The Long-Range Transmission Plan 2014 – 2024

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Consolidated Edison Company of New York, Inc.

Long-Range Transmission Plan

- Driver of Plan is maintaining local reliability
- 10-year planning horizon to 2024
- Order 890 compliance
  - Criteria, assumptions and methodology have been posted

    http://www.coned.com/tp/transmission_planning_process.asp
  - Plan posted on the Con Edison website prior to presentations at NYISO

    http://www.coned.com/tp/Long-Term-Transmission-Plan-2014-2024.pdf

NY PSC Order for EE/DR/CHP

- As part of the “Transmission Owner Transmission Solutions” (TOTS) projects in response to the Indian Point Contingency Plan, the NY PSC, effective November 4, 2013, ordered Con Edison and NYSERDA to implement a DSM program in Zone J.

- In the 125 MW Revised EE/DR/CHP Program, Con Edison and NYSERDA, in consultation with NYPA, proposed a suite of new EE and DR projects designed to achieve 100 MW of peak demand reduction by the summer of 2016. NYSERDA will achieve 25 MW of CHP.

- Progress reports are provided to the PSC on a quarterly basis. The most recent Q2 2014 status report indicates that so far 9.25 MW have been committed and 14.97 MW are in process. These reports and other related documents can be found at the New York State Department of Public Service website:
  http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=12-E-0503

- Con Edison’s program details can be found at this website:
  http://www.coned.com/energyefficiency/demand_management_incentives.asp

Assessments

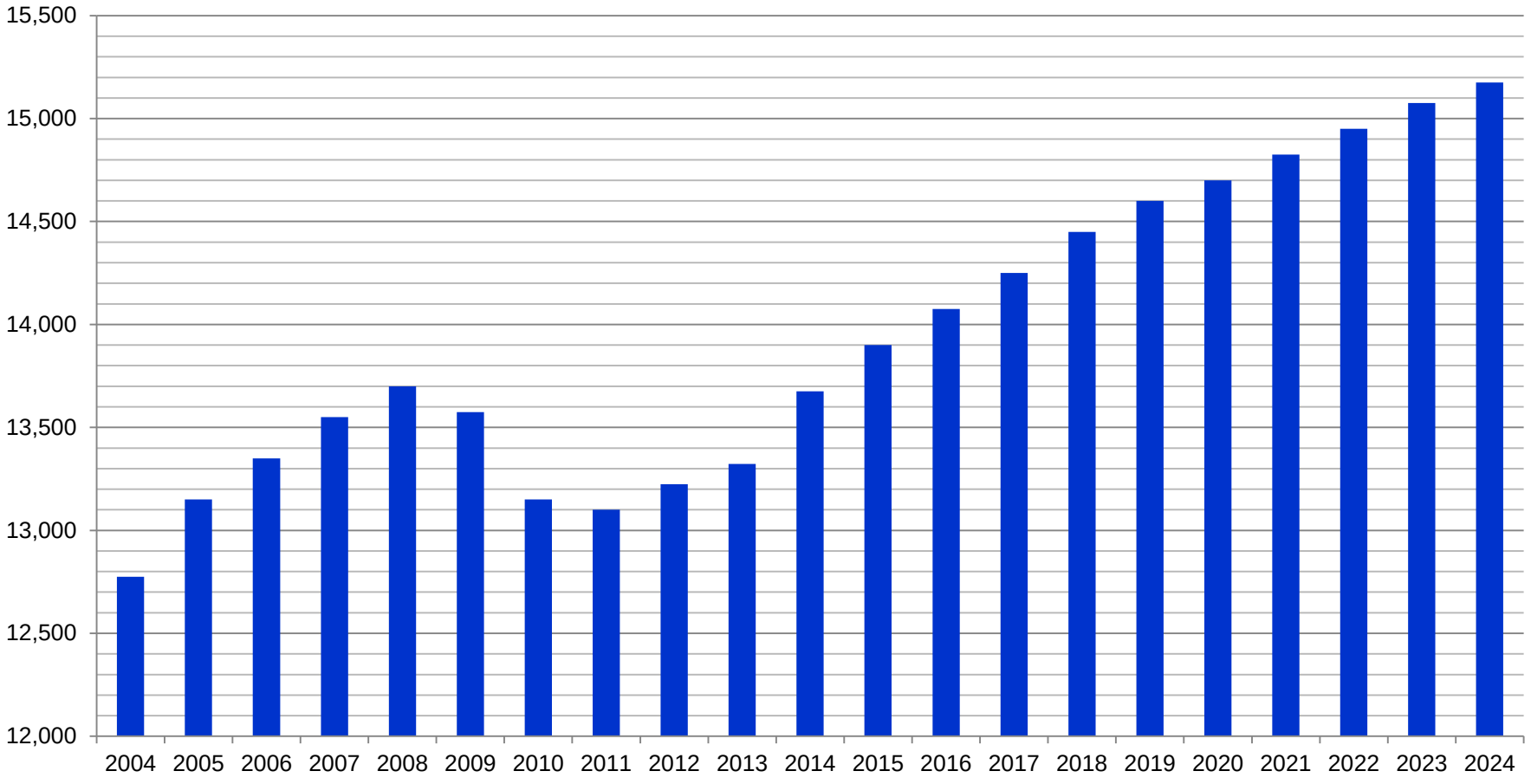
- System Performance
- Transmission Load Area (TLA)
- Transmission Substation
- Interconnection of New Generation Resources

