

LIPA Board of Trustees Briefing Electric Resource Plan 2010 - 2020



February 25, 2010

Agenda

- Overview
- LIPA Electric Resource Plan Context
- Peak Load Forecast and Capacity Resources
- LIPA Need for Capacity
- LIPA Electric Resource Plan

Overview

Electric Resource Plan 2010-2020



- The Electric Resource Plan 2010-2020 is a strategy to guide LIPA's decision making for meeting the future electricity needs of its customers
- **Requested Action:** Approval of the 2010-2020 Electric Resource Plan
 - ▶ Approval of the Plan, provides Trustee endorsement of the goals, objectives and strategies of the Plan.
 - ▶ Approval does not constitute approval of individual actions required to implement the Plan – approval of individual actions related to the Electric Resource Plan's implementation will be requested from the Trustees, as necessary and appropriate
 - ▶ Periodic reporting on the Plan's implementation will be provided to the Trustees

LIPA Electric Resource Plan Context

Development, Coordination and Content



Development of Plan

- LIPA Staff
- National Grid dedicated planning department
- Consultants

Coordination of Plan

- State Energy Policy
- State Energy Plan
- Long Island Regional Planning Council
- NYISO Planning Process & Transmission Owners

Content of Plan

- Executive Summary
- Overview
- Electric Resource Planning
- Transmission & Distribution System Planning
- Environmental Considerations in Planning
- Future Planning

