DPS PUBLIC STATEMENT HEARINGS
INFORMATION SESSION AGENDA

- LIPA REFORM ACT UPDATE
- ELECTRIC UTILITY INDUSTRY TRENDS
- INTEGRATED RESOURCE PLAN & REPOWERING STUDIES
- LIPA STAFF RECOMMENDATIONS
MOST IMPROVED UTILITY IN THE NATION


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<tr>
<th>Utility</th>
<th>2013 Score</th>
<th>2016 Score</th>
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<td>Jersey Central Power &amp; Light</td>
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<td>BGE</td>
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<td>PPL Electric Utilities</td>
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<td>Duquesne Light</td>
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<td>Central Maine Power</td>
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*2013 Eversource Energy is the average of NSTAR (611) and Connecticut Light & Power (580)
$2.8 BILLION INVESTMENT IN RELIABILITY & RESILIENCY

- RECORD $2.8 BILLION 5-YEAR INVESTMENT PLAN IN LONG ISLAND’S TRANSMISSION & DISTRIBUTION INFRASTRUCTURE SINCE 2014
- $730 MILLION FEMA STORM HARDENING GRANT TO REBUILD AND HARDEN MAINLINE CIRCUITS & RAISE SUBSTATIONS PROVIDES 80% IMPROVEMENT IN RELIABILITY ON HARDENED CIRCUITS TO DATE
- NEW TREE TRIMMING AND MAINTENANCE PROGRAMS REDUCE TREE-RELATED OUTAGES 50%
REDUCING HIGH DEBT LEVELS

LIPA’S NEW FINANCIAL MODEL

“They have positive momentum and have the possibility of additional credit rating upgrades in two to three years. LIPA management has done a great job displaying vision for the company and keeping rates low for ratepayers. The management team is laser focused.” – Moody’s

MAY 5 2017

- First credit upgrade by Moody’s for LIPA in 11 years demonstrates fiscal responsibility
- Electric rate increases lowest in region
- Electric rates lowest in 10 years
NEW 20-YEAR ENERGY PLANNING STUDY FOCUSES ON LARGEST DRIVERS OF CUSTOMER BILLS

- 65% of customer bills are power supply & taxes
A CHANGING ELECTRIC GRID

NEW YORK'S REFORMING THE ENERGY VISION 2030 GOALS:
- 40% GREENHOUSE GAS REDUCTION
- 50% RENEWABLES
- 2,400MW OFFSHORE WIND

FLAT OR DECLINING ELECTRIC SALES DUE TO GREATER ENERGY EFFICIENCY AND PV SOLAR

RAPIDLY DECLINING COST OF CLEAN ENERGY & BATTERY STORAGE WITH INNOVATION & ECONOMIES OF SCALE
ELECTRIC UTILITY INDUSTRY TRENDS

CONSUMERS USING LESS ELECTRICITY NATIONWIDE

“ELECTRICITY CONSUMPTION REMAINS FLAT EVEN AS AMERICANS BUILT LARGER HOMES, CONSTRUCTED NEW COMMERCIAL BUILDING SPACE, BUILT NEW INFORMATION TECHNOLOGY INFRASTRUCTURE, [RAN] MORE HEAT AND AIR CONDITIONING, AND SPENT MORE TIME IN FRONT OF LARGE, BRIGHT SCREENS.”

DR. COREY TYREE, PH.D - DIRECTOR OF ENERGY & ENVIRONMENT – ENERGY INSTITUTE OF ALABAMA

ANNUAL ENERGY OUTLOOK 2017 – U.S. ENERGY INFORMATION ADMINISTRATION
LONG ISLAND’S PEAK LOAD FORECAST SHOWS DRAMATIC REDUCTIONS

- FORECAST NEED FOR POWER PLANTS IN 2030 HAS DECLINED BY 1,700MW OR (24%)
- ENERGY EFFICIENCY & ROOFTOP SOLAR WILL REDUCE LOAD BY 950MW THROUGH 2030
COST OF CLEAN ENERGY RAPIDLY DECLINING