System Performance

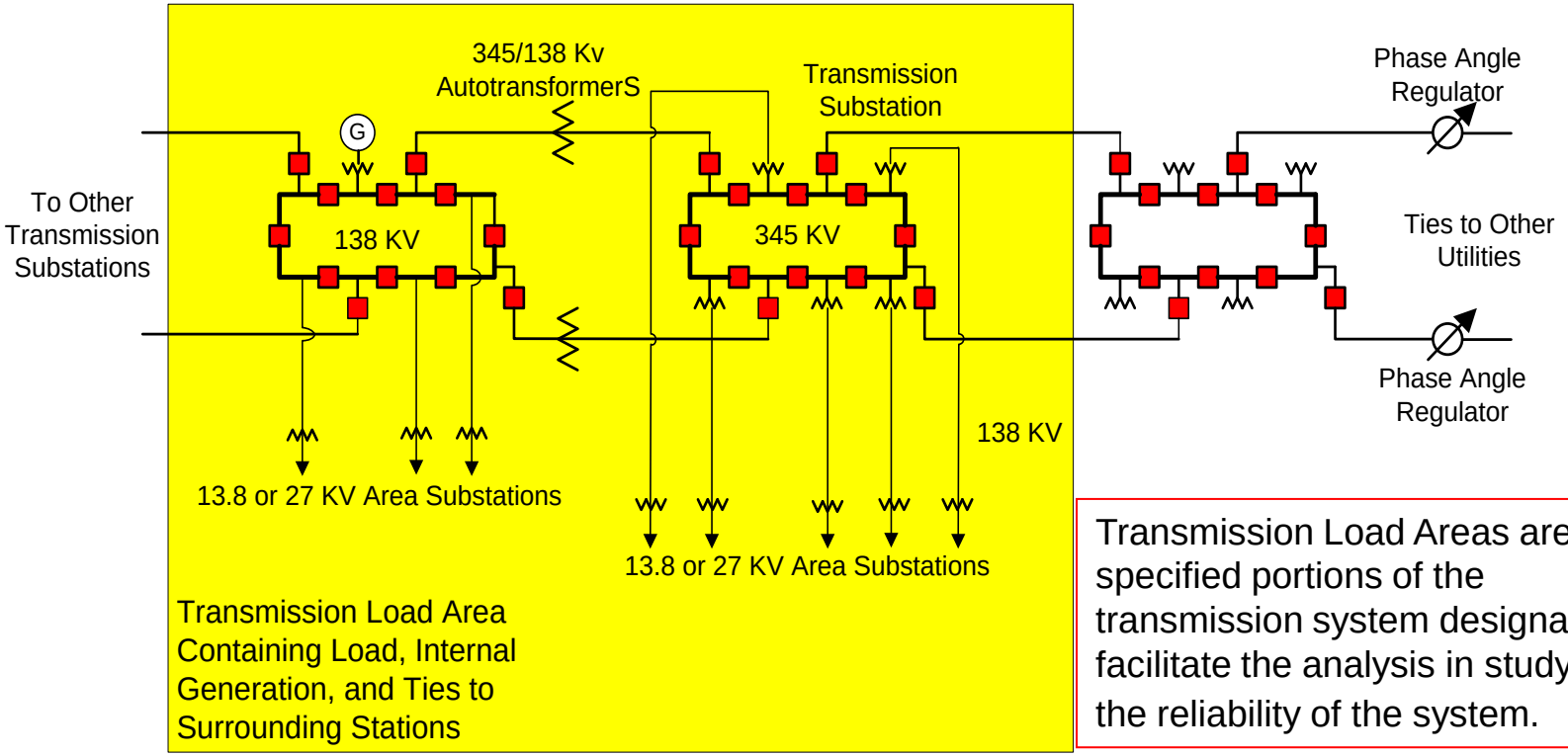
- Thermal
- Voltage
- Short Circuit
- Stability
- Critical Clearing Time
- Under-frequency Load Shedding
- Transient Switching Surge and Lightning Withstand Capabilities
- Extreme Contingencies

