



LOCAL TRANSMISSION PLAN

Presentation to NYISO / Interested Parties

December 3, 2025

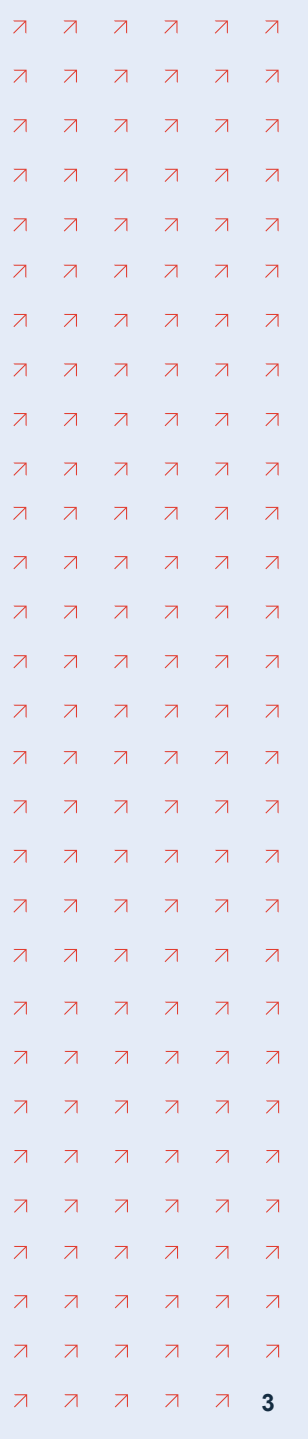
Transmission Planning

LTP Contents: Topics that will be Covered

- **Overview of LIPA Transmission and Distribution**
 - Background
 - Transmission System
- **Key Factors Considered**
- **Planning Horizon**
- **Data and Models Used**
 - Data Sources
 - Models – Major Tools Used
- **Transmission Planning Studies**
 - Planning Process
 - PSEG – LI Definition of a “Firm” Project
 - Long Island Load Pockets
 - Projects Being Considered

Background

- LIPA owns electric Transmission and Distribution (T&D) system on Long Island
- Acquired from LILCO in 1998
- Power Supply Agreement to meet capacity and energy needs for LIPA system with National Grid renewed in 2013, out to 2028
- Pursuant to the Second Amended and Restated Operations Services Agreement, PSEG Long Island manages electric operations for LIPA's system. These management services began in January 2014 and are expected to run through December 31, 2030 pursuant to a recent agreement extension, which is pending NYS Comptroller approval.
- LIPA, by and through its agent, PSEG Long Island LLC, provides electric service to approximately 1.1 million LIPA customers
- LIPA service area includes Nassau County, Suffolk County, and the portion of Queens County known as the Rockaways, in the State of New York



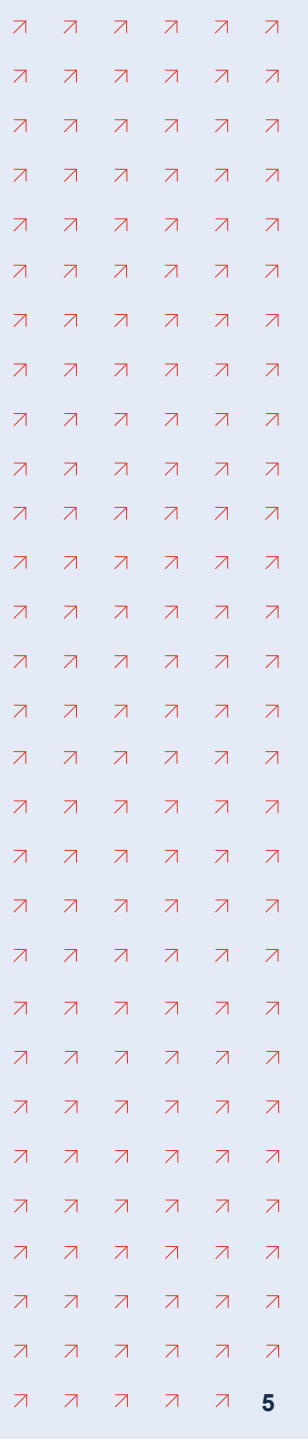
Transmission System

LIPA's transmission system is designed to provide adequate capability between generation sources and load centers.

