior to the LIPA/LILCO Merger, LILCO is referred to herein as LILCO and, for the subsequent period, is referred to herein as LIPA. Beginning January 1, 2014 through a competitive bidding process a wholly-owned subsidiary of PSEG fully dedicated to the Authority's Long Island operations (PSEG-LI) began providing operations, maintenance, and related services for the T&D system under the OSA. Currently, PSEG-LI is the retail brand for electric service on Long Island.

The Authority, through its wholly-owned subsidiary, LIPA, owns an electric transmission and distribution system serving the Service Area, including assets, facilities, equipment, and contractual arrangements used to provide the transmission and distribution of electrical capacity and energy to electric customers within the Service Area.

Figure 2-1: Electric System Service Territory



2.1 System Description

The Service Area consists of the bulk of Long Island in New York State, and is comprised of Nassau and Suffolk counties and the Rockaway Peninsula of Queens County, an area of approximately 1,230 square miles, excluding areas served by three municipal utilites: the Incorporated Villages of Freeport, Greenport, and Rockville Centre. Suffolk County is the easternmost county within the Service Area and covers an area of approximately 911 square miles, followed by Nassau County with a 287 square mile area, and the Rockaway Peninsula with an area of approximately 32 square miles. The Service Area is bounded by the Atlantic Ocean on the south and east, by the Long Island Sound on the north, and by portions of New York City on the west. Figure 2-1 displays the Service Area for LIPA.

As of December 31, 2015, LIPA served approximately 1.1 million retail electric customers, of whom approximately 89 percent were residential users. During the year ending December 31, 2015, residential customers provided approximately 54.4 percent of LIPA's annual retail electric revenues and commercial customers provided approximately 43.5 percent of annual retail electric revenues. The remaining balance is revenue from retail sales of public lighting, other public authorities, and miscellaneous others.

Although commercial customers provide a significant portion of annual electric sales revenues, these customers only account for approximately 10 percent of the retail electric customers served by LIPA. In general, individual commercial customers are relatively small. The Service Area contains little traditional

"industrial" loads, and customers served under this rate classification are primarily large commercial customers. The single largest customer in the Service Area (the Long Island Rail Road) accounted for less than two percent of total electric sales during the period of this report and less than two percent of total retail electric revenues during the same period.

Summary information on annual retail energy sales and retail electric revenues within the Service Area during the 2011 through 2015 period can be found in Table 1-1.

2.2 Biennial Report

In compliance with the requirements pursuant to the role of Consulting Engineer and Rate Consultant within the provisions of the Section 702(b) of the General Resolution and Section 7.02 of the Subordinated Resolution, LIPA retained Burns & McDonnell to conduct the efforts required to prepare this Report for the two years ended December 31, 2015.

2.3 Report Covenant

Pursuant to the General Resolution, the Report is to set forth the following:

i. "The Consulting Engineer's advice and recommendations as to the proper operation, maintenance, and repair of the System during the ensuing years, and an estimate of the amounts of money necessary for such purposes;

ii. The Consulting Engineer's advice and recommendations as to improvements which should be made during the ensuing two years, and an estimate of the amounts of money necessary for such purposes, showing the amount projected to be expended during such years from the proceeds of Bonds and Subordinated Indebtedness issued under or pursuant to the Resolution;

iii. The Rate Consultant's recommendation as to any necessary or advisable revisions of rates, fees, rents, charges and surcharges and such other advice and recommendation as it may deem desirable; and

iv. The Consulting Engineer's findings as to whether the System has been maintained in good repair and sound operating condition, and its estimate of the amount, if any, required to be expended to place such properties is such condition and the details of such expenditures and the approximate time required therefore."

2.4 Project Approach

This Report summarizes the reviews and assessments of LIPA. This Report documents Burns & McDonnell's examination of the electric system organization and management and an assessment of the utility's financial condition. The source of the financial, statistical, and operating data utilized in preparing the Report is LIPA's annual financial statements and accounting records, various operations reports, as well as, Authority staff.

In the preparation of this Report, Burns & McDonnell completed assessments of the electric generating stations under contract to LIPA and the transmission and distribution system owned by LIPA. Assessments involved interviews, observations, and review of annual expenditures from 2014 through 2015 and 2016 and 2017 budgets. The adequacy of the revenues provided by the current retail rates in relation to the requirements of the Resolutions was also reviewed.

Each section of the Report summarizes specific efforts completed while conducting the study. The Report is arranged in the following sections:

- 1.0 Executive Summary
- 2.0 Introduction
- 3.0 Organization and Management
- 4.0 Electric System and Service
- 5.0 Financial Assessment
- 6.0 Conclusions

3.0 ORGANIZATION AND MANAGEMENT

3.1 Authority Structure

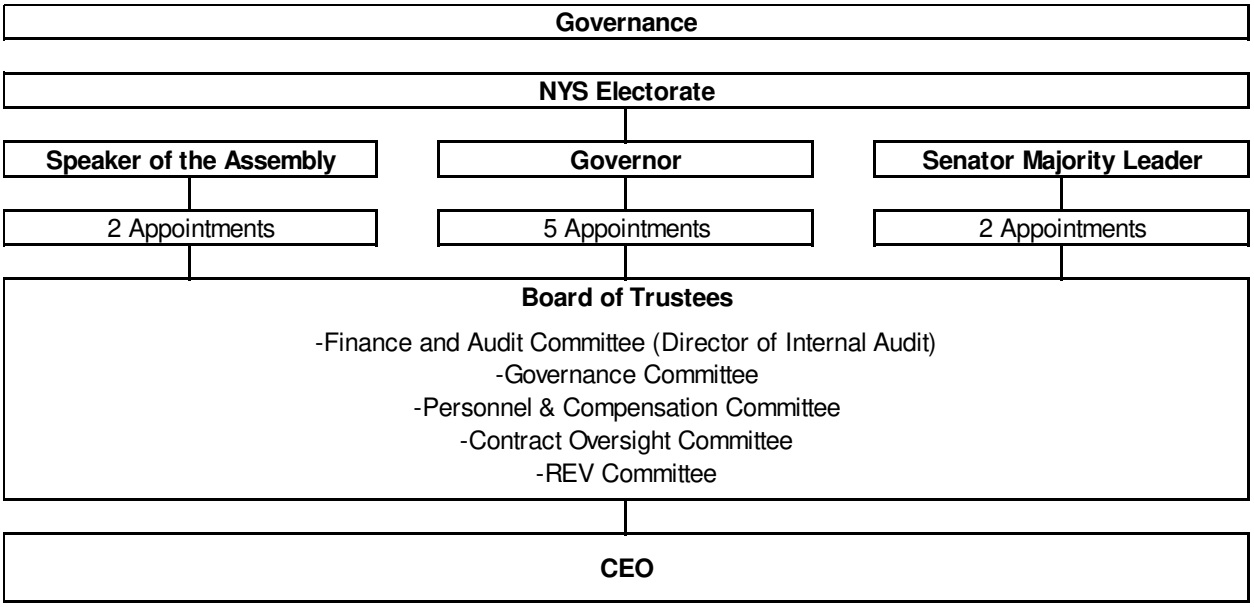
Operations, performance, and costs are managed by the Authority. The management team includes engineering, legal, financial, accounting, and management professionals. The organization of this management team is described below. Through a competitive procurement process, the Authority selected Public Service Electric Group (PSEG) through its wholly owned subsidiary, PSEG-LI, to operate LIPA's T&D System under a twelve-year OSA beginning January 1, 2014.