Peak Demand in MW By Year

Years 2004 - 2013 Are Weather Adjusted Actuals.
Years 2014 - 2023 Are Forecasts.



Transmission Load Area (Generic)



Transmission Load Areas are specified portions of the transmission system designated to facilitate the analysis in studying the reliability of the system.

17 Actual Transmission Load Areas

	Transmission Load Areas	Contingency Level
1	New York City - 345 kV	2
2	West 49th Street - 345 kV	2
3	New York City - 138 kV	2
4	Astoria - 138 kV	2
5	East 13th Street - 138 kV	2
6	Astoria East / Corona - 138 kV	2
7	Astoria West / Queensbridge - 138 kV	2
8	Vernon - 138 kV	2
9	East River - 138 kV	2
10	Greenwood / Staten Island- 138 kV	1
11	Corona / Jamaica - 138 kV	1
12	Bronx- 138 kV	1
13	Eastview - 138 kV	1
14	Staten Island - 138 kV	1
15	Dunwoodie North / Sherman Creek - 138 kV	1
16	Dunwoodie South - 138 kV	1
17	Millwood / Buchanan - 138 kV	1

TLA Assessments

- Thermal
  - Power, in terms of MVA, on a transmission path must not exceed its applicable emergency rating and be able to be returned to normal levels for that path post contingency
  - First and second (if TLA is designated second contingency)
- Voltage
  - Bus voltages must not exceed their limits either above or below their nominal ratings
- Short-Circuit
  - 3 phase, 2 phase to ground or single phase to ground faults create a short-circuit flow on a transmission path that should not exceed the appropriate short-circuit rating of any of the breakers that are necessary for the isolation of that transmission path