- Over 1,400 miles of transmission (345 kV, 138 kV) and sub-transmission lines (69 kV, 34.5 kV, 23 kV), delivering power through over 187 substations in its electric system.
- **Interconnections:**
 - **Two 345 kV**
 - Con Ed: Y49 (NYPA) 637 MW, East Garden City to Sprain Brook (NYISO-BPS)
 - Con Ed: Y50 (LIPA/Con Ed) 656 MW, Shore Road to Dunwoodie (NYISO-BPS)
 - **Three 138 kV**
 - ISONE: NNC (LIPA/ES) 436 MW, Northport to Norwalk Harbor
 - Con Ed: 300 MW Wheel - (903) Lake Success to Jamaica & (901) Valley Stream to Jamaica
 - **Two HVDC**
 - PJM: Neptune 660 MW, Newbridge Road to Sayreville
 - ISO-NE: CSC 330 MW, Shoreham to New Haven

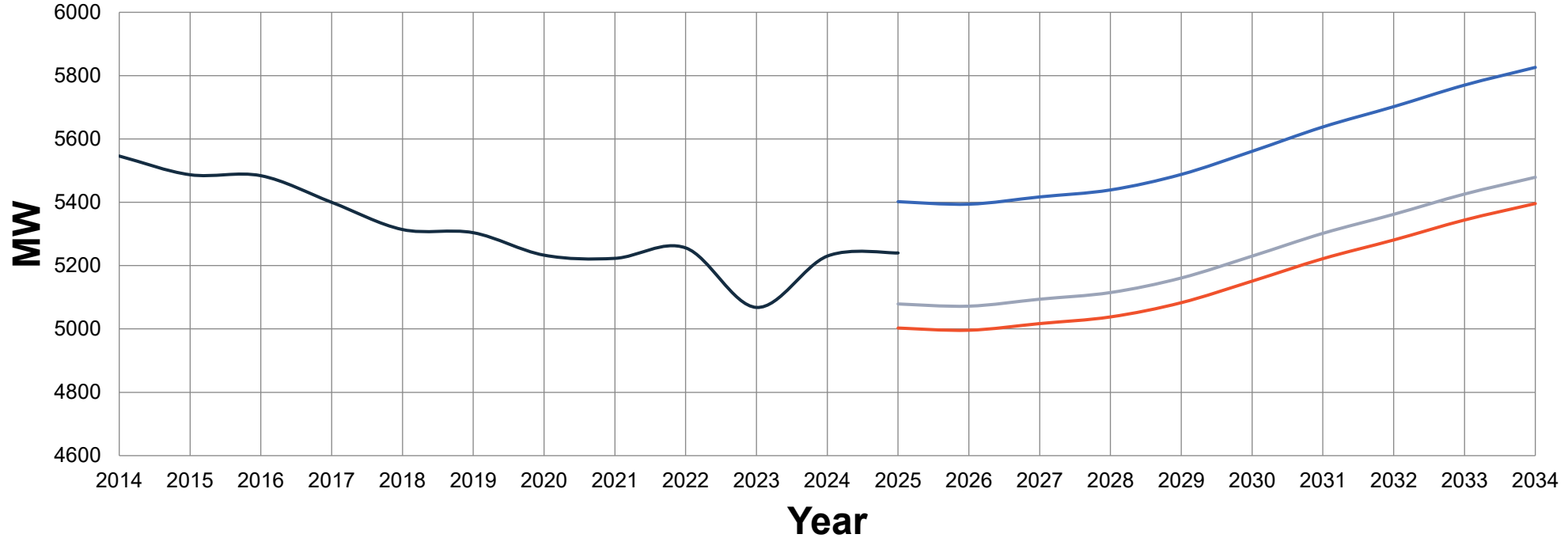
Key Factors Considered

- **Load Growth**
- **Transmission Planning Criteria**
 - PSEG LI Transmission Planning Criteria:
 - PSEG Transmission Planning Criteria 2022
 - Ensure that electric system will meet applicable reliability requirements (NERC/NPCC/NYSRC)
 - PSEG LI performance requirements for Transmission-Connected resources using non-synchronous generation
- **Local Dispatch Guidelines**
 - Gas Burn Reliability Rules & Transient Recovery Voltage
 - Load Pockets
 - Light Load
- **Public Policy Needs**
 - NYISO Public Policy Transmission Planning Process (PPTPP)
 - Coordinated Grid Planning Process (CGPP)