3.1.1 Board of Trustees

During the period of this Report, the Authority was governed by a nine-member Board of Trustees whose members were required under the Act to be residents of the Service Area. The Governor appointed five of the Trustees. Of the four remaining, two were appointed by the Majority Leader of the New York State Senate, and two were appointed by the Speaker of the New York Assembly. The Chairman of the Trustees was also appointed by the Governor. Each Trustee served for a staggered term of four years. A Trustee whose term expired continued to serve until his or her successor was appointed. Trustees do not receive compensation, but are entitled to reimbursement for reasonable expenses in the performance of their duties.

Committees operated by the Board of Trustees have changed and now consist of the finance and audit, governance, personnel and compensation, contract oversight, and REV committees. Figure 3-1 provides the Board of Trustees organization during the biennial reporting period.

Figure 3-1: Trustees Organization During Reporting Period



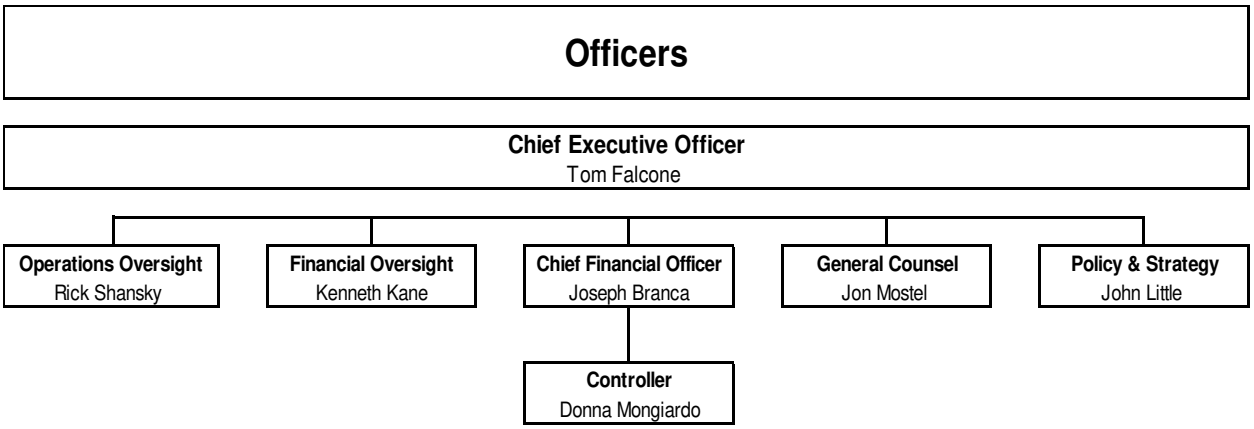
3.1.2 Authority Management

3.1.2.1 Chief Executive Officer

John McMahon was the COO of the Authority during the beginning of 2014. Mr. McMahon performed the duties as stated within the Authority's By-laws and reported directly to the Board of Trustees.

In April of 2015, Mr. McMahon announced his resignation, effective August 31, 2015. Subsequently, on August 31, 2015, Thomas Falcone assumed the role of Chief of Staff in which he performed the day-to-day activities of CEO. On March 21, 2016 Mr. Falcone was appointed CEO. The current management structure is depicted in Figure 3-2.

Figure 3-2: LIPA Management



3.2 Organizational Policies

3.2.1 LIPA Reform Act

In October 2012, Superstorm Sandy struck the Authority's service area causing extensive damage to the Authority's T&D system, resulting in widespread power outages, mandatory evacuations and the destruction of a significant number of homes and businesses. Total damage to the Authority was approximated at $700 million. Following Superstorm Sandy, New York Governor Cuomo established a Moreland Act Commission on Utility Preparedness and Storm Response to review and make recommendations with respect to all New York utilities, including LIPA, and their response to emergency weather events.

The LIPA Reform Act was enacted in response to concerns related to organizational relationship between the Authority and its service provider. The LIPA Reform Act was intended to bring accountability and transparency to the delivery of electricity by:

1. Authorizing the reformulation of the relationship between LIPA and PSEG-LI, such that PSEG-LI assumes more responsibility related to operations in the service area; the Authority's role is to oversee the activities of PSEG-LI and to meet its obligations with respect to its bonds and notes and all applicable statutes and contracts.

2. Creating a new Long Island based office in the Department of Public Service (DPS), which is the staff arm of the New York Public Service Commission to assist with oversight of core utility operations of PSEG-LI.

3. Authorize the retirement of a portion of the Authority's outstanding debt from the proceeds of the UDSA bonds at lower interest rates than existing indebtedness and capping or eliminating certain categories of payments in lieu of taxes, with savings passed on to ratepayers. The LIPA Reform Act was amended in 2015 to permit UDSA to issue additional restructuring bonds in an aggregate additional amount not to exceed $4.5 billion. After the issuance of the Restructuring Bonds Series 2016B on September 8, 2016, the remaining authorized amount under the Securitization Law will be approximately $369.5 million.

3.2.2 Budgeting

For the two year period ended December 31, 2015, PSEG-LI prepared annual budgets for its costs and submitted such budgets to LIPA for review. The budgeting process takes into consideration historical revenue and expense levels and projects revenues and expenses to be incurred. Estimates are prepared for

each LIPA and PSEG-LI department and compiled into a singular document to be presented to LIPA's Board of Trustees for approval. The 2016 Approved Budget was reviewed by Burns & McDonnell in conducting the investigations pertaining to this report. According to the estimates, the electric revenues generated by the current electric rates are sufficient to fulfill the debt service coverage requirement defined in the General Resolution, which states:

> *"The Authority shall establish and maintain System fees, rates, rents, charges and surcharges sufficient in each Fiscal Year so that Revenues reasonably expected to be produced in such Fiscal Year, will be at least equal to the sum of (i) 120% (except, after the Authority shall have retired, other than from proceeds of Bonds or Subordinated Indebtedness, an amount equal to 25% of the Acquisition Debt net of the then outstanding balance of the Promissory Notes, 100%) of Debt Service, and amounts under all Parity Contract Obligations, payable by the Authority in such Fiscal Year, (ii) 100% of the Operating Expenses payable in such Fiscal Year, (iii) 100% of the amount necessary to pay all PILOTs payable in such Fiscal Year, and (iv) 100% of the amount necessary to pay other Required Deposits, all other payments required pursuant to the Resolution and the Financing Agreement, and all other payments required for the System, for such Fiscal Year; …"*

3.2.3 Audited Financial Statements

In compliance with the requirements pursuant to the General Resolution, LIPA retains an independent accountant, on an annual basis, to audit the Financial Statements prepared by staff. The General Resolution requires the following:

> *"The Authority shall keep or cause to be kept proper books of record and account (separate from all other records and accounts) in which complete and correct entries shall be made of its transactions under the Resolution and which, together with all other books and papers of the Authority, shall at all reasonable times be subject to the inspection of the Trustee or the representative, duly authorized in writing, of the Holder or Holders of not less than 25% in principal amount of the Bonds then Outstanding. Such books of account are to be audited at least annually by independent certified public accountants experienced in public finance and electric utility accounting selected by the Authority. A copy of each audit report, annual balance sheet and income and expense statement shall be filed with the Trustee and sent to any Owner filing with the Authority a written request therefor."*

LIPA has been successful at meeting its auditing requirements for the period.