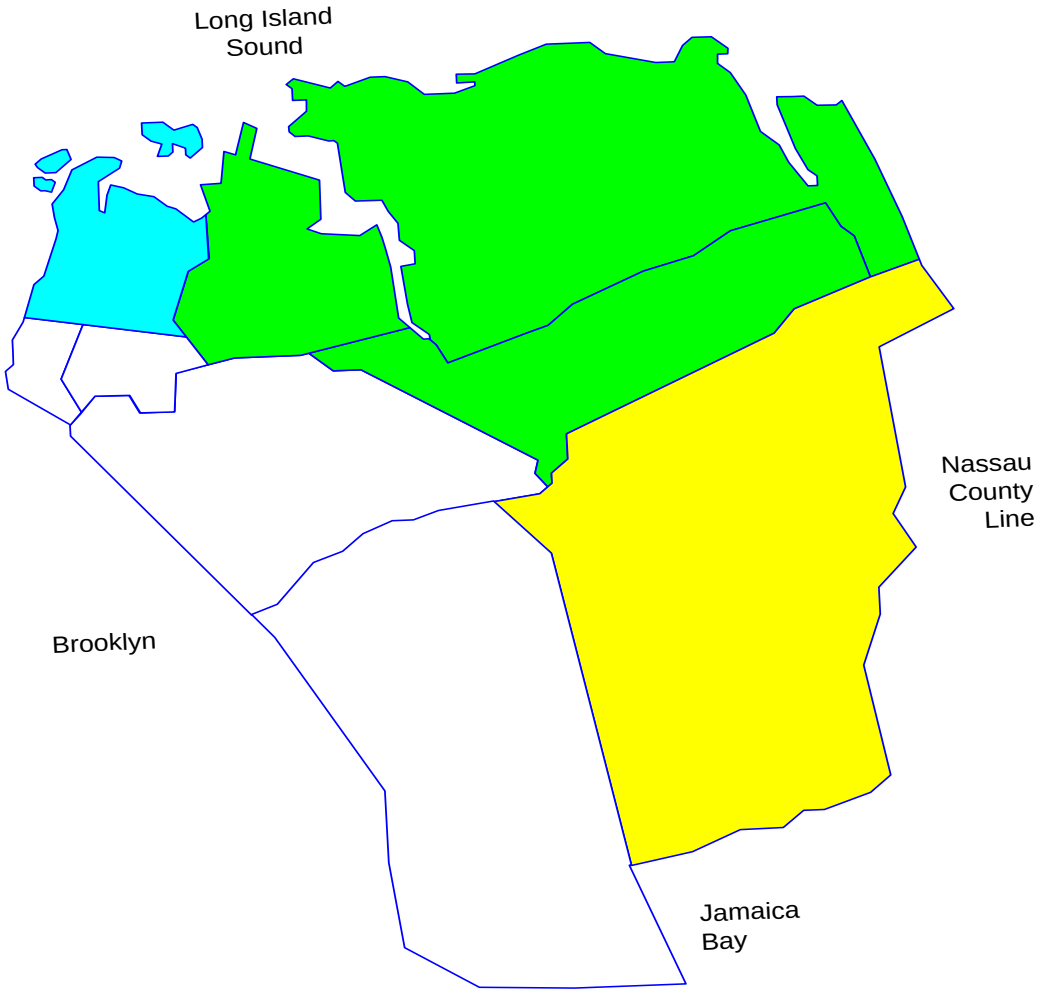
Study Year	Long Range Plan Assumptions
2014	• Con Edison Load (Coincident Peak) = 13,675 MW • Generator returned from Mothball status: Ravenswood GT 3-4
2019	• Con Edison Load (Coincident Peak) = 14,600 MW • Establish Berrians Units 1&2 (total capacity 250 MW), with connection to Astoria West Astoria GT's 10,11,12,13 retired • Transfer 85 MW of load from Brownsville (served from Farragut) to Glendale (served from Vernon) • Consistent with Public Service Commission order, establish 100 MW of Energy Efficiency improvements, allocated system-wide.
2024	• Con Edison Load (Coincident Peak) = 15,175 MW • Gowanus Transmission Station expanded to support future area stations • Establish Gateway Park Area Station, served from Gowanus Station, supporting 100 MW of load, transferred from the Bensonhurst #2 Area Station (served by Greenwood Transmission Station). • Establish Nevins Area Station, served from Gowanus Station, supporting 80 MW of load, transferred from the Greenwood Area Station (served by Greenwood Transmission Station).