Zone K Load Forecast

10 Year Peak Forecast

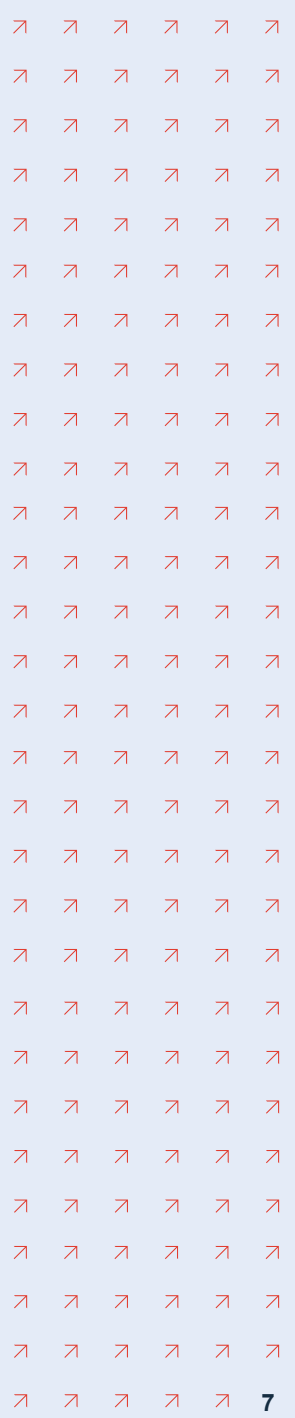


- Weather Normalized Actual Peak
- Gold Book: NYISO 2025 Baseline Coincident Peak, Table I-3a
- Gold Book: NYISO 2025 Baseline Non-coincident Peak, Table I-4a
- Gold Book: NYISO 2025 90th Percentile Baseline Coincident Peak, Table I-7a



Data Sources

- **Load Forecast**
- **NYISO - The Major Source of Base Cases used in Modeling / Transmission Studies**
 - Load Flow
 - Fault Duty
 - Stability
- **Generator Owners/HVDC/FACTS**
 - MW/MVAR Capability
 - Modeling Characteristics
- **Internal Sources**
 - EMS Data – PI Historian
 - Equipment Characteristics & Facility Ratings (e.g., Engineering, Operations)



Models – Major Tools Used

- **Thermal / Voltage Analysis**

- **PSS®E** : Siemens Power Technologies International's (PTI) Power System Simulator - *Transmission system load flow; thermal, voltage under normal and contingency conditions*
- **TARA** : PowerGEM's steady state power flow software tool - *Load flow studies, N-1-1 power flow analysis and system operating limits analysis*
- **MAPS™** : General Electric's (GE) Multi-Area Production Simulation

- **Fault Duty**

- **ASPEN™** : Advanced Systems for Power Engineering, Inc. - Short circuit analysis program/ Breaker fault duty analyses

- **Stability**

- **PSS®E** : Siemens Power Technologies International's (PTI) Power System Simulator - System Dynamic Simulation
- Additional Complex Load Model used for Transient Voltage Recovery Studies

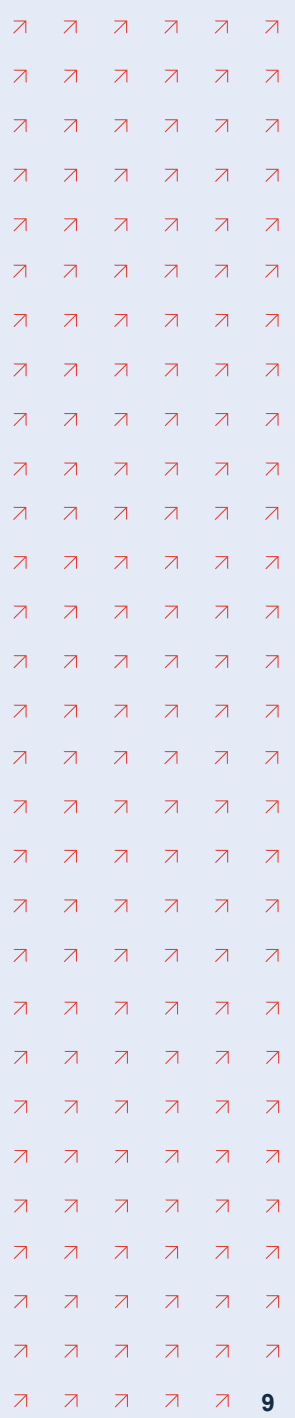
- **Other**

- **Python**: Software language utilized for automation of various analysis and data management