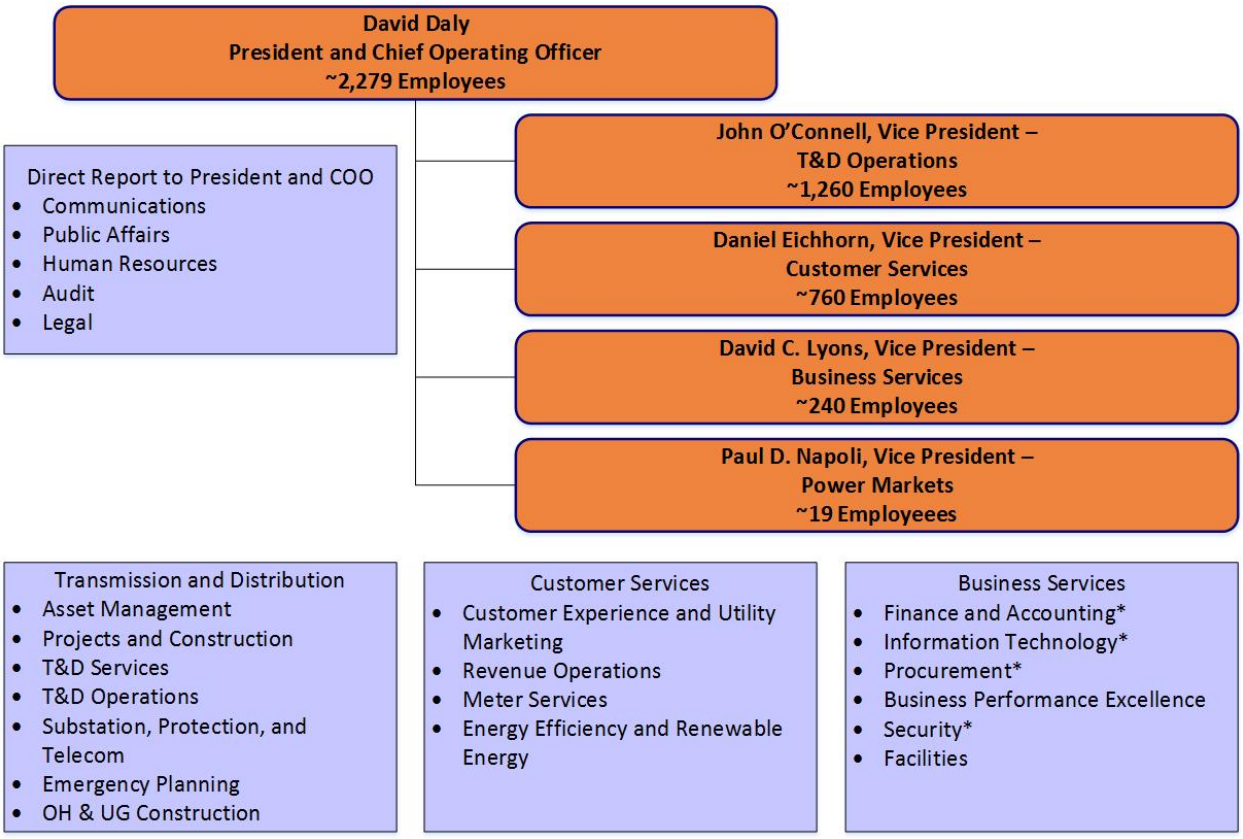
3.2.4 Rate Studies

The Authority is empowered to set rates for electric service in the service area without being required by law to obtain approval of the PSC, DPS or any other State regulatory body. However, the Authority agreed in connection with the approval of the LIPA/LILCO Merger by the PACB in 1997 that it would not impose any permanent increase, nor extend or reestablish any portion of a temporary rate increase, in average customer rates over a 12-month period in excess of 2.5 percent without approval of the PSC, following a full evidentiary hearing. Under the LIPA Reform Act, that PACB condition has been superseded by a rate-setting process which provides for DPS review of the 2016-2018 rate proposal, as well as any future rate proposal that leads to aggregate revenues of the Authority to increase by more than 2.5 percent on an annual basis. LIPA's utility rate schedule is structured with fixed customer charges for all customer classes, seasonal energy rates for all customer classes except street lighting, and seasonally differentiated demand charges for non-resident customer classes. No rate increases occurred during the Study period. See 5.1.2 below for a description of the 2016-2018 rate plan.

3.2.5 Primary Operating Agreement

Effective January 1, 2014, PSEG-LI, a wholly-owned subsidiary of PSEG fully dedicated to the Authority's Long Island operations began providing operations, maintenance and related services for the T&D system under the OSA. The OSA expires December 31, 2025. Additionally it includes a provision that if PSEG-LI achieves certain levels of performance based on criteria during the first 10 years, the parties will negotiate in good faith an eight year extension on substantially similar terms and conditions. Beginning January 1, 2015, an affiliate of PSEG-LI assumed certain power supply management, fuel procurement and related services that were historically provided pursuant to separate agreements between the Authority and other service providers. PSEG-LI organization is shown below in Figure 3-3.

Figure 3-3: PSEG-LI Organization



* Certain personnel of these groups report to various Vice Presidents of PSEG.

4.0 ELECTRIC SYSTEM AND SERVICE

LIPA's electric system primarily consists of transmission and distribution assets and an 18 percent partial ownership in the Nine Mile Point 2 Nuclear Power Station. Additionally, the Authority has various power supply contracts, which are described below.

4.1 Nine Mile Point 2 Generating Station

LIPA holds 18 percent ownership in the Nine Mile Point Nuclear Power Station 2 (NMP2), located near Scriba, New York on the south shore of Lake Ontario. NMP has two separate nuclear power stations, designated as NMP1 and NMP2. Constellation Energy Nuclear Group (CENG) owns 100 percent of NMP1, and 82 percent of NMP2. NMP2 consists of a boiling water reactor and General Electric turbine generator, and operates under licensing from the Nuclear Regulatory Commission, set to expire in 2046.

LIPA has entered into an operating agreement with CENG for NMP2, which CENG assigned to its affiliate Exelon Generation (Exelon). As a part of the agreement, LIPA and Exelon each has representatives on a management committee, which meets to discuss plant matters. Final budgets are prepared by Exelon, and sent to LIPA for annual approval. LIPA is responsible for their ownership portion of operating costs and capital investments associated with NMP2 each year.

4.1.1 NMP2 Capital Improvement Program

Exelon has contracted with the Department of Energy (DOE) for disposal of high level radioactive waste (spent fuel), and despite a court order reaffirming DOE's obligation, the DOE has not forecasted the start of operations of spent fuel repository. NMP reached capacity on total spent fuel storage it could currently hold in May of 2012. For this reason, Exelon built a new dry fuel storage facility to accommodate spent fuel for both NMP1 and NMP2. The net book value of LIPA's investments, excluding nuclear fuel, for NMP2 during the study period was $353 million in 2014 and $374 million in 2015.

4.1.2 Plant Performance of NMP2

NMP2 performs at favorable capacity factors when compared to industry nuclear averages. Table 4-1 displays comparative capacity factors for years 2011-2015. Generation values within Table 4-1 only reflect 18 percent of total generation from NMP2, capturing only LIPA's 18 percent, partial ownership. Decreased generation and capacity factor in 2012 is attributable to increased down time to complete capacity upgrades during the refueling outage. Performance measurements returned to expected values during 2013, once upgrades were complete.

Table 4-1: NMP2 Plant Performance

Note: Generation values shown below are for LIPA's percentage of the plant generation.

Year	Annual Net Generation (MWh)	Annual Net Capacity Factor	Three Year Average Net Capacity Factor	Industry Average Net Capacity Factor
2011	1,707,140	92.9	94.6	89.1
2012	1,470,928	81.3	89.6	86.1
2013	1,954,492	95.5	93.2	89.9
2014	1,754,463	85.7	89.5	91.7
2015	1,986,063	97.0	93.3	92.2

4.2 Transmission System

LIPA's transmission system consists of overhead and underground facilities, vehicles, equipment, land parcels, easements, contractual arrangements, and other assets used to provide the transmission and distribution of electric capacity and energy to and within the Service Area. The T&D System includes seven transmission interconnections that are owned in part or under contract to LIPA that link the T&D System to utilities outside the Service Area. These transmission interconnections enable delivery of:

1. Capacity and energy produced by NMP2,
2. Additional off-system capacity resources needed to meet the peak demands of the electric customers,
3. Favorably priced energy to supplement or displace generation from on-island generating resources, and
4. Excess generation from on-island generating facilities to off-island purchasers, when conditions merit.