LIPA Electric Resource Plan Context

Key Dates and Plan Changes



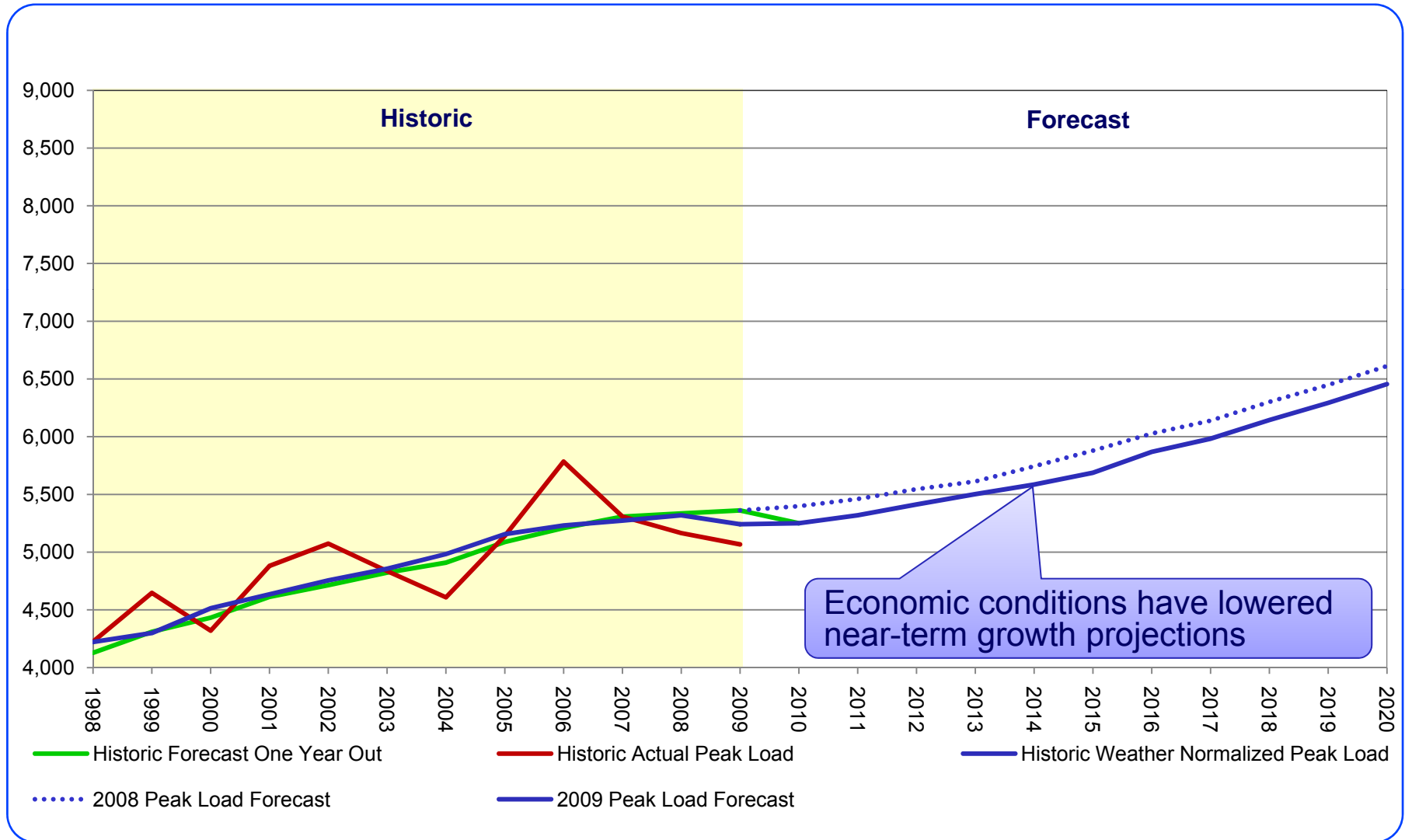
Key Dates

- **January 22, 2009** – Presentation to Trustees
- **March 18, 2009** – Draft Electric Resource Plan released
- **April 2, 6, and 7, 2009** – Public Hearings on Draft Electric Resource Plan
- **June 15, 2009** – Technical Workshop on Draft Electric Resource Plan, Technical Appendix
- **June 30, 2009** – Closing of public comment period
- **February 1, 2010** – Release of updated Draft Electric Resource Plan
- **February 16, 2010** – Technical Workshop with Stakeholders

Plan Changes

1. Recommendations replaced with Goals and Plan Initiatives
2. Includes an Action Plan (Appendix A)
3. Updated Load Forecast and Updated Need Analysis
4. Developed a Revised “Current Plan”
5. Provided Responses to Comments Received on the Draft Plan (Appendix D)
6. Added New Resources to the Screening Analysis
7. Performed Sensitivity Analysis of Alternative Plans