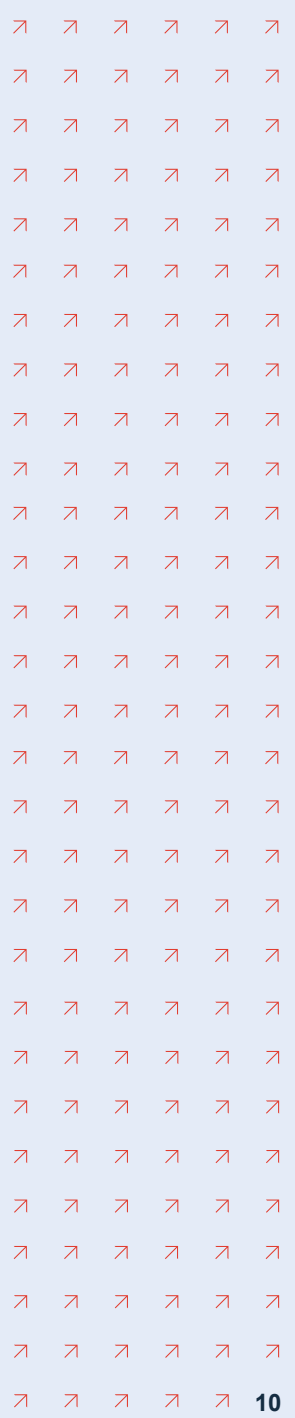
Planning Process

- The planning process for the T&D System begins with the load forecast and generation resource scenarios.
- Transmission System Studies: Identify transmission system limitations and recommend reinforcements for an area of the system.
 - Assessment of alternatives that can result in the development of major transmission capital projects.
 - Coordinates with other ongoing Transmission Planning Initiatives
- Limiting load level and year at which this load level is reached are critical factors
- Distributed Energy Resource(DER) penetration is captured in the substation load forecast.
- Potential Risk Factors
 - Generator Unavailability
 - Generator Deactivations
 - Higher Load Levels
 - Potential BPS upgrades to meet NPCC criteria
 - Light Load

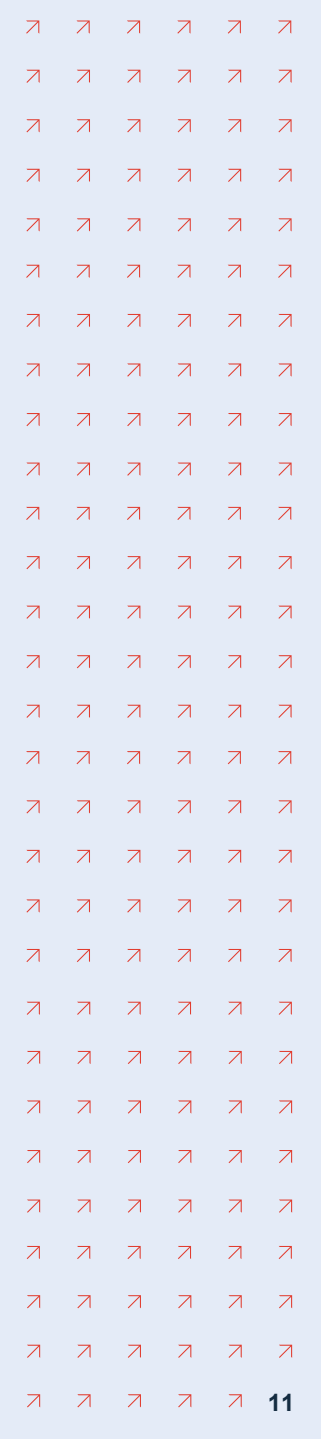
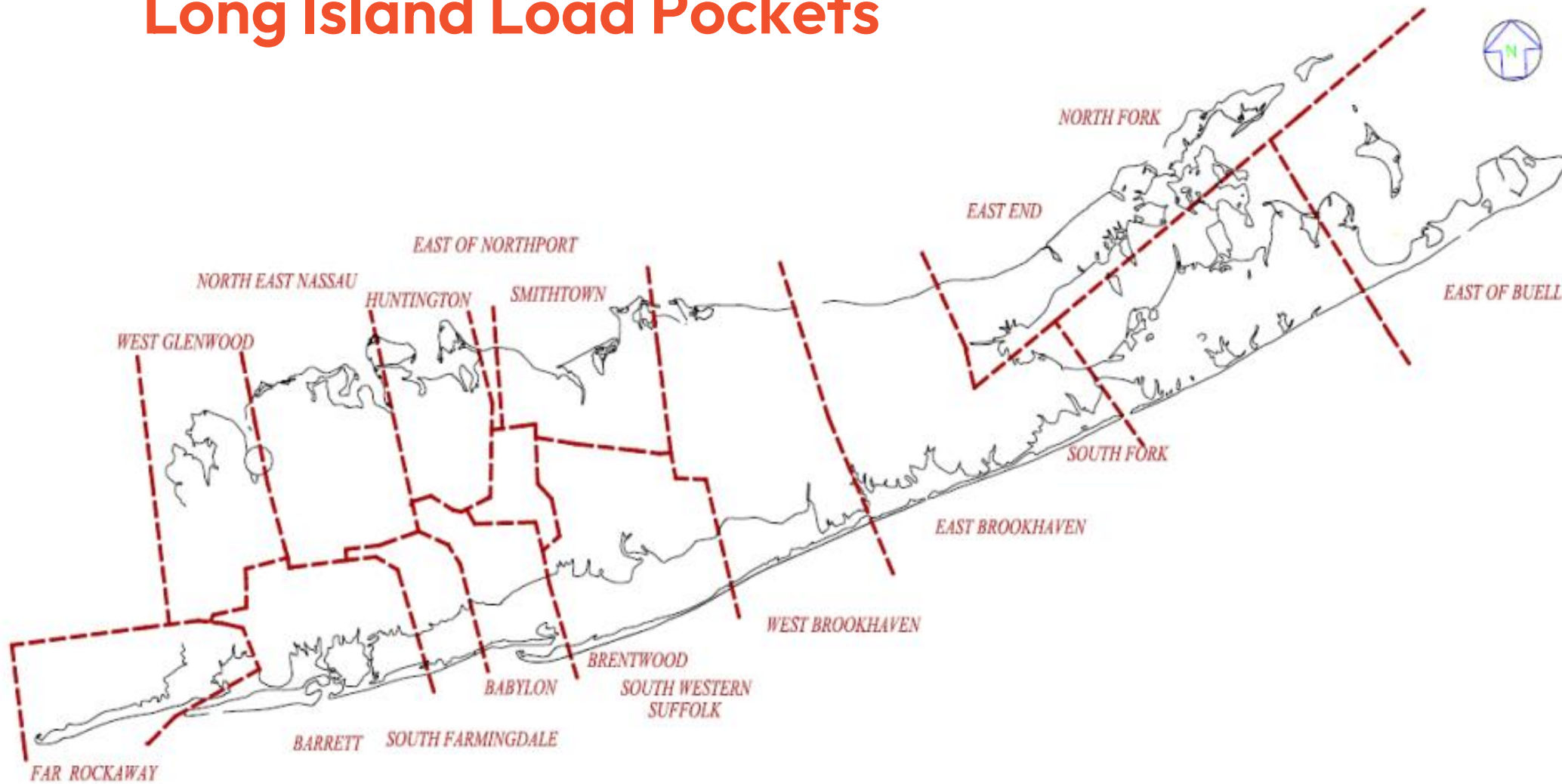