Table 4-2 provides summary information on the transmission interconnections.

Table 4-2: LIPA Interconnections

Name	Off System Terminal Location	Interconnecting Utility	Voltage Level (kV)	AC/DC
Dunwoodie to Shore Road (Y-50)	Westchester County, NY	Con Edison	345	AC
East Garden City to Sprain Brook (Y-49)*	Westchester County, NY	Con Edison	345	AC
Northport to Norwalk Harbor (NCC)	Norwalk, CT	CL&P	138	AC
Shoreham to East Shore (Cross Sound Cable)	New Haven, CT	UI	138	DC
Jamaica to Lake Success	Queens, NY	Con Edison	138	AC
Jamaica to Valley Stream	Queens, NY	Con Edison	138	AC
Sayreville to Levittown (Neptune Cable)	Sayreville, NJ	JCP&L	345	DC

*Cable is owned by NYPA

Four submarine cables installed under Long Island Sound form part of the interconnection between the T&D System and other utility systems in upstate New York and Connecticut:

1. Dunwoodie to Shore Road (Y-50)
2. East Garden City to Sprain Brook (Y-49)
3. Northport to Norwalk Harbor (NCC)
4. Shoreham to East Shore (Cross Sound Cable)

A fifth submarine cable (Sayreville to Levittown, also known as the Neptune Cable) connects LIPA's service area with New Jersey and allows for the purchase of energy and capacity from resources in the Pennsylvania-New Jersey-Maryland region (PJM).

The Dunwoodie to Shore Road line, designated as the (Y-50) line and placed in operation in August 1978, is an 18-mile 345-kilovolt (kV) cable jointly owned with Con Edison. This cable is of pipe-type construction in which dielectric fluid is circulated to cool the conductors and maintain the electrical insulation. The cable operates at full capacity with a 653 MW normal rating and a 914 MW emergency rating. Power is wheeled over this cable to the two 138 kV cables to Jamaica for delivery to LIPA.

The East Garden City to Sprain Brook 345 kV interconnection (Y-49) was installed in 1991 and is approximately 23 miles long. This cable is comprised of a submarine portion and a land-based portion. The submarine portion is constructed of self-contained dielectric fluid-filled cables that operate under high pressure, while the land-based portion is of conventional pipe-type construction. This line is owned entirely by New York Power Authority (NYPA) and is used by LIPA under the terms of a contract with NYPA.

The Northport to Norwalk Harbor cable (NNC) is a double circuit 138 kV submarine cable installed in 2008 to replace an older cable. This line extends approximately 12 miles under the Long Island Sound from the Northport Electric Generating Station (Northport) in Suffolk County, New York to Norwalk Harbor, Connecticut. LIPA owns that portion of the line from Northport to the New York-Connecticut state boundary, at which point ownership is held by Connecticut Light and Power (CL&P), a wholly-owned subsidiary of Northeast Utilities. The circuit has a normal rating of 450 MW, but, due to constraints in southwest Connecticut, is operated at the prior cable's rating of 286 MW. One of the three new cables failed on May 20, 2009. The cost of repairs was covered by warranty and the damaged cable was back on line April 26, 2011.

The Shoreham to East Shore line (the Cross Sound Cable or CSC) is a 24-mile, +/- 150 kV bi-directional high voltage direct current system utilizing voltage source converter technology with a capability of 330 MW. The Cross Sound Cable is connected between the converter stations installed adjacent to United Illuminating's 345 kV East Shore substation in Connecticut and LIPA's Shoreham 138 kV substation. Construction of this line began in 2000 pursuant to a firm transmission capacity purchase agreement (the CSC Agreement) entered into between LIPA and Cross Sound Cable Company, LLC pursuant to which LIPA agreed to purchase up to 330 MW of transmission capacity. The CSC Agreement, as amended, expires in 2032. The Cross Sound Cable became operational in June 2004.

The Sayreville to Levittown cable (the Neptune Cable) allows LIPA to import power from New Jersey over an undersea high-voltage direct current transmission cable. The Neptune Cable was constructed, and is owned, by Neptune Regional Transmission System, LLC. The Neptune Cable is capable of carrying 660 MW of electricity and runs from Sayreville, New Jersey, under the Atlantic Ocean and connects with LIPA at its Newbridge Road substation in Levittown. The Neptune Cable became operational in July 2007.

The two remaining Service Area transmission interconnections (the Jamaica to Lake Success and the Jamaica to Valley Stream cables) are linked to the Con Edison transmission system in Queens County, New York. LIPA owns these facilities to the border of Nassau and Queens Counties, at which point ownership transfers to Con Edison. These ties are employed primarily for the delivery of power to Con Edison from its portion of energy flowing across Y-50.

The transmission facilities provide for the delivery of capacity and energy from the transmission interconnections and the on-island generating stations to LIPA's electric distribution system. As of December 31, 2015, LIPA reported the transmission system consisted of approximately 1,350 miles of overhead and underground lines, with voltage levels ranging from 23 kV to 345 kV. This transmission system has been constructed following standards similar to those employed by other major electric utilities in the Northeast and includes wood poles, steel poles, and lattice steel towers. Many of the existing transmission structures support distribution circuits and/or connections for telephone, cable television, or fiber optics.

The transmission system includes transformation equipment at 20 generating sites that is used to step up the generation voltage to transmission voltage levels.

4.2.2 Substation Descriptions

Burns & McDonnell inspected 25 substations in Nassau and Suffolk counties and on the Rockaway Peninsula of Queens County. Inspections were guided by PSEG-LI. The substations visited included:

2A Park Place	**2AR Arverne**	**2H Far Rockaway**	**2MA Woodmere**
2WB Barett	**4H East Garden City**	**4MG Mitchell Gardens**	**5G Plainedge**
5R Bellmore	**5RK North Bellmore**	**6DL Pilgrim**	**8C Sills Road**
8D Holbrook	**8DR Wildwood**	**8ER Brookhaven**	**8GX West Yaphank**
8KW West Bus	**8Q North Shore Beach**	**8RX Moriches**	**8SM South Manor**
8W Terryville	**8WF William Floyd**	**8XR Ridge**	**9A Riverhead**
Randall Road			

The inspected sample represented a variety of transmission and distribution substations with different voltage levels and ages. Overall, substations were clean and in good operating condition. Based on the substation inspections, Burns & McDonnell has general recommendations regarding substation operating and maintenance:

1. It has previously been noted in conversations with PSEG-LI operators that some of the substations have experienced theft of copper or copper substitutes. PSEG-LI should continue to be diligent about adding urban grounding for all steel structures and above ground grounding connections. Urban areas grounding is a practice used in the substations located in urban areas where theft is more likely. It is achieved by covering all copper wire with a “U” shaped steel channel all the way from the point of grounding of the structure or the equipment up to the point where the ground wire enters the ground.

2. After Superstorm Sandy, several impacted substations and substations in flood zones were raised and some were lined with temporary sand barriers (trap bags). Some of these trap bags have been removed from the sites but others remain. These remaining trap bags have begun to deteriorate and are developing holes, exposing the contained dirt and sand. Previous conversations with PSEG-LI staff revealed that the trap bags are temporary and all trap bags are to be replaced by the end of 2016. PSEG-LI should remain diligent about finalizing more permanent methods of flood prevention and continued removal of the temporary trap bags.

3. Some transformer containment areas were witnessed to have a significant volume of water retained in them. Others also had significant vegetation growing out of the containment area and beginning to climb the transformer radiators. It was also noted in several substations that the piling caps had begun to deteriorate and crumble on many footings, as shown in Figure 4-1. While these issues are minor in nature and do not represent an immediate concern, Burns & McDonnell recommends that PSEG-LI address them before they do become more serious.