Peak Load Forecast and Capacity Resource Load Forecast History and Comparison



February 25, 2010

LIPA Electric Resource Plan 2010-2020

Peak Load Forecast and Capacity Resources

Capacity Resource History and Projection



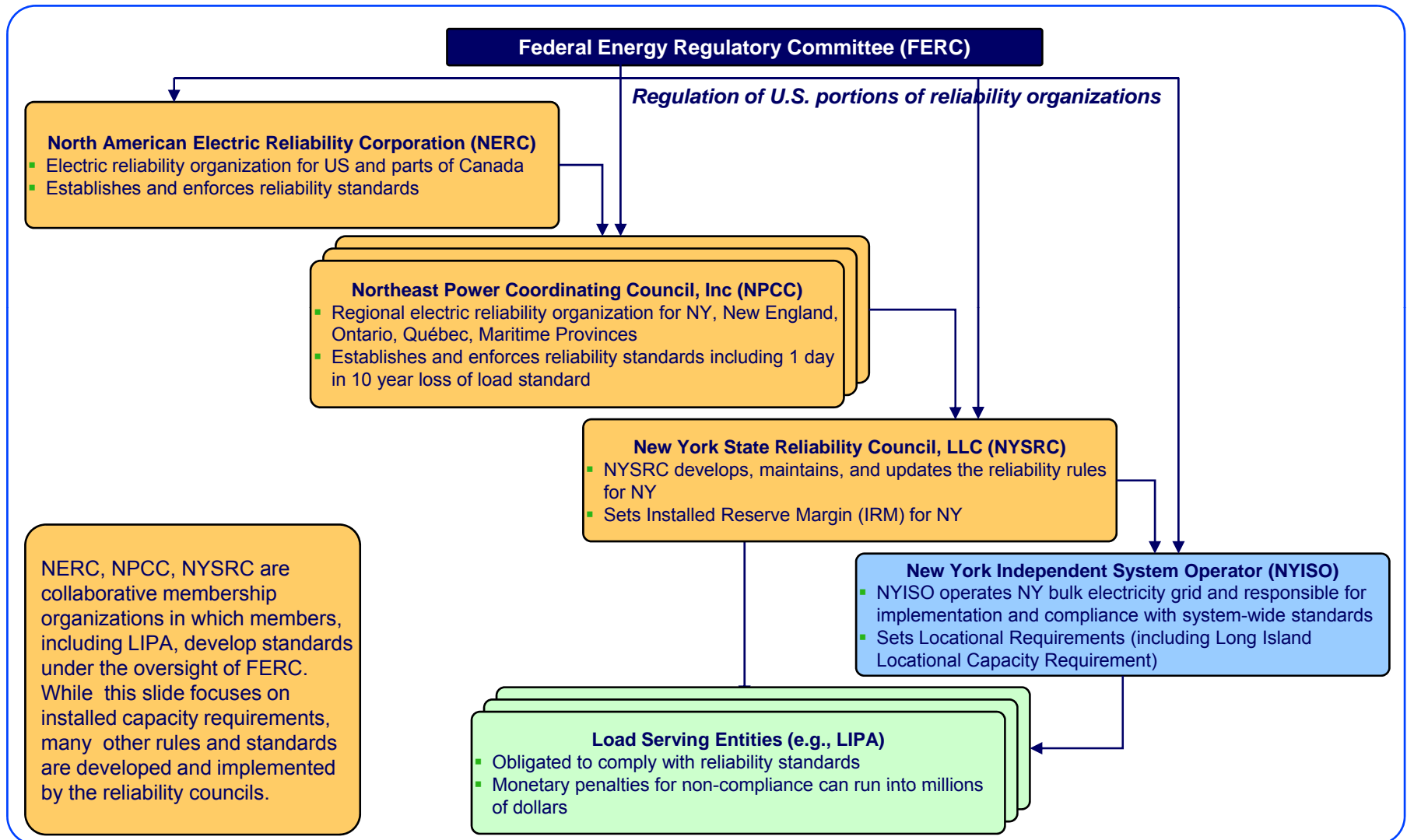
LIPA Load and Resources – Forecast as of 2/4/10

Year	Weather Normalized Load	Long Island Generation	Long Island Off-Island Resources	Total Resources	Comments
2003	4957	4947	495	5441	
2004	5085	5059	332	5391	Fitzpatrick Capacity Contract Expires. Addition of Greenport, FPL Far Rockaway 2 and Freeport Units
2005	5282	5229	330	5559	Addition of Equus unit and Mobile Generating Units
2006	5325	5672	330	6002	Addition of Calpine Bethpage 3, Pinelawn and Bear Swamp Contract
2007	5374	5684	330	6014	
2008	5425	5617	329	5946	Retirement of Mobile Generating Units
2009	5360	5592	328	5920	
2010	5361	5674	328	6002	Addition of Caithness Unit and Solar Projects, Expiration of 230 MW of Bear Swamp Contract
2011	5382	6371	328	6698	Addition of remaining Solar Projects and Marcus Hook Contract as an on-island supply
2012	5404	6388	328	6715	
2013	5417	6388	355	6742	Nine Mile Point 2 Upgrade
2014	5419	6388	355	6742	
2015	5444	6388	305	6692	Expiration of Gilboa Contract
2016	5510	6388	305	6692	
2017	5499	6388	305	6692	
2018	5534	6388	305	6692	
2019	5611	6388	305	6692	
2020	5715	6388	305	6692	

Notes: Loads are for all Long Island customers and exclude peak load control and bulk transmission losses; Reflects currently approved contracts; Resource additions counted if added before May 1 of the year; Resource removals counted if removed before November 1 of the year; Capacity delivered over Neptune and Cross Sound Cable counted as on-island resources

LIPA Need for Capacity

How Need is Determined



■ LIPA Statewide Installed Reserve Margin (IRM) Requirement

- ▶ Determines how much total capacity LIPA must have.
- ▶ Set annually one year out by New York State Reliability Council
- ▶ Calculated by NYSRC using a probability model
- ▶ Statewide, there must be at least enough capacity to meet the combined projected load of all utilities plus the Reserve (IRM)
- ▶ Currently IRM is 18% for May 2010 to April 2011*
- ▶ IRM requirement is allocated to each load serving entity in proportion to peak load
 - Approximately 950 MW of margin is required for LIPA.