BLOOMBERG’S NEW ENERGY OUTLOOK – JUNE 2017

“BY 2023 ONSHORE WIND & SOLAR ARE COMPETITIVE WITH NEW-BUILD GAS PLANTS”

- OFF-SHORE WIND: PROJECTED COST DECLINE 71% BY 2040
- SOLAR: PROJECTED COST DECLINE OF 66% BY 2040
- BATTERY STORAGE: PROJECTED COST DECLINE OF 70% BY 2030

ANNUAL ENERGY OUTLOOK 2017 – U.S. ENERGY INFORMATION ADMINISTRATION
STEVE MALNIGHT
PG&E SENIOR VICE PRESIDENT

“WITH 50 PERCENT RENEWABLES ON THE SYSTEM, THE IDEA OF A LARGE BASELOAD GENERATOR THAT RUNS PRETTY MUCH ALL THE TIME, 24 HOURS A DAY, JUST DOESN’T HAVE AS GOOD A FIT TO THE MARKET CONDITIONS WE EXPECT TO SEE.”

STEVE HOLLIDAY
NATIONAL GRID CEO (2007 – 2016)

“THE IDEA OF BASELOAD POWER IS ALREADY OUTDATED. I THINK YOU SHOULD LOOK AT THIS THE OTHER WAY AROUND. FROM A CONSUMER’S POINT OF VIEW, BASELOAD IS WHAT I AM PRODUCING MYSELF.”

ARLEN ORCHARD
SACRAMENTO MUNICIPAL ELECTRIC UTILITY CEO

“NEVER BET AGAINST TECHNOLOGY. THERE IS A LOT OF MARKET UNCERTAINTY WITH LONG TERM INVESTMENTS & YOU MUST MANAGE FINANCES CAREFULLY TO AVOID LONG TERM STRANDED ASSETS.”
THREE LARGE LEGACY GENERATION PLANTS (PSA STEAM UNITS) REPRESENT 40% OF LIPA’S MAXIMUM ELECTRIC PRODUCTION CAPABILITY WHILE ONLY GENERATING 21% OF ITS ENERGY
POWERING 350,000 MORE HOMES WITH RENEWABLE ENERGY

EXPANDING CLEAN ENERGY

NY’S 50 PERCENT RENEWABLE BY 2030 CLEAN ENERGY STANDARD REQUIRES LIPA TO ADD 800MW OF NEW RENEWABLE GENERATION

LOAD IS EXPECTED TO BE REDUCED BY 950MW THROUGH 2030 AS RESULT OF ENERGY EFFICIENCY, ROOFTOP SOLAR, AND OTHER ‘BEHIND THE METER’ INITIATIVES
A TREMENDOUS RESOURCE OFF LONG ISLAND’S COAST

NEW YORK: 2,400MW OF OFF-SHORE WIND BY 2030

THE MARYLAND TO MASSACHUSETTS OFFSHORE WIND CORRIDOR:

- NEW YORK 90MW BY 2022; 2,400MW BY 2030
- MASSACHUSETTS 1,600MW BY 2027
- MARYLAND 368MW BY 2022
LIPA HAS SURPLUS GENERATION THROUGH 2035

- With flat load growth and the addition of renewable generation, LIPA has excess generation through 2035.
- 99% of LIPA’s generation contracts are up for renewal by 2030.
CABLES TO REGIONAL POWER MARKETS

LIPA’s annual purchases of approximately 10,500 GWh of energy across five transmission cables provides diverse and robust supply, redundancy and lower cost.