PSEG-LI Definition of a “Firm” Project

- In general, for a project to be considered “**Firm**” it must meet the following criteria:
 - Full **budget** approval through internal review
 - Preconstruction external **outreach** completed, stakeholder feedback obtained and addressed (if necessary)
 - Project Management has a defined **scheduled** start and completion date that is within the current or next year’s cycle
 - Operating Committee **approved** System Impact Study (SIS) if applicable
 - For projects subject to **Article VII** or **Article VIII**, have a determination from NYPSC that Article VIII application is in **compliance**
- Any project that does not meet the above criteria will be considered “Non-Firm”, unless the project(s) is part of a Public Policy Transmission Need solicitation, and is designated as “Firm” by the NYISO



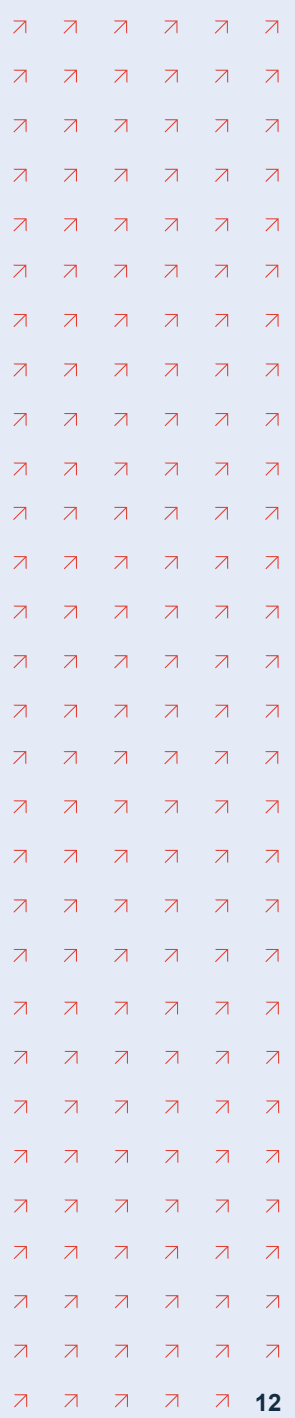
Long Island Load Pockets



Projects Being Considered

The following slides summarize projects that are currently under consideration as part of the on-going planning process.

These projects are continually being reviewed and considered as non-firm at this time. As such, the need, timing of, and/or the actual project recommendation may change.