Figure 4-1: Piling Cap Deterioration

4. Many of the substations have recently had new gravel brought in and spread onsite. In some locations, this gravel was not spread evenly and left some spots that were very deep. This prevented vehicles from driving across those areas without getting stuck. Other areas were left totally bare which could lead to puddling and mud pits in the event of heavy rains, as can be seen in Figure 4-2. Burns & McDonnell recommends ensuring that these areas are graded properly to allow proper drainage and passage of vehicles.

Figure 4-2: Bare Ground Spots within Substation

4.2.2.1 6DL Pilgrim

The 6DL Pilgrim substation is in overall good condition; the site was clean and well maintained. PSEG-LI has replaced most of the oil circuit breakers (OCB) with gas circuit breakers (GCB) at this site as seen in Figure 4-3. In doing so, PSEG-LI has left decommissioned oil circuit breakers within the substation. Burns & McDonnell was informed that the equipment was left within the substation in case parts were needed to repair oil circuit breakers still in operation. Burns & McDonnell recommends a more formal storage and inventory of decommissioned equipment with storage off-site of the substation.

Figure 4-3: 6DL Pilgrim Replacement Gas Circuit Breakers

4.2.2.2 2H Far Rockaway

The 2H Far Rockaway substation sustained damage during Hurricane Sandy. Subsequent to Hurricane Sandy, equipment was repaired or replaced and certain items were elevated on concrete platforms as to avoid future inundation in the event of flooding as seen in Figure 4-4. Temporary wooden stair sets were also installed and will need to be replaced by more permanent structures. Barriers were installed following the storm to protect equipment within the substation from flooding and were found to still be present at the site. A more reliable and permanent flood prevention method should be employed to prevent future damage. Although the site was in overall good condition, it is recommended that some weed mitigation take place at this site as some areas have become overgrown.

Figure 4-4: 2H Far Rockaway

4.2.2.3 9A Riverhead

The 9A Riverhead Substation is in overall good condition and the site was clean. The process of replacing the older OCBs with GCBs has begun at this site. Similar to other sites, some of the decommissioned OCBs along with transformers and other decommissioned equipment remained within the substation, as seen in Figure 4-5. Replacement equipment such as electrical bushings was also seen within the substation in open crates. Several large spools of copper were located behind a container within the switchyard and pose a risk of theft due to being so highly visible. Burns & McDonnell recommends a more formal storage and inventory system for decommissioned and replacement parts with storage offsite of the substation.

Figure 4-5: 9A Riverhead

4.2.2.4 8SM South Manor

The 8SM South Manor Substation is a brand new substation in excellent condition and appears very clean. The site can be seen in Figure 4-6. All breakers are GCBs and the site consists of enough open land for expansion within the fence line. The site also contained an air conditioned control house. Some spots of the gravel fill within the substation were deep and could pose a problem for vehicles to drive across without getting stuck. Other areas of the fill were very shallow and could pose an issue of water pooling. Burns & McDonnell recommends better grading of the gravel to even out these areas.

Figure 4-6: 8SM South Manor

4.3 Distribution Plant

LIPA reports the distribution system included approximately 14,000 primary circuit miles of overhead and underground line (9,000 miles of overhead line and 5,000 miles of underground line). As of December 31, 2015, there were 178 substations providing service to load via distribution transformers connected to the 138 kV and 69 kV buses. Approximately 43.5 percent of the poles on which LIPA's distribution facilities have been installed are owned by Verizon and used by LIPA pursuant to a joint-use agreement.

4.4 Major Maintenance and Capital Improvements

Capital expenditures including Nine Mile Point 2 for 2014 and 2015 respectively were approximately $441 million and $396 million. Such expenditures included reliability enhancements, capability expansion, new customer connections, facility replacements and public works. Capital expenditures for 2016 in the approved budget are approximately $685 million. The 2016 capital expenditure program

provides for a continuation of programs to maintain reliability and quality of electric service, as well as a significant effort in improving system resiliency through a multi-year storm-hardening program.

4.5 Power Supply and Electric Load

LIPA receives power supply from National Grid Generation LLC (GENCO) facilities, the NMP2 facility, and Independent Power Producers on Long Island and elsewhere. Table 4-3 displays the capacity and energy breakdown between power supplies for LIPA over the previous 5 years. On average, LIPA receives 8 percent of its energy through their proportionate share of NMP2 generation, 24 percent GENCO power, and 68 percent through other Independent Power Producers and spot purchases.

Table 4-3: Historical Power Supply

	2011	2012	2013	2014	2015
Peak Demand (MW)	5,771	5,333	5,602	4,859	5,049
Capacity					
Nuclear	225	224	224	224	224
Purchased Capacity					
GENCO	3,692	3,667	3,679	3,679	3,686
Other Purchased	2,092	2,104	2,111	1,979	1,909
Total Capacity	6,009	5,995	6,014	5,882	5,819
Reserve Margin					
MW	238	662	412	1,023	770
Percent	4.1%	12.4%	7.4%	21.1%	15.3%
Energy (MWh)					
Nuclear	1,707,140	1,470,928	1,954,492	1,754,463	1,986,063
Purchased Energy					
GENCO	5,661,914	5,258,881	4,823,499	4,558,391	5,050,927
Other Purchased	14,214,372	14,582,206	14,567,722	14,472,643	14,023,527
Total Energy	21,583,426	21,312,015	21,345,713	20,785,497	21,060,517

In 2009, LIPA initiated a 10 year energy efficiency program, Efficiency Long Island (ELI), which plans to reduce demand by 520 MW. In addition, the Authority has put in place renewable energy programs.

Power supply planning responsibilities were transferred to PSEG-LI in January 2015. PSEG-LI is currently undertaking of a new Integrated Resource Plan ("IRP"). The IRP will update LIPA's Electric Resource Plan for the period 2010-2020 and examine LIPA's resource options in light of ongoing industry developments, including increased interest in distributed energy resources and renewables under the PSC's REV proceeding and proposed Clean Energy Standard. LIPA retains an oversight role over the entire process, which is expected to be completed by the end of 2016.

In June 2012, the Board of Trustees adopted a solar Feed-In Tariff ("Solar FIT I") for up to 50 MW of solar projects that would be connected to the Authority's electric grid. Solar FIT I selected approximately 50 MW of projects. As of the end of May 2016, a total of 18.8 MW of these projects are operational and 20 MW of additional projects are under contract. The majority of the remaining projects are projected for commercial operation by the end of 2016.

In October 2013, the Board of Trustees adopted a second Solar Feed-In Tariff ("Solar FIT II") for up to 100 MW and a nonsolar Feed-In Tariff ("Other FIT") for up to 20 MW. The Solar FIT II evaluation has been completed, approximately 100 MW of projects were selected, 28.2 MW of power purchase agreements have been executed and an additional 53.7 MW of projects are undergoing final evaluation by developers or the power purchase agreements are in the process of being finalized. The majority of the Solar FIT II projects are projected for commercial operation by the end of 2016. A total of 10.2 MW of proposals were selected for the Other FIT, one project has withdrawn and the remaining 8.8 MW are pending power purchase agreement execution.

On December 17, 2014 the Board of Trustees adopted the staff recommendation for a 280 MW Renewable RFP to commence negotiations for 11 photovoltaic contracts totaling 122 MW. As of May 2016, three projects totaling 28.9 MW had completed environmental reviews and their contracts were approved by the LIPA Board of Trustees.

Due to the shortfalls in the 280 MW RFP and the Solar FIT II and Other FIT, PSEG-LI issued the 2015 Renewable RFP on December 22, 2015 for an additional 210 MW of renewable energy. The proposals were received in June 2016 and are currently being evaluated. The Authority has approved over 200 MW of renewable energy projects over the past two years.