LIPA’s purchases are a small fraction of the energy produced in those markets.
THE ADDITION OF OFF-SHORE WIND AND OTHER RENEWABLE RESOURCES SIGNIFICANTLY REDUCE THE RUN-TIME OF PSA STEAM PLANTS AND INCREASE THE NEED FOR PEAKING UNITS, BATTERIES, DEMAND RESPONSE AND OTHER MORE FLEXIBLE UNITS
RUN-TIME OF STEAM PLANTS FORECAST TO DECLINE

RENWABLES REDUCE USAGE & EMISSIONS OF FOSSIL FUEL PLANTS
THE PSA STEAM UNITS OPERATE RELIABLY WITH EQUIVALENT AVAILABILITY (SUMMER) AVERAGING WELL ABOVE 90%, IN LINE WITH CONTRACTUAL GUARANTEES FOR NEW COMBINED CYCLE PLANTS.
TONY INDEPENDENT CONDITION ASSESSMENT BY RCM TECHNOLOGIES CONCLUDED THAT THE NATIONAL GRID CAPITAL AND O&M PLANS ARE SUFFICIENT FOR RELIABLE OPERATION THROUGH THE CONTRACT PERIOD OF 2028

IMPROVING COOLING WATER FACILITIES AT NORTHPORT, PORT JEFFERSON & BARRETT:
- FISH-FRIENDLY SCREENS
- VARIABLE SPEED PUMPS
- PROVIDES SAME FISH PROTECTION AS COOLING TOWERS AT LOWER COST
- PORT JEFFERSON PLANT RUNS BELOW ITS 15% RUN-TIME LIMIT

TENS OF MILLIONS TO STORM HARDEN & ELEVATE LIPA SUBSTATION AT BARRETT
NATURAL GAS PRICES ARE BACK TO 1990s LEVELS

- NATURAL GAS PRICES HAVE DECLINED 72% SINCE 2008
- LOWER NATURAL GAS PRICES REDUCES THE VALUE OF THE FUEL SAVINGS FROM NEWER PLANTS
COSTS TO BUILD NEW GAS PLANTS EXCEED FUEL SAVINGS

- Repowering the plants or building new combined cycle plants in another location do not pay for themselves with fuel savings.
PROPOSED COMBINED CYCLE PLANTS HAVE A NET COST UP TO $5 BILLION THROUGH 2030

- THE CONSTRUCTION OF PROPOSED COMBINED CYCLE PLANTS TO REPLACE EXISTING STEAM PLANTS IS TECHNICALLY FEASIBLE, BUT NOT REQUIRED FOR RELIABILITY

- NET COST TO CUSTOMERS UP TO $5 BILLION OR $2,210 FOR THE AVERAGE RESIDENTIAL CUSTOMER THROUGH 2030
COST COMPARISON

COST OF NEW COMBINED CYCLES PLANTS ARE SIMILAR TO TODAY’S RENEWABLE ENERGY PRICES

- DUE TO LOWER THAN TYPICAL RUN TIME (CAPACITY FACTOR), THE COST PER KWH OF THE NEW REPOWERED STEAM PLANTS WOULD BE SIMILAR TO TODAY’S COSTS FOR RENEWABLE ENERGY

- ADVANCING TECHNOLOGY AND ECONOMIES OF SCALE ARE EXPECTED TO RESULT IN A DECLINE IN RENEWABLE ENERGY COSTS
### Alternatives to Modernize Generation

**NEW GENERATION FLEET FOR LI’S FUTURE ENERGY GRID**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Existing PSA Units</th>
<th>New Units</th>
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<tr>
<td></td>
<td>Steam Units</td>
<td>Combustion Turbines</td>
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<tr>
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<tr>
<td>Cold Start Time</td>
<td>26 - 30 hours</td>
<td>10-30 minutes</td>
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<tr>
<td>Time (hours)</td>
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<td>1</td>
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<tr>
<td>Ramp Rate (MWs/min)</td>
<td>2 - 4</td>
<td>NA</td>
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<tr>
<td>Heat rate (Btu/kWh)</td>
<td>10,000 - 11,300</td>
<td>13,000-16,500</td>
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**Modern Peaking Units, Batteries & Demand Response Provide More Flexible Resources and Support Renewables**