Summary of Projects – 100kV & above

Firm 100kV and above

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII	Proposed In-Service Date
Barrett	Valley Stream Upgrade Relays at 138kV Substation	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	Barrett Upgrade Relays at 138kV substation	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
West Glenwood	Lake Success 3AF Upgrade Relays at 138kV substation	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	East Garden City Install Reactors on circuits 138-462/463	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	East Garden City Install Reactor on 138-262 Ckt to Valley Stream	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	East Garden City Upgrade Relays at 138kV substation	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	Shore Road Substation - Install 138kV 80MVAR Reactor	Installation of a 138kV 80MVAR reactor and circuit switch at Shore Road	Reliability Needs	Firm	Pending	N/A	Dec 2026
North-East Nassau	Syosset Reconfigure UG 138-675 Ckt to Oakwood	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	Syosset Replace UG section of 138-676 circuit to Greenlawn	PPTN Upgrade	Public Policy Requirements	Firm	Complete	Pending	2030
	Newbridge Replace 138kV Breaker 1460	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
	Newbridge Convert 138kV Ckt 138-467/567 to 345kV	PPTN Upgrade	Public Policy Requirements	Firm	Complete	Pending	2030
East of Northport	Northport Install new 138kV Phase Angle Regulator	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
Babylon	Ruland - Install Series reactor on 138-561 & 138-562 Ckts to Newbridge	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030
West Brookhaven	Holbrook Replace 138kV Switch 1322 with a breaker	PPTN Upgrade	Public Policy Requirements	Firm	Complete	N/A	2030



Summary of Projects – 100kV & above

Non-Firm Projects - 100 kV and Above

Proposed In-Service Date

Southampton to Deerfield New 138kV Circuit (Operated at 69kV)	June 2027
Holbrook BPS Upgrade / P5 Event Mitigation	June 2028
Newbridge Rd P5 Event Mitigation	June 2029
Brookhaven to Riverhead 138kV Conversion	June 2031
New Wainscott 138kV Substation w/ New 138kV Circuit to Edwards Ave	June 2033
Far Rockaway New 138kV Circuit	June 2033
Northport Substation Bulk Power System Upgrades	Dec 2033
Riverhead P5 Event Mitigation	June 2034
Brookhaven P5 Event Mitigation	June 2034

LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
Far Rockaway	Far Rockaway Bank #5 Upgrade	Replace 69/34.5kV transformer with a 40MVA Nameplate Unit	Reliability Needs	Non-Firm	N/A	N/A	Dec 2027
	Far Rockaway Bank #6 Upgrade	Replace 69/34.5kV transformer with a 40MVA Nameplate Unit	Reliability Needs	Non-Firm	N/A	N/A	Dec 2027
	Hewlett Capacitor Bank	Install 27MVAR capacitor bank at Hewlett substation	Reliability Needs	Non-Firm	N/A	N/A	June 2032
	Far Rockaway New 138kV Circuit	Install a new 138kV circuit	Reliability Needs	Non-Firm	Pending	Pending	June 2032
	Far Rockaway Bank #9 Upgrade	Replace 69/34.5kV transformer with a 40MVA Nameplate Unit	Reliability Needs	Non-Firm	N/A	N/A	June 2034



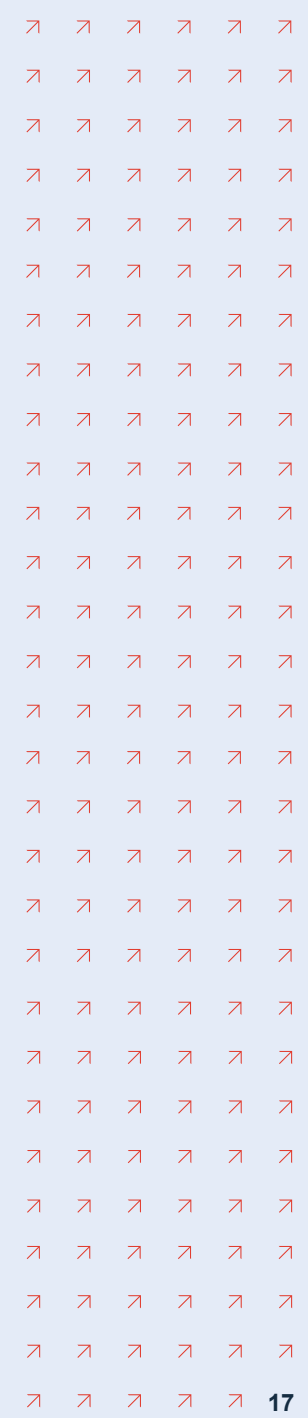
LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
Barrett	Barrett 138/33kV Bank #4 Replacement	Replace Barrett 138/33kV Bank #4 with an existing system spare	Reliability Needs	Firm	N/A	N/A	Dec 2025
	Barrett 138/33kV Bank #4 Upgrade	Replace 138/33kV transformer	Reliability Needs	Non-Firm	N/A	N/A	June 2030
	Barrett 69/33kV Bank #3 Upgrade	Replace 69/33kV transformer	Reliability Needs	Non-Firm	N/A	N/A	June 2030
	Malverne to West Hempstead (69-353) 69 kV Circuit Upgrade	Upgrade the existing circuit between Malverne and West Hempstead	Reliability Needs	Non-Firm	N/A	N/A	June 2033
	Belmore 69/33kV Bank #5 Replacement	Replace 69/33kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2034
	Belmore 69/33kV Bank #6 Replacement	Replace 69/33kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2034