TLA Assessment Results

Three TLAs show need for system reinforcements:

- Astoria East / Corona 138 kV TLA
  - Queens
- Corona / Jamaica 138 TLA
  - Queens
- Greenwood / Staten Island 138 kV TLA
  - Brooklyn and Staten Island

Areas Served by the Astoria East / Corona 138 kV TLA (in Blue / Green), and the Corona /Jamaica 138 kV TLA (in Green-Yellow)



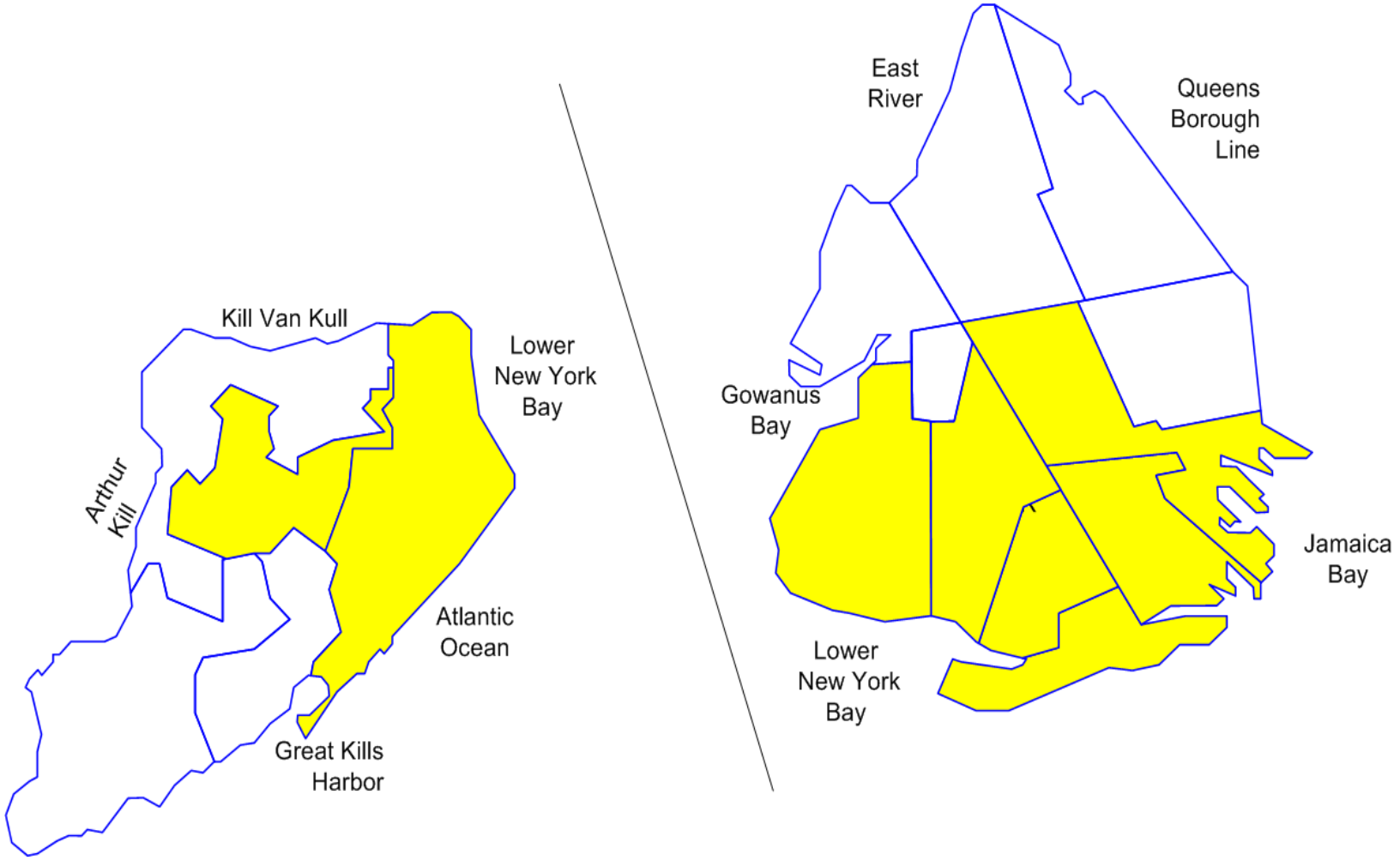
Assessment of Astoria East / Corona 138 kV TLA