* Subject to FERC review and approval

■ Zone K Locational Capacity Reserve (LI LCR) Requirement

- ▶ Zone K (Suffolk, Nassau and Far Rockaway) must be able to serve the specified percentage of its load from resources qualified as Long Island resources.
- ▶ Set annually one year out by New York Independent System Operator
- ▶ Calculated by NYISO using a probability model
- ▶ Currently 104.5% for May 2010 to April 2011

LIPA Need for Capacity Planning for Uncertainty



Major Sources of Uncertainty

- Load growth
- Long Island Choice program
- Success of energy efficiency programs
- Success of new resources coming on line
- Changing NYSRC and NYISO IRM and LI LCR requirements
- Reliability fluctuations of existing generating fleet

Methodology

- Use estimated probability distributions for each source of uncertainty
- Use a statistical model of supply, demand, markets and resources to develop a probability distribution of need for capacity
- Plan to a specified uncertainty

LIPA Planning Approach to Uncertainty

■ LIPA NYSRC IRM Standard

- ▶ Plan to meet standard expected value of need
- ▶ If a shortfall is projected, evaluate projected condition of spot market.
- ▶ If market looks favorable, purchase any shortfall from the NYISO spot market
- ▶ Otherwise take corrective action by contracting for capacity

■ Zone K NYISO LI LCR Standard

- ▶ Plan to exceed NYISO standard with a 80% probability of success
- ▶ Use LIPA and other Long Island market resources to meet requirements
- ▶ Take corrective action by contracting for long term and short term shortfalls

History

- Historic LIPA Peaks
 - ▶ Record LIPA peak load
 - 5,294 MW (8/2/06)
 - ▶ Record LIPA weather normalized peak
 - 4,840 MW (2008)
- 2009 LIPA Statewide IRM

NYISO forecast of LIPA weather normalized peak load	4,966 MW
LIPA actual peak load	4,600 MW
LIPA actual weather normalized peak load	4,807 MW
LIPA IRM requirement	5,785 MW
LIPA total capacity resources	5,321 MW
LIPA minimum purchase requirement	464 MW

Probabilistic Projection

- 2010 Assumptions
 - ▶ Caithness contract effective
 - ▶ Marcus Hook contract effective
 - ▶ ELI program implemented
 - ▶ A portion of Solar RFP 50 MW installed
- 2010 LIPA Projected Statewide IRM

LIPA forecasted weather normalized peak load	4,844 MW
LIPA IRM requirement	5,734 MW
LIPA total capacity resources	6,005 MW
LIPA margin over requirement	271 MW

Includes only loads supplied by LIPA. All loads are stated coincident with NYCA peak and include bulk transmission losses