**BaseLoad Combined-Cycle Plant**
INDEPENDENT SECOND OPINION

- LIPA RETAINED THE BRATTLE GROUP TO PROVIDE AN INDEPENDENT ASSESSMENT & SECOND OPINION OF PSEG LONG ISLAND’S RELIABILITY PLANNING CRITERIA AND ANALYSES OF PROPOSALS FOR CAITHNESS II AND THE REPOWERED STEAM PLANTS

“WE DO NOT FIND A COMPELLING REASON FOR LIPA TO PROCEED WITH CAITHNESS II OR THE REPOWERING PROJECTS. NONE OF THE PLANTS ARE NEEDED FOR RELIABILITY OR ECONOMIC PURPOSES. FOR ALL THE OPTIONS THE PLANT COSTS EXCEED THEIR BENEFITS FOR AT LEAST THE NEXT DECADE”
- THE BRATTLE GROUP

- THE DEPARTMENT OF PUBLIC SERVICE STAFF ALSO PARTICIPATED IN THE BRATTLE GROUP’S REVIEW

“THE DPS REVIEWED THE BRATTLE REPORT AND CONCLUDES THAT ADOPTION OF THE NYSRC / NYISO PLANNING CRITERIA IN 2014 AND THE ANALYSIS WITH RESPECT TO CAITHNESS II ARE REASONABLE”
- DEPARTMENT OF PUBLIC SERVICE
LIPA STAFF RECOMMENDATIONS

‣ MEET NEW YORK’S 50 X 30 GOAL WITH 800MW OF CLEAN ENERGY & 950MW OF ENERGY EFFICIENCY & ROOFTOP SOLAR

‣ PARTNER WITH NYSERDA TO REDUCE THE COST OF OFFSHORE WIND DEVELOPMENT

‣ STUDY LONG ISLAND’S PEAKING GENERATION FLEET & INTEGRATE BATTERIES AND DEMAND RESPONSE TO SUPPORT INTERMITTENT RENEWABLE GENERATION

‣ RUN COMPETITIVE SOLICITATIONS AMONG MULTIPLE SITES, TECHNOLOGIES AND DEVELOPERS TO OBTAIN THE LOWEST COST AND BEST SOLUTIONS FOR CUSTOMERS TO MEET ANY FUTURE NEEDS

‣ DECLINE TO MOVE FORWARD WITH REPOWERING STEAM PLANTS OR BUILDING NEW COMBINED CYCLE PLANTS
  ▪ SPECIFIC PROPOSALS PROVIDE TOO FEW BENEFITS AT TOO MUCH COST TO CUSTOMERS

‣ MONITOR AND UPDATE IRP BASED ON EXPERIENCE AND TRENDS
CUSTOMERS PAY OVER $535 MILLION PER YEAR IN TAXES

Glenwood
Property Taxes: $17,000,000
1967 - 114 MW Max Output

Northport
Property Taxes: $80,800,000
1967 - 1,589 MW Max Output

Port Jefferson
Property Taxes: $32,700,000
1958 - 393 MW Max Output

Caithness
Property Taxes: $9,700,000
2009 - 350 MW Max Output

Barrett
Property Taxes: $42,600,000
1956 - 663 MW Max Output

Bowline
Rockland County NY
Property Taxes: $2,700,000
1967 - 1,135 MW Max Output
COMMUNITY SUPPORT

“THIS PLAN VALIDATES OUR CALL FOR A TRANSITION AWAY FROM ANTIQUATED ENERGY TECHNOLOGY TO A MODERNIZATION OF OUR ENERGY INFRASTRUCTURE”

- Adrienne Esposito, Executive Director
  Citizens Campaign for the Environment

“THE TIME IS NOW FOR FOR ALL PARTIES TO COME TO AN AGREEMENT ON BOTH THE FUTURE OF THE PLANTS AND THE TAXES BEING PAID BY ALL LONG ISLANDERS”