Geographic Coverage	Queens			
Design Criteria	Second Contingency			
Planned Changes In Load Area	2019	Establish new 138 kV transmission line with transformer and Phase Angle Regulator connecting Rainey and Corona Substations		
Assessment	2014	First Contingency	Loss of Astoria Energy I	No deficit
		Second Contingency	Loss of Astoria Energy I, followed by loss of feeder 34091	No deficit
	2019	First Contingency	Loss of Astoria Energy I	No deficit
		Second Contingency	Loss of Astoria Energy I, followed by loss of feeder 34091	No deficit
	2024	First Contingency	Loss of Astoria Energy I	No deficit
		Second Contingency	Loss of Astoria Energy I, followed by loss of feeder 34091	No deficit
Operational Remediation	2014	Utilize 300 hour ratings for feeders 34051/52 and 701/702 until new transmission line established in 2019		
	2019	None required		
	2024	None required		
Planning Solution	2014	None required – See Operational Remediation		
	2019	None required – See Planned Changes in Load Area		
	2024	None required		
Short Circuit Considerations	None			

Assessment of Corona / Jamaica 138 kV TLA

Geographic Coverage	Queens			
Design Criteria	First Contingency			
Planned Changes In Load Area	2019	Establish new 138 kV transmission line with transformer and Phase Angle Regulator connecting Rainey and Corona Substations		
Assessment	2014	First Contingency	Bus fault resulting in the loss of feeder 901, 702 and transformer bank 4 at Jamaica 138 kV	No Deficit
	2019	First Contingency	Bus fault resulting in the loss of feeder 901, 702 and transformer bank 4 at Jamaica 138 kV	No Deficit
	2024	First Contingency	Bus fault resulting in the loss of feeder 901, 702 and transformer bank 4 at Jamaica 138 kV	No Deficit
Operational Remediation	2014	None required		
	2019	None required		
	2024	None required		
Planning Solution	2014	None required		
	2019	None required		
	2024	None required		
Short Circuit Considerations	None			

Area Served by Greenwood / Staten Island 138 kV TLA



Assessment of Greenwood / Staten Island 138 kV TLA

Geographic Coverage	Brooklyn and Staten Island			
Design Criteria	First Contingency			
Planned Changes In Load Area	None			
Assessment	2014	First Contingency	Bus Fault with Stuck Breaker #4N results in loss of Gowanus GTs 1&3, Narrows GT2, Feeder 42232.	No deficit
	2019	First Contingency	Bus Fault with Stuck Breaker #4S results in loss of Gowanus GTs 2&4, NYPA GTs, Feeder 42231.	No deficit
	2024	First Contingency	Bus Fault with Stuck Breaker #4S results in loss of Gowanus GTs 2&4, NYPA GTs, Feeder 42231.	No deficit
Operational Remediation	2014	None required		
	2019	None required		
	2024	None required		
Planning Solution	2014	None required		
	2019	Establish Breaker 3N, to separate feeder 42232 from feeder 42G13 (GTs 1&3)		
	2024	None required		
Short Circuit Considerations	None			

Transmission Substations

- Expansion of the Gowanus Transmission station for the support of area stations is anticipated in the year 2023. No additional Transmission connections are planned for this station.

New Merchant Generation and Transmission Proposals

- The Berrians Units #1 and #2 were included in the assumptions for the Long Range Plan because they have accepted their cost allocation for class year 2011.

- New York City continues to attract significant amount of new generation and transmission capacity

- NYISO's interconnection queue listing, dated 8-31-14 shows
  - 4,100 MW of new generation
  - 2,400 MW of transmission projects

Contact Information

- Parties interested in commenting on Con Edison's Transmission Planning Process can e-mail comments and suggestions to:

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