Need for Capacity

LIPA Statewide IRM Need



Goal – Less than IRM Requirement

■ No Retirements, No Actions

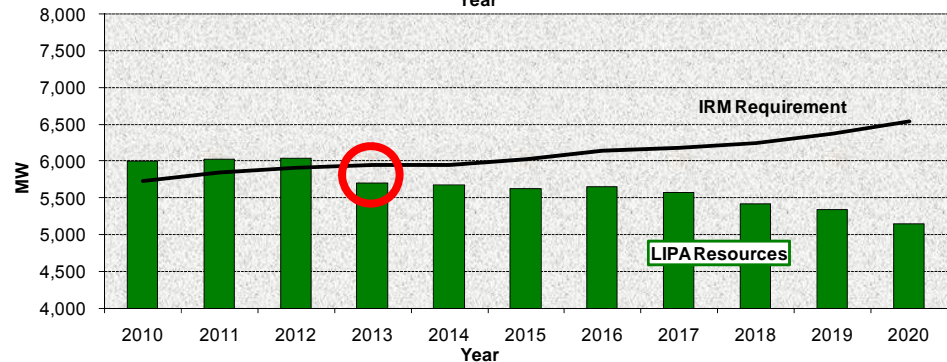
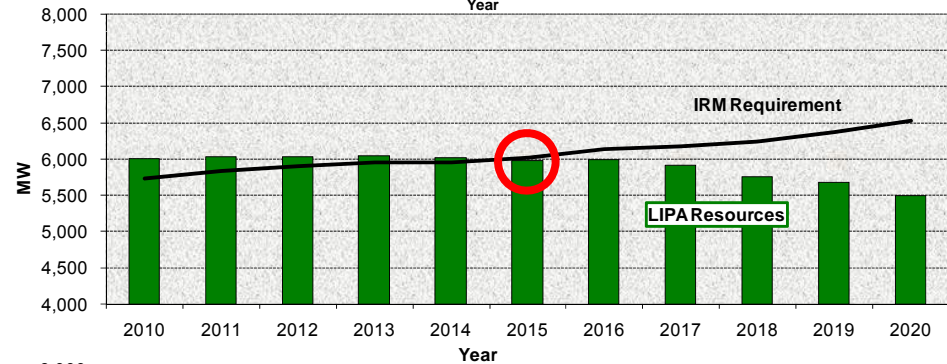
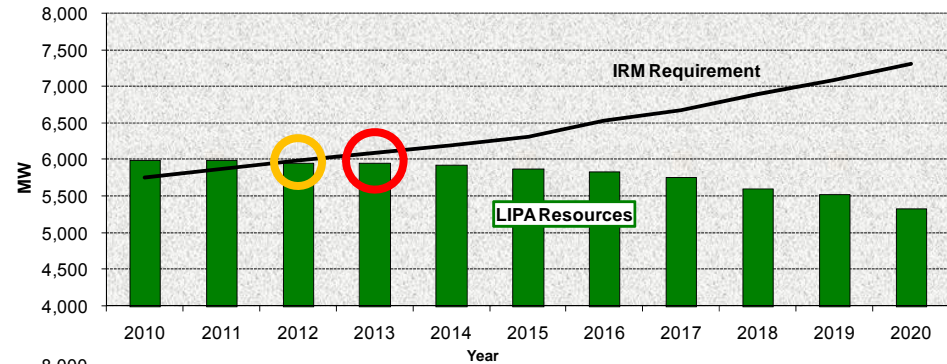
- ▶ First Need Date is 2012
- ▶ First Significant Need is in 2013

