2021
Local Transmission Plan (LTP)

November 19, 2021

Table of Contents

EXECUTIVE SUMMARY

Consolidated Edison Company of New York, Inc. (CECONY) conducted its 2021 Local Transmission Planning Process (LTPP) for its own Transmission District[1]. The report presents CECONY's Local Transmission Plan (LTP) for years 2021 through 2030.

2021 Local Transmission Plan Findings:

The 2021 CECONY's Local Transmission Plan (LTP) does not identify any transmission reliability needs in CECONY's Transmission District under the assumptions established for this assessment over the next 10-year planning horizon (years 2021 through 2030).

In 2019, New York State passed the nation-leading Climate Leadership and Community Protection Act (CLCPA). Achieving the ambitious goals of CLCPA will mean transforming the way electricity is generated and used. For both New York City and New York State, it's clear that ramping up renewable development is a near-term priority. As the state moves to power the transportation sector and portions of building heating with renewable energy, demand for electricity in CECONY's Transmission District is likely to grow. CECONY recognizes that transmission is at the core of making renewable energy integration possible and are actively pursuing transmission infrastructure upgrades accordingly. As such, CECONY is developing multi-value projects (see non-Firm Plans section of this report) within its Transmission District that can give renewable developers access to NYC customers, delivering the electricity supplied by intermittent renewables and balance increasing demand to enable the statewide achievement of the clean energy goals.

Due to fast moving changes to projected transmission system topology and generation mix, including changes in load behavior and its associated forecast, the Local Transmission Plan (LTP) is expected to be updated more frequently.

[1] Transmission District: The geographic area in which a Transmission Owner, including LIPA, is obligated to serve Load, as well as the customers directly interconnected with the transmission facilities of the Power Authority of the State of New York (as defined per NYISO OATT, Section 1.20, p102).

1. Introduction

Consolidated Edison Company of New York, Inc. (CECONY) conducted its Local Transmission Planning Process (LTPP) for its own Transmission District. As an outcome, the report presents CECONY's Local Transmission Plan (LTP) for years 2021 through 2030.

Per the NYISO Open Access Transmission Tariff (OATT)[2], CECONY's LTP together with LTPs from other New York Transmission Districts are used by the NYISO as an input into the Comprehensive System Planning Process (CSPP). Each cycle of CSPP commences with the LTPPs providing input into the Reliability Planning Process (RPP) covering year 4 through year 10 following the year of starting the study, along with Short-Term Reliability Process (STRP), covering year 1 through year 5 following the Short-Term Assessment of Reliability (STAR) Start Date of the study. The NYISO CSPP and STRP were approved by the Federal Energy Regulatory Commission (FERC) and its requirements are contained in Attachment Y and Attachment FF of the NYISO's OATT. The next cycle of CSPP will start with the 2022 RPP, which consists of two studies: (1) Reliability Needs Assessment (RNA) and (2) Comprehensive Reliability Plan (CRP).

Per the NYISO OATT[3], CECONY is required to post on its website Specification TP-7100 *Transmission Planning Criteria*[4] and assumptions used in its LTPP[5]. CECONY's *Transmission Planning Criteria* meets or exceeds requirements established in applicable North American Electric Reliability Council (NERC), Northeast Power Coordinating Council (NPCC) or New York State Reliability Council (NYSRC) Standards, Directories, and Reliability Rules. In addition, CECONY is required to take into consideration any comments received from Customers, Market Participants, and other interested parties regarding the posted material. CECONY has not received any comments on the assumptions in this round of LTPP.

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[2] https://nyisoviewer.etariff.biz/ViewerDocLibrary/MasterTariffs/9FullTariffNYISOOATT.pdf
[3] NYISO OATT Section 31.2.1
[4] https://www.coned.com/-/media/files/coned/documents/business-partners/transmission-planning/transmission-planning-criteria.pdf?la=en
[5] https://www.coned.com/-/media/files/coned/documents/business-partners/transmission-planning/2021-long-range-plan-study-assumptions.pdf?la=en

2. Assumptions

Per NYISO OATT CECONY posted on its website assumptions used in its LTPP.[6]

The study is based on the system represented in the power flow, stability and short circuit cases derived from the 2021 NYISO FERC 715 filing(s) and NYISO Load & Capacity Data "Gold Book". These power flow and short circuit databases are further updated consistent with the NYISO Reliability Planning Process practices, rules, and procedures.

2.1. Load Forecast

CECONY's Electric System Demand Forecast for years 2021 through 2030, developed just prior to initiation of the LTP study, is as follows:

Y2021	Y2022	Y2023	Y2024	Y2025	Y2026	Y2027	Y2028	Y2029	Y2030
12,278	12,376	12,306	12,256	12,143	12,154	12,193	12,250	12,327	12,702

11^{th} Year load – Year 2031 – is projected at 12,806 MW.

Overall, CECONY's load growth projected in this study is, for all intents and purposes, relatively flat over the 10-year planning horizon. The loads vary by a range of -0.6% to +0.8% in the 2021-2030 period. CECONY expects the forecast and annual load growth in its Transmission District to increase as its anticipated assumptions to achieve CLCPA goals are refined.