The existing resources and transmission system on the South Fork of Long Island is not adequate to support anticipated load growth through 2030. To address these deficiencies, an RFP requesting approximately 63 MW of efficiency, direct load control, renewable energy, storage and conventional generation to defer the need for new transmission through 2022 was issued on June 24, 2015. Recommended projects are expected to be presented to the Board of Trustees at the September 21, 2016 meeting for authorization to commence negotiations.

4.6 Power Quality

LIPA is committed to providing reliable electric service. Three common measurements used to track reliability are the Customer Average Interruption Duration Index (CAIDI), System Average Interruption Duration Index (SAIDI), and the System Average Interruption Frequency Index for Long Interruptions

(SAIFI LONG). CAIDI is measured by dividing the sum of all customer interruption duration in minutes by the total number of customer interruptions. SAIDI is similar to the CAIDI measurement, but the interruption duration is divided by total number of customers served by the system. SAIFI LONG provides an estimate for expected ratio of customers to be interrupted annually and is calculated by dividing the total number of customers interrupted by the total number of customers served. Over the past 16 years, LIPA's investments in the transmission and distribution system have resulted in LIPA being the most reliable overhead electric utility in New York State based on SAIDI, SAIFI LONG, and CAIDI measurements. Results for these metrics over the previous three years are displayed in Table 4-4.

Table 4-4: Power Quality Measurements

	2013	2014	2015	5-Year Average
SAIDI (Minutes)	47.9	59.3	66.0	55.1
SAIFI (Interruptions/Year)	0.709	0.730	0.840	0.742
CAIDI (Minutes)	67.6	82.0	78.0	74.2

5.0 FINANCIAL ASSESSMENT

The financial results of the electric system for the two-year period ended December 31, 2015 are provided herein.

5.1 Electric Rates

5.1.1 Rates Covenant

Provisions of Electric System General Revenue Bond Resolution, adopted May 13, 1998, as supplemented and amended from time to time, mandates LIPA establish service rates and collect fees sufficient to pay all expenses associated with utility operations including maintaining the appropriate level of reserves as well as maintaining an annual minimum debt service coverage of 100 percent. The debt service coverage minimum has been reduced from 120 to 100 percent, because LIPA has retired, other than from proceeds of Bonds or Subordinated Indebtedness, an amount equal to 25 percent of the Acquisition Debt net of the then outstanding balance of the Promissory Notes. The Rate Covenant provisions of the General Resolution states the following:

> *"The Authority shall review, or cause the Subsidiary to review, the adequacy of System fees, rates, rents, charges and surcharges at least annually. If such annual or more frequent review, or the report of the Rate Consultant pursuant to Section 702, indicates that the rates, fees, rents, charges and surcharges are, or will be, insufficient to meet the requirements of this Section 701, the Authority shall promptly take, or cause the Subsidiary to take, the necessary action to cure or avoid any such deficiency except as otherwise may be provided by subsection (d) of this Section."*

5.1.2 Regulation

The Authority is operated under the direction of the Board of Trustees. The Authority has the power to determine and alter rates charged without needing approval of the PSC, DPS or any other State regulatory body. The Authority agreed that it would not impose any permanent increase, nor extend or reestablish any portion of a temporary rate increase, in average customer rates over a 12 month period in excess of 2.5 percent without approval of the PSC, following a full evidentiary hearing. Under the LIPA Reform Act, that Public Authority Control Board (PACB) condition has been superseded by the rate-setting process which provides for DPS review of the 2016-2018 rate proposals, as well as any future rate proposal that leads to aggregate revenues of the Authority to increase by more than 2.5 percent on an annual basis.

PSEG-LI and the Authority's original submission on January 30, 2015 proposed rate increases of $72.7 million, $74.3 million, and $74.3 million for the years 2016, 2017 and 2018, respectively, for a cumulative

revenue requirement increase of $441.0 million over the three year period. At those proposed levels, the Authority's overall electric revenues, including power supply costs, would have increased by approximately 2.0 percent each year or a cumulative 6.0 percent over the three year period. Throughout the proceeding, PSEG-LI, the Authority, the DPS staff and other parties proposed and updated revenue requirement positions. PSEG-LI and the Authority's incremental rate request as of the time of the DPS Recommendation was $58.2 million, $72.2 million, and $68.1 million for the years 2016, 2017 and 2018, respectively, for a cumulative increase of $387.2 million or 5.4 percent. The Recommendation was for the Authority to set rates designed to increase revenues by $30.4 million in 2016, $77.6 million in 2017, and $79.0 million in 2018, respectively, which rates represent a cumulative revenue requirement increase of $325.4 million or 5.0 percent. At those proposed levels, the Authority's overall electric revenues, including power supply costs, would have increased by approximately 0.8 percent, 2.1 percent, and 2.1 percent, respectively.

The Recommendation also includes an update process to adjust delivery rates higher or lower to reflect measurable changes in certain specified projected costs ("Staged Updates") and a cost reconciliation mechanism (the "Delivery Service Adjustment") to reconcile certain specified projected costs to actual costs in each year.

The Staged Updates provide for updating electric rates at the beginning of each year for items that are subject to variability due to external factors including, among others: debt service (also subject to the Delivery Service Adjustment); certain components of the costs of the Power Supply Agreement with National Grid (also subject to the Delivery Service Adjustment); property-based PILOTs; and certain other legal or regulatory changes. Projections will be updated each autumn, subject to DPS review, and presented to the Board of Trustees as part of the annual budget process. The Authority's 2016 budgeting process resulted in proposed rates implemented through the initial Staged Update that lowered the increase in revenues from what is set forth in the Recommendation by $10.3 million in 2016 (from $30.4 million to $20.1 million), $12.4 million in 2017 (from $77.6 million to $65.2 million) and $15.3 million in 2018 (from $79.0 million to $63.7 million), which rates represent a cumulative revenue requirement increase of $287.4 million.

LIPA's base retail electric rates generally reflect traditional rate designs and include fixed customer charges for all customer classes, seasonal energy rates for all customer classes except street lighting, and seasonally differentiated demand charges for non-residential customer classes (greater than seven kW). Economic development and load retention incentives are provided to a small number of commercial customers. Miscellaneous service charges, pole attachment charges, and wireless rental rates are also assessed on a monthly basis. In addition to the base delivery service charges, the Authority's charges include a Power

Supply Charge (referenced in the Tariff as the Fuel and Purchased Power Cost Adjustment Rate or FPPCA), a PILOT payments recovery rider (described below), a rider providing for the recovery of the Suffolk Property Tax Settlement, a Distributed Energy Resources Charge to recover the costs of LIPA's customer-side programs (formerly known as the Energy Efficiency and Renewable Resource Charge), a Revenue Decoupling Mechanism (described below), a Delivery Service Adjustment Charge (described below) and the New York State Assessment Charge to recover the cost of the Temporary State Energy and Utility Conservation Assessment and Department of Public Service Assessment (authorized by Public Service Law Section 18-a and the LIPA Reform Act).

Over the past few years, LIPA has regularly modified the Power Supply Charge in response to changes in fuel and purchased power prices. Prior to 2011, those changes were limited to a few times per year. In 2011 and 2012, the need to change the Power Supply Charge was evaluated quarterly. In October 2012, the Power Supply Charge tariff was modified to allow for 100 percent recovery of LIPA's power supply costs and to transition from a quarterly update process to a monthly basis consistent with the other major New York state electric utilities.

The Delivery Service Adjustment provides cost recovery for certain items that can vary significantly due to external factors, which items include, among others: debt service (variances in interest rates, capital expenditures and savings derived from UDSA's financings); all components of the Authority's power supply agreement with National Grid and operating costs related to the Authority's ownership of NMP2; and storm expenditures (variances from the approximately $50 million per year budgeted for storm expenses in base rates). The Delivery Service Adjustment is expected to be calculated through the end of September each year, which allows for the bill impact to be known in advance of annual budget approval. Any adjustment would be implemented on the following January 1st and reviewed by DPS.