■ No Retirements, Current Projects

- ▶ First Need Date is 2015
- ▶ First Significant Need is in 2015

■ Retirements, Current Projects

- ▶ First Need Date is 2013
- ▶ First Significant Need is in 2013



Need for Capacity

Long Island LCR Need



Goal – More than LCR Requirement

■ No Retirements, No Actions

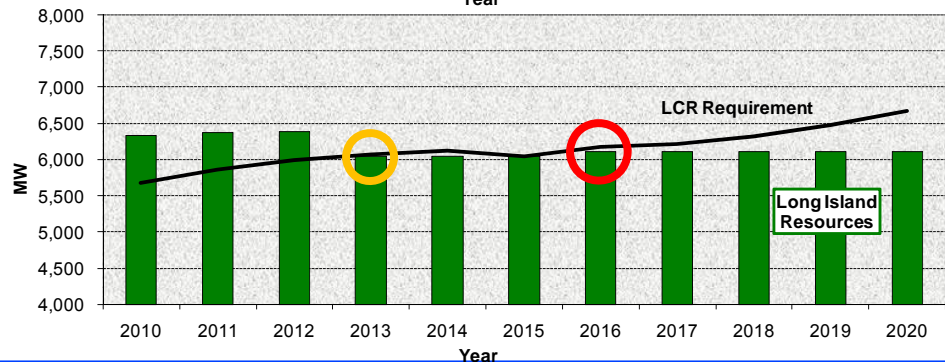
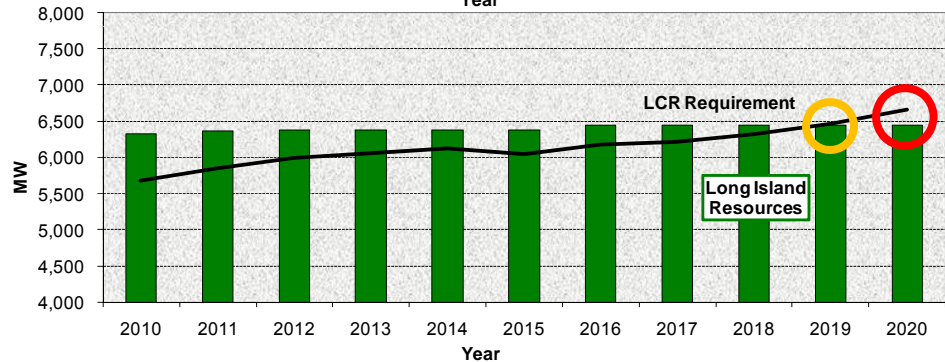
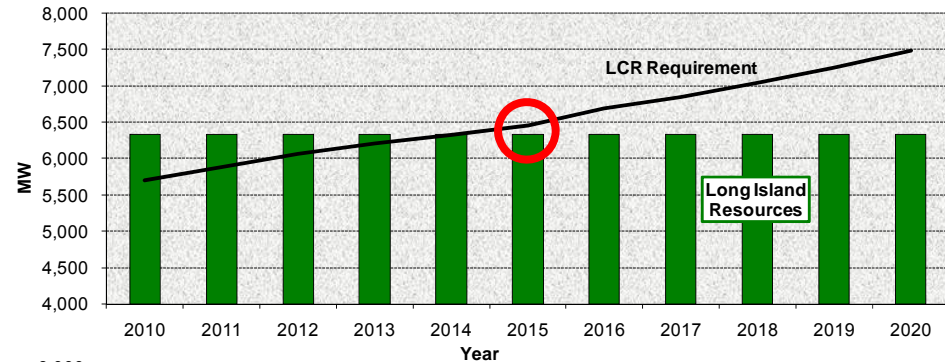
- ▶ First Need Date is 2015
- ▶ First Significant Need is in 2015

■ No Retirements, Current Projects

- ▶ First Need Date is 2019
- ▶ First Significant Need is in 2020

■ Retirements, Current Projects

- ▶ First Need Date is 2013
- ▶ First Significant Need is in 2016



Need for Capacity

Updated Need Analysis



- Historically, LIPA’s planning goal has been to procure enough resources under long-term contract to exceed the minimum Long Island LCR Requirement, while not exceeding the minimum LIPA Statewide IRM Requirement

LIPA Statewide IRM Requirement

	1 st Need Date	1 st Significant Need Date
1. No Retirements – No Actions	2012	2013
2. No Retirements – Current Projects	2015	2015
3. Retirements – Current Projects	2013	2013

Long Island LCR Requirement

	1 st Need Date	1 st Significant Need Date
1. No Retirements – No Actions	2015	2015
2. No Retirements – Current Projects	2019	2020
3. Retirements – Current Projects	2013	2016

LIPA Electric Resource Plan

Goals and Initiatives



LIPA's five planning goals guide LIPA's thirty initiatives.

Goal 1: Reliability - Meet LIPA's reliability requirements established by the New York State Reliability Council and New York Independent System Operator (5 initiatives)

Goal 2: Cost Control - Improve operating efficiencies and attract private and government funding to support LIPA's technology and resource planning initiatives to reduce customers' bills and support economic development on Long Island (6 initiatives)

Goal 3: Energy Efficiency - Pursue a cost-effective strategy and plan for reducing electricity use 15% by 2015, in recognition of the State's 45 x 15 clean energy initiative (7 initiatives)

Goal 4: Renewable Energy - Pursue a cost-effective strategy and plan for increasing LIPA's mix of renewable energy resources in its power generation portfolio, to voluntarily support its share of the State's goal of increasing electricity generation from renewable energy resources to 30% by 2015, consistent with the State's 45 x 15 clean energy initiative (7 initiatives)