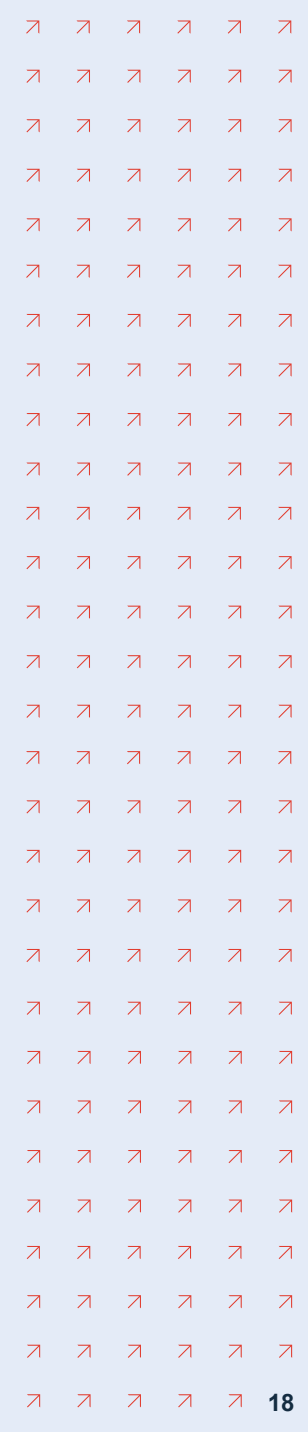
LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
West Glenwood	Belmont - Convert Substation from 33kV to 69kV	Upgrade Belmont substation to 69kV with two new 69kV circuits from Lake Success and Whiteside substations	Reliability Needs	Firm	N/A	N/A	Dec 2025
Northeast Nassau	Newbridge Rd P5 Event Mitigation	Control & Protection Upgrades to mitigate existing P5 event	Compliance / Regulatory	Non-Firm	N/A	N/A	June 2029
	Newbridge Road to Meadowbrook (69-466) 69kV Circuit Upgrade	Upgrade the existing 69kV circuit between Meadowbrook and Newbridge Road	Reliability Needs	Non-Firm	N/A	N/A	June 2030
Huntington	Greenlawn Bank #3 Replacement	Replace 69/23kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2032
	Northport Substation Bulk Power System Upgrades	Control & Protection Upgrades to comply with NPCC Directory 4 requirements.	Compliance / Regulatory	Non-Firm	N/A	N/A	Dec 2033
Babylon	Ruland to Pinelawn (69-755) 69kV Circuit Upgrade	Upgrade the existing 69kV circuit between Ruland Road and Pinelawn	Reliability Needs	Non-Firm	N/A	N/A	June 2030
	Brightwaters 69/23kV Bank #3 Replacement	Replace 69/23kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2034