- Mitch Pally, CEO
  Long Island Builders Institute

“WHAT WE ARE WITNESSING HERE IS A HISTORIC GAME CHANGER ON HOW LONG ISLAND PRODUCES ITS ELECTRICITY”

- Gordian Raacke, Executive Director
  Renewable Energy Long Island

“LIPA’S PLAN ENVISIONS SMART AND STRATEGIC INVESTMENTS IN RENEWABLE ELECTRIC GENERATION THAT WILL INCREASE RELIABILITY AND LOWER COSTS”

- Liz Gordon, Director
  New York Offshore Wind Alliance

“LIPA’S IRP PROVIDES AN EFFECTIVE ROADMAP THAT CUTS THE COST OF ENERGY & REDUCES OUR PROPERTY TAX BURDEN”

- Kyle Strober, Executive Director
  Association for a Better Long Island

“WE APPLAUD THIS BOLD PROGRESS IN TRANSFORMING LONG ISLAND’S UTILITY INTO A MODEL FOR THE NATION.”

- Lisa Dix, NY Senior Representative
  Sierra Club
COMMUNITY SUPPORT

“CLIMATE CHANGE IS THE MOST CRITICAL ISSUE OF OUR GENERATION. LONG ISLAND IS TO BE COMMENDED FOR TAKING THE LEAD MOVING TOWARDS MORE RENEWABLE ENERGY”

▸ Ling Tsou, Co-Founder United for Action

“I WANT TO COMMEND THE MATERIALS AND OUTREACH TO EDUCATE THE PUBLIC ON THE IRP’S IMPORTANT FINDINGS”

▸ Neil Lewis, Executive Director Molloy College’s Sustainability Institute

“LIPA’S PLAN IS ILLUMINATING, SHOWING US THAT BY TAPPING INTO THE GREAT POTENTIAL OF OFF-SHORE WIND, LONG ISLAND’S GRID WILL BE MORE EFFICIENT”

▸ Anne Reynolds, Executive Director Alliance for Clean Energy New York

“IT’S REFRESHING TO SEE A PLAN THAT VALUES THE PUBLIC INTEREST OVER POLITICS”

▸ Sammy Chu, Executive Director US Green Buildings Council

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▸ Ling Tsou, Co-Founder United for Action

“We applaud the IRP as a triumph in the fight against climate change and bold move to economic and efficient renewables”

▸ George Povall, Director All Our Energy

“OFF-SHORE WIND REPRESENTS AN OPPORTUNITY FOR THE LABOR COMMUNITY TO GO TO WORK AND EARN A DECENT WAGE. WHEN LABOR THRIVES, LONG ISLAND THRIVES”

▸ Dick O’Cane, President Nassau Suffolk Building Trades
<table>
<thead>
<tr>
<th>Community Support</th>
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| **Kim Fraczek**, Director  
Sane Energy Project |
| **Heather Leibowitz**, Director  
Environment New York |
| **Tim McCarthy**, Business Representative  
IBEW 25 |
| **Mark Dunlea**, Chair  
Green Education and Legal Fund |
| **John Durso**, President  
Long Island Federation of Labor |

- **“This is the blueprint we need for all New Yorkers.”**
- **“LIPA’s plan is a critical part of the Empire State’s commitment to get 50% of our power from renewable sources.”**
- **“From turbine construction & maintenance & supply chain jobs, large scale off-shore wind development means forward progress.”**
- **“Long Island’s leadership in starting the transition to clean energy is to be applauded, maintained and replicated.”**
- **“As someone who grew up on Long Island, it’s refreshing to see LIPA taking steps to help us transition to a clean energy future.”**
- **“We are excited to put our skilled workforce on the job for a new American industry – Offshore Wind.”**
FAIRNESS FOR ALL CUSTOMERS

POWERING 1.1 MILLION CUSTOMERS

- LIPA is a not-for-profit public utility with a mission to enable clean, reliable, and affordable electric service for our customers in Long Island and the Rockaways.