In addition, the Recommendation affirmed the Authority's use of a "Revenue Decoupling Mechanism." The Authority's Board initially modified its tariff to establish a Revenue Decoupling Mechanism in March 2015 as an "Adjustment to Rates and Charges," which PSEG-LI is authorized to calculate and update each year according to the pre-defined terms of the tariff. All six of the major New York state electric utilities have Revenue Decoupling Mechanisms within their tariffs for delivery service. Mechanically, Revenue Decoupling Mechanisms function by comparing actual revenues with authorized revenues and crediting (or collecting) any differences to (or from) customers in a subsequent period; it is intended to cover all sources of variances in delivery service revenues including, among other things, any net lost revenues attributable to the implementation of energy efficiency or net metering programs, any revenue variances (positive or

negative) caused by weather patterns, and revenue variances (positive or negative) that result from changes in economic conditions.

5.2 Financial Results

The total revenue of LIPA for the two-year period ended December 31, 2015 included revenue from charges for electric service, wholesale services, as well as miscellaneous revenues from items such as rents, late payment charges , reconnection fees, etc. LIPA's auditor, KPMG LLP, performs an annual review of the Rate Covenant to determine compliance with the requirement of the General Resolution. The evaluation process of Rate Covenant compliance completed by LIPA's independent auditor include a comparison of all line item amounts presented for the Rate Covenant Calculation, recalculation of mathematical accuracy for both Rate Covenant Calculations and coverage calculations, and a comparison of reported Rate Stabilization Fund balances to accompanying bank statements. For the periods of this review, LIPA calculations of the Rate Covenant, as reviewed by its independent accounting firm, shows that LIPA has complied with its financial obligations under the Resolution.

LIPA customers are billed for electric service based on rate schedules, tariffs, or contracts that reflect the costs to the utility of providing that service. For purposes of designing electric rates, customers with similar load and service characteristics should be placed in the same rate classification. LIPA currently provides electric service to nine residential retail service classes which has been reduced from thirteen classes. This was done through consolidation of several similar classes. Additionally, there are eight commercial customer classes, which has been consolidated from eleven.

5.2.1 Operating Results

Table 5-1 presents a summary of the energy sales, the number of customers, and the average energy usage per customer by class for 2015. Total system energy sales ranged from 19,670 GWh in 2014 to 19,926 GWh in 2015.

Table 5-1: Energy Sales and Customer by Class

	2014	2015
Energy Sales (MWh)		
Residential	9,389,926	9,611,160
Commercial and Industrial	9,700,047	9,730,214
Other	597,089	584,264
Total Sales	19,687,062	19,925,638
Customer		
Residential	999,565	1,002,942
Commercial and Industrial	114,663	114,648
Other	5,094	5,514
Total Customers	1,119,322	1,123,104
Energy per Customer (MWh/Customer)		
Residential	9.4	9.6
Commercial and Industrial	84.6	84.9
Other	117.2	106.0
Total Sales	17.6	17.7

Annual revenues from sales, revenue per kWh ratios, and average revenue per customer ratios for each customer classification are presented in Table 5-2. During the period of this report, total revenue from sales to electric customers was $3.614 billion in 2014 and $3.505 billion in 2015. The change was driven by variations in the cost of Fuel and Purchased Power, but was offset by higher delivery revenues caused by higher winter sales in 2015. The Fuel and Purchased Power costs are adjusted and collected monthly through the Fuel and Purchased Power Cost Adjustment (FPPCA).

Table 5-2: Revenues and Sales Ratios by Class

	2014	2015
Revenue ($000)		
Residential	1,883,319	1,860,865
Commercial and Industrial	1,618,297	1,537,844
Other	112,366	106,500
Total Revenue	$ 3,613,982	$ 3,505,209
Energy (MWh)		
Residential	9,389,926	9,611,160
Commercial and Industrial	9,700,047	9,730,214
Other	597,089	584,264
Total Sales	19,687,062	19,925,638
Customer		
Residential	999,565	1,002,942
Commercial and Industrial	114,663	114,648
Other	5,094	5,514
Total Customers	1,119,322	1,123,104
Revenue/kWh		
Residential	0.2006	0.1936
Commercial and Industrial	0.1668	0.1580
Other	0.1882	0.1823
Total Energy Sales	$ 0.1836	$ 0.1759
Revenue/Customer ($/Customer)		
Residential	1,884	1,855
Commercial and Industrial	14,114	13,414
Other	22,059	19,314

The table below presents average residential and commercial rates for 2015 for LIPA and other similarly situated north east electric utility companies.

Utility Name	2015 Average Residential Price ($/kWh)	2015 Average Commercial Price ($/kWh)
Consolidated Edison Co-NY	0.263	0.206
Orange & Rockland Utilities	0.243	0.190
United Illuminating Company	0.208	0.153
Connecticut Light & Power	0.200	0.170
Long Island Power Authority	0.192	0.170

Figures may differ from Table 5-2 due to EIA reporting conventions.

LIPA's largest cost in providing electric service to its customers for each year of the period was the fossil fuels and the wholesale cost of power. LIPA purchased power from a number of different entities during the time of the study. Their largest supplier of power for both 2014 and 2015 was from various Independent Power Producers as shown previously in Table 4-3. The two-year high in annual purchased power cost occurred in 2014 when costs totaled $1.66 billion. In 2015 the annual purchased power cost totaled $1.51 billion.

The significance of annual power supply cost and purchased power plus production is illustrated in Table 5-3. The top portion of the table shows net operating revenue as the difference between total revenues generated by the delivery rates and the recovery of power supply costs. The ratios of power supply cost to sales revenues were calculated for 2014 and 2015. As illustrated, LIPA's sales revenue as a percentage of power supply costs ranged from 46 percent in 2014 to 43 percent in 2015.

Table 5-3: Net Revenue Margins and Unaccounted for Energy

($000)	2014	2015
Net Revenue Margins		
Sales Revenues	$ 3,613,982	$ 3,505,209
Power Supply	(1,659,272)	(1,510,725)
Net Revenue Margin	$ 1,954,710	$ 1,994,484
Power Supply to Sales Ratio	46%	43%
Unaccounted for Energy (MWh)		
Power Supply	20,785,497	21,060,517
Energy Sales	19,687,062	19,925,638
Unaccounted for Energy Losses	1,098,435	1,134,879
Percentage	5.28%	5.39%

Table 5-3 also illustrates the ratio of the amount of energy purchased and delivered to the electric system to total energy sales. This relationship identifies the level of unaccounted for energy in the system. This unaccounted for energy is primarily attributable to transmission and local system line/transformer losses, and to a much lesser extent may include unmetered or inaccurately metered sales, or even theft, etc. The bottom portion of Table 5-3 presents these comparisons for LIPA for 2014 and 2015. As shown, the percentage ratio of the unaccounted for energy to the total energy purchased was 5.28 percent for 2014 and 5.39 percent for 2015.

Table 5-4 presents a re-creation of LIPA's Statement of Revenues, Expenses, and Changes in Net Assets for 2014 and 2015. As illustrated, the Excess of Revenues Over Expenses generated by LIPA in 2014 was a gain of $56.5 million. In 2015, LIPA generated excess revenues of $48.17 million. The primary factor contributing to the gain is lower operating costs, which continued to decrease in 2015.