Goal 5: Greenhouse Gas Reduction - Study and implement, as practicable, strategies for reducing emissions of harmful air, water, and land pollutants and support reductions in greenhouse gas emissions to a level 20% below 2005 levels by 2020, in recognition of Governor David A. Paterson's Executive Order No. 24 establishing a goal to reduce greenhouse gas emissions eighty percent by the year 2050 (5 initiatives)

LIPA Electric Resource Plan

Electric Resource Plan



1. Energy Efficiency

- ▶ Endorse adoption of a LIPA 15% reduction plan, consistent with the State's 45 x 15 Goal
 - Recognition of achievements through the Clean Energy Initiative
 - Efficiency Long Island
 - Generation efficiencies
 - T&D efficiencies
 - Expansion of Efficiency Long Island through possible third-party funding
 - Smart Meters and Time of Use Pricing
 - State-driven initiatives that will contribute to LIPA's ability to meet the 15% target

3. Upgrade Existing Fleet

- ▶ Nine Mile 2 Uprate
- ▶ Fast Track Unit Uprate
- ▶ Upgrade Existing Generation Fleet
 - Addressing the expiration of the PSA Agreement
 - Repowering Existing Power Plants
 - Power Plant Retirement
 - Building New Power Plants

2. Renewable Resources

- ▶ Pursue a LIPA RPS program, consistent with the State's goal of 30% renewables energy by 2015
- ▶ On-Island Resources
 - Backyard Wind
 - Continue Solar Pioneer & Solar Entrepreneur Programs
 - Solar Thermal Electric Hot Water Program
 - Net Metering Program
 - Solar PV RFP – 50 MW and successors
 - LI-NYC Offshore Wind Project
 - Biofuel in Generators and Vehicle Fleet
- ▶ Off-Island Resources
 - Renewable RFPs
 - Investigate Opportunities for Off-Island Renewable Energy

4. Improve Interconnections & Maintain Reliability

- ▶ Proceed with NUSCO Cable Upgrade
- ▶ Investigating opportunities for transmission investments
 - STARS
 - Upstate New York and Hydro Quebec
 - Iroquois Pipeline Right-of-Way with Port Jefferson landfall

Legend: ■ Committed ■ Planned ■ Under Study

LIPA Electric Resource Plan

Current Plan



- LIPA is pursuing actions equivalent to adding over 1,300 MW of new electric resources over the planning period (i.e., approximately 485 MW in new capacity and 865 MW of load reduction), as shown in Exhibit 1. Efforts are underway to have this capacity available by the dates indicated.

Exhibit 1

Planned Resource Additions and Load Reductions through 2020	MW	Date
Solar Photovoltaic (Solar Pioneer and Entrepreneur Programs)	77	2010-2020
Backyard Wind Program	1	2010-2020
Efficiency Long Island (ELI) Program	623	2010-2020
New York State Building Codes & Standards Update*	70	2010-2015
Utility Scale Solar Photovoltaic Programs	50	2010-2011
Nine Mile 2 Uprate	27	2012
Fast Track Unit Uprate	7	2020
NUSCO Cable Upgrade	143	2015
Offshore Wind Project	100-175	2015
Dept. of Environmental Conservation; Dept. of Housing and Community Renewal*	17	2010-2020
Time of Use Pricing (Smart Metering)	155	2015

* LIPA is a beneficiary of these programs, managed by other State Agencies.

LIPA Electric Resource Plan Plan Implementation



- Detailed schedule will be developed to ensure timely implementation and review of Electric Resource Plan progress
- Plan's progress towards annual targets and milestones will be updated quarterly to LIPA Management and Trustees
 - ▶ Accomplishments will be highlighted as well areas requiring intervention in order to ensure successful implementation
 - ▶ Periodic reports on the Plan's implementation will be provided to the Trustees
- Approval of individual actions related to the Electric Resource Plan's implementation will be requested from the Trustees, as appropriate