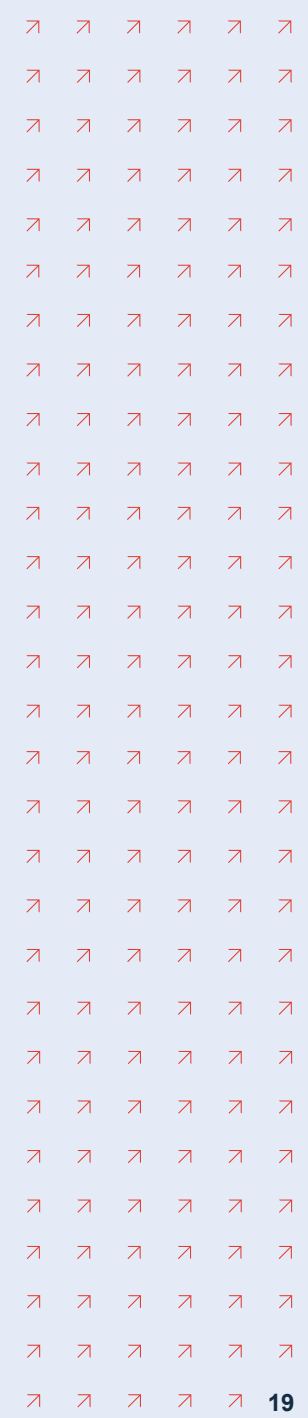
LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
South West Suffolk	23kV Ocean Beach to Fire Island Pines Substation New Circuit	Install a new 23kV circuit between the Ocean Beach and Fire Island Pines Substation	Reliability Needs	Non-Firm	N/A	N/A	June 2031
West Brookhaven	Holbrook Bank #2-2A Upgrade	Replace the two existing 138/69kV transformers (2-2A) with a single 224 MVA Nameplate Unit	Reliability Needs	Non-Firm	Review Pending	N/A	June 2027
	Holbrook BPS Upgrade / P5 Event Mitigation	Control & Protection Upgrades to comply with NPCC Directory 4 requirements	Compliance / Regulatory	Non-Firm	N/A	N/A	June 2028
	New North Patchogue Substation	New North Patchogue 69kV Substation	Reliability Needs	Non-Firm	N/A	N/A	June 2032
	New Mastic Park Substation	New 69kV Mastic Park substation to be operated at 23kV retiring South Shirley substation	Reliability Needs	Non-Firm	N/A	N/A	June 2033
	North Bellport 69/23kV Bank #2 Replacement	Replace 69/23kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2035



LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
East Brookhaven	Install Series Reactor at Moriches 69KV	Install 2 Ohm Reactor	Reliability Needs	Non-Firm	N/A	N/A	June 2027
	Riverhead Bank #7	Replace 138/69kV transformer with a 224 MVA Nameplate Unit	Reliability Needs	Non-Firm	Review Pending	N/A	June 2029
	Riverhead Bank #8	Replace 138/69kV transformer with a 224 MVA Nameplate Unit	Reliability Needs	Non-Firm	Review Pending	N/A	June 2029
	Brookhaven to Riverhead 138kV Conversion	Convert the existing 69kV circuit between Brookhaven to Riverhead to 138kV operation	Reliability Needs	Non-Firm	Pending	Pending	June 2031
	Moriches to South Manor (69-855) 69kV Circuit upgrade	Upgrade the existing 69kV circuit between Moriches and South Manor	Reliability Needs	Non-Firm	N/A	N/A	June 2033
	Riverhead P5 Event Mitigation	Control & Protection Upgrades to mitigate existing P5 event	Reliability Needs	Non-Firm	N/A	N/A	Dec 2034
	Brookhaven P5 Event Mitigation	Control & Protection Upgrades to mitigate existing P5 event	Reliability Needs	Non-Firm	N/A	N/A	Dec 2034
	Eastport 69/23kV Bank #1 Replacement	Replace 69/23kV transformer	Reliability Needs	Non-Firm	N/A	N/A	Dec 2035
North Fork	Southold Capacitor Bank	Install 14MVAR capacitor bank at Southold substation	Reliability Needs	Non-Firm	N/A	N/A	June 2033



LIPA Long Term Plan (LTP) - Projects Being Considered

Load Pocket	Project	Summary of Changes	Project Driver	Firm Status	SIS	Article VII / Article VIII	Proposed In-Service Date
South Fork	Bridgehampton and Buell substations New 69kV Circuit	Install a 69kV circuit between Bridgehampton and Buell substations	Reliability Needs	Firm	N/A	N/A	Dec 2025
	Reconfigure 69kV circuits between Canal and Deerfield substations	Parallel two existing 69kV transmission circuits between the Canal and Deerfield substations	Reliability Needs	Non-Firm	N/A	N/A	June 2027
	New 69kV circuit (138kV construction) Between Southampton and Deerfield substations	Install a new 138kV circuit to be operated at 69kV between the Southampton and Deerfield substations	Reliability Needs	Non-Firm	Pending	Pending	June 2027
	Install Series Reactor at Deerfield 69KV	Install 2 Ohm Reactor	Reliability Needs	Non-Firm	N/A	N/A	June 2032
	New Wainscott 138kV Substation	New Wainscott Substation with 138kV Circuit from Edwards Ave and step down to 69kV system	Reliability Needs	Non-Firm	Pending	Pending	June 2033



Questions?

Document Posted on PSEG Long Island Web site

<https://www.psegliny.com/aboutpseglongisland/legalandregulatory>

Questions?

Please send any comments you may have to

LTP-PSEGLongIsland@psegliny.com





 Thank
you

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