Table 5-4: Historical Operating Results

($000)

	Actual	
	2014	2015
Electric Revenues	$ 3,613,982	$ 3,505,209
Operating Expenses		
Fuel and Purchased Power Costs	$ 1,659,272	$ 1,510,725
Operations and Maintenance	851,101	814,177
Operations and Maintenance - Amortizations	11,422	11,403
Storm Restoration	30,462	63,210
General and Administrative	29,064	22,092
Depreciation and Amortization	215,544	223,607
Revenue Taxes (Pass through taxes)	184,356	192,729
Payments In-Lieu of Taxes	370,158	349,440
Total Operating Expenses	$ 3,351,379	$ 3,187,383
Operating Income	$ 262,603	$ 317,826
Other Income and Deductions, Net	152,378	92,073
Excess of Revenues Over Expenses Before Interest Expense	$ 414,981	$ 409,899
Interest Expense		
Debt Service Interest Expense	338,976	355,125
Other Interest Expense and Fees	28,475	13,713
Subtotal Interest Expense	367,451	368,838
Allowance for Borrowed Funds Used During Construction	(8,961)	(7,113)
Net Interest Expense	358,490	361,725
Excess of Revenues Over Expenses	$ 56,491	$ 48,174

5.2.2 Adequacy of Electric Rates

In order to determine if LIPA meets this requirement on an annual basis, LIPA performs a Rate Covenant calculation to insure that rates are set at a level to meet operating cash needs plus debt service requirements. As shown in the table below, LIPA's coverage supports that its rates are set at levels

adequate to meet its annual obligations. As Table 5-5 illustrates, LIPA generated sufficient cash from operations to satisfy its rate covenant, as it exceeded the required 100 percent. Therefore, the revenues generated by the current electric rates have been sufficient to meet the applicable covenants of the General Resolution. Beginning in 2016, LIPA will be moving from a net income revenue requirement of $75 million to a fixed obligation coverage revenue requirement targets on LIPA issued debt of 1.20, 1.30, and 1.40 for 2016 through 2018 respectively. When UDSA's restructuring bonds are included, those coverage ratio targets are a minimum of 1.15x, 1.20x, and 1.25x in 2016, 2017, and 2018, respectively. This change is designed to help improve the debt ratings from Standard and Poor's, Moody's, and Fitch Ratings. Moody's upgraded the Authority's ratings from Baa1 to A3 in mid-August.

Table 5-5: Rate Covenant Calculation

($000)

Cash Flows	2014	2015
Net Cash Provided by Operating Activities	$ 225,527	$ 638,748
Interest Income	406	1,143
FEMA Proceeds	302,570	125,509
Cash receipts from Interest rate Swaps	587	1,002
Revenues per the Resolution	$ 529,090	$ 766,402
Capital Leases	309,011	310,882
Available for Coverage	$ 838,101	$ 1,077,284
Senior Lien Debt	324,548	398,792
Coverage on LIPA Senior Lein Debt Service	2.58	2.70
Senior Lien and Subordinated Debt	405,065	408,752
Coverage on Senior Lien and Subordinated Debt	2.07	2.64
Total Debt Service	405,065	408,752
Coverage on Total Debt	2.07	2.64

5.3 Status of Revenue Bonds

At the end of 2015, LIPA had revenue bonds, restructuring bonds, and general revenue notes and subordinate commercial notes. Table 5-6 displays these outstanding debts during the Study period. During 2014, debt increased by $579 million. During 2015, debt decreased by $159 million compared to 2014.

Table 5-6: Outstanding Debt, Balance as of December 31

($000)

Outstanding Debt	2013	2014	2015
General Revenue Bonds	$ 4,594,248	$ 5,246,726	$ 4,380,595
Subordinated Revenue Bonds	350,000	350,000	-
UDSA Restructuring Bonds	2,022,324	1,932,324	2,919,439
General Revenue Notes	263,000	65,000	-
General Revenue Commercial Paper Notes	-	-	50,000
Subordinate Commercial Paper Notes	-	215,000	300,000
	$ 7,229,572	$ 7,809,050	$ 7,650,034

Table 5-7 illustrates the debt service schedule for the outstanding bonds and notes for both LIPA and UDSA as of December 31, 2015. The principal and interest and the annual total are shown. As of December 31, 2015 LIPA had a total of $7.659 billion of outstanding debt principal and a total obligation of $10.029 billion including $2.919 billion of UDSA bonds.

Table 5-7: Debt Service Schedule

(Including UDSA)

($000)

Due	Principal [1]	Interest	Payments	Total
2016	$ 238,295	$ 310,070	$ 23,606	$ 571,971
2017	194,648	302,231	18,321	515,200
2018	212,783	298,553	15,385	526,721
2019	267,281	291,034	15,385	573,700
2020	272,532	284,036	15,385	571,953
2021-2025	1,514,515	1,269,687	76,926	2,861,128
2026-2030	1,716,070	947,597	46,705	2,710,372
2031-2035	1,599,930	553,108	-	2,153,038
2036-2040	1,128,675	241,464	-	1,370,139
2041-2045	369,410	35,708	-	405,118
	$ 7,514,139	$ 4,533,488	$ 211,713	$ 12,259,340

[1] Future interest on Capital Appreciation Bonds are included in principal maturities

5.4 FEMA Grants

In 2014, LIPA and FEMA signed a Letter of Undertaking (LOU) under Section 428 the Stafford Act that totaled approximately $1.4 billion to assist LIPA in funding the costs associated with restoration efforts after Hurricane Sandy and storm hardening efforts designed to mitigate future damage from weather

related events. Projects related to storm hardening and damage caused by Superstorm Sandy are eligible for a 90 percent reimbursement through this grant.

As of December 31, 2015 LIPA had received $1.11 billion under the 428 Grant Agreement. These funds reimbursed LIPA for $637 million for funds spent on restoration efforts related to Superstorm Sandy. The remaining dollars will be used to reimburse LIPA for any additional restoration charges properly supported by the former service provider and for storm hardening and mitigation efforts provided for under the grant.

6.0 CONCLUSIONS

In the preparation of this Report, Burns & McDonnell completed assessments of the electric generating stations and the transmission and distribution system of the Authority. The investigations included interviews, observations, and reviews of 2014 through 2015 expenditures and 2016 and 2017 budgets. In addition, a review of the adequacy of the revenues generated by the current electric rates in relation to the requirements of the bond covenants was completed.

Based on statements and information provided, as well as the observations and reviews performed, it is the opinion of Burns & McDonnell that:

1. The Authority and PSEG-LI have provided services adequate for operation, maintenance, and repair of the system during the Study Period.

2. The Authority's electric transmission and distribution system and the associated facilities, including the Nine Mile Point 2 Generating Station partially owned by the Authority, are being operated and maintained consistent with accepted electric utility practice in the United States.

3. For the Forecast Period, it is reasonable to expect the Authority and PSEG-LI will continue to provide services adequate for operation, maintenance, and repair of the system consistent with that experienced during the Study Period.

4. The Authority's Efficiency Long Island program is on track to meet its goals. There has been substantial interest in renewable energy projects in the service area, with over 200 MW already in progress and another 210 MW for which proposals are being evaluated.

5. The Authority continues to be one of the most reliable overhead electric utilities in New York State based on SAIDI, SAIFI LONG, and CAIDI measurements.

6. The Authority's three-year capital investment plan includes a major storm-hardening program, which should provide improved resiliency. Burns & McDonnell has observed that the Authority has done a good job of making appropriate system upgrades and improvements throughout the Study period, and this new program will build upon those efforts.

7. Revenues for the Study Period have remained sufficient to cover operation, maintenance, and repair expenses for the system during the last two years. The electric revenues generated by the

current electric rates are sufficient to fulfill the Fixed Obligation Coverage requirements and is projected to strengthen through the approved rate increases.

8. The Authority is complying with the provisions of the Resolutions, each as amended by subsequent resolutions.

9. As of the date of this Biennial Report, the system is in good repair and sound operating condition to reliably deliver capacity and energy to the Authority's customers.

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