2.2. Generator Retirements / Additions

2.2.1. DEC NOx Emission Standard

In 2019, the New York State Department of Environmental Conservation (DEC) adopted a regulation to limit nitrogen oxides (NOx) emissions from simple-cycle combustion turbines ("DEC NOx Emission Standard"). The DEC NOx Emission Standard required all impacted plant owners to file compliance plans by March 2, 2020, which were subsequently assessed within the NYISO 2020 Reliability Needs Assessment (RNA)[7]. The database used in this LTP reflects the application of the generator compliance plans for the DEC NOx Emission Standard together with identified solutions to the transmission security criteria violations observed in the Con Edison service territory.

[6] https://www.coned.com/-/media/files/coned/documents/business-partners/transmission-planning/2021-long-range-plan-study-assumptions.pdf?la=en
[7] https://www.nyiso.com/documents/20142/2248793/2020-RNAReport-Nov2020.pdf/64053a7b-194e-17b0-20fb-f2489dec330d

2.3. Transmission Reconfigurations

2.3.1. Local Transmission System Upgrades / Reconfigurations

CECONY assumed in its 2021 LTP the following local system upgrades that result in system topology changes:

- Starting in Year 2021: For the purposes of Distribution System, under peak load conditions, the 138 kV transmission feeder 32077 is operated radially from Farragut to supply Water Street Area Station through 138/27 kV Transformer #4. This topology configuration is in effect until year 2022 when the installation of the Vinegar Hill Distribution Substation takes effect.
- Starting in Year 2022: Vinegar Hill Distribution Switching Substation, connected to 138 kV Hudson Avenue East, will be installed to support Water Street and Plymouth Street Area Stations.
- Starting in Year 2023: New transmission path: 2nd 345/138 kV PAR controlled Rainey – Corona feeder.
- Starting in Year 2025: New transmission path: 3rd 345/138 kV PAR controlled Gowanus – Greenwood feeder.
- Starting in Year 2025: New transmission path: 345/138 kV PAR controlled Goethals –Fox Hills feeder, with Fox Hills substation reconfigured into a Ring Bus.

2.3.2. Feeders A-2253, B-3402 and C-3403

Tie feeders B-3402 and C-3403 continue to be on a long-term outage. The flow assigned to tie feeder A-2253 is based on the NYISO/PJM Joint Operating Agreement. This assumption is carried throughout the 10-year study.

2.4. Other Assumptions

Per NYISO Short Term Reliability Process solutions to short-term needs identified in the 2020 Quarter 3 STAR, the operating status of existing series reactors, starting summer 2023, was changed from:

- Bypassed series reactors: 345 kV feeders 71, 72, M51, M52
- In-service series reactors: 345 kV feeders 41, 42, Y49

to:

- In-service series reactors: 345 kV feeders 71, 72, M51, M52
- Bypassed series reactors: 345 kV feeders 41, 42, Y49

3. Assessments

3.1. Short Circuit Assessment

CECONY's 2021 LTP relies on concurrent analysis and conclusions from the Planning Assessment of the Bulk Electric System, an annual study that is performed in conjunction with the NYISO and other New York Transmission Owners as part of NYISO/ New York Transmission Owners (NYTOs) Coordinated Functional Registration (CFR) for the purpose of compliance with NERC Standard TPL-001 Transmission System Planning Performance Requirements. In addition, CECONY's 2021 LTP relies on concurrent analysis and conclusions from NYISO's 2020 Reliability Needs Assessment (RNA), NYISO's 2021 Comprehensive Reliability Plan (CRP) as well as NYISO's quarterly Short-Term Assessments of Reliability (STARs) as these relate to CECONY's Transmission District.

The short circuit analysis is performed in accordance with the "NYISO Guideline for Fault Current Assessment" and the CECONY Fault Current Assessment (Specification TP-5000) using the ASPEN One-Liner/Batch-Circuit program. Three-phase-to-ground, two-phase-to-ground, and single-phase-to-ground faults are simulated at CECONY's substations. At each substation, the highest of the three fault currents is compared against the lowest circuit breaker rating to determine if circuit breakers might be overdutied (initial screen). If calculated fault currents exceed the lowest rated breaker, then an Individual Breaker Analysis (IBA) would be conducted to determine the final breaker over-duty status.

The analysis shows that circuit breakers have the interrupting capability for the faults that they are expected to interrupt throughout the 10-year study horizon.

3.2. Thermal / Voltage Assessment

CECONY's Transmission System is divided into 17 Transmission Load Areas (TLAs). These TLAs are constrained by transmission and/or generation resources. In addition, each TLA's design contingency level depends on its Bulk Power System (BPS) or Bulk Electric System (BES) status. A TLA may be designed to Second contingency (N-1/-1/-0) or may be designed to First contingency (N-1/-1). The list of CECONY's TLAs with their design contingency level can be found in Specification TP-7100 *Transmission Planning Criteria*.

The study carries out thermal and voltage analysis for all 17 TLAs over the 10-year planning horizon. The study uses the Siemens PTI PSS®E and PowerGEM TARA programs. The details of the analysis (description of TLA's design, controlling contingencies, etc.) for each TLA are set forth in the Appendix to this report.

Overall, the thermal and voltage analysis does not identify any transmission needs in CECONY's Transmission District under the assumptions established for this assessment over the 10-year planning horizon (years 2021 through 2030).

3.3. Stability Assessment

As is done with the Short Circuit Assessment, the Stability Assessment also relies on concurrent analysis and conclusions from pertinent other studies (see section 3.1).

As stability analysis is a wide area impact analysis, the NYISO performs the state-wide stability analysis. CECONY identified contingencies for NYISO's assessment. This analysis is carried out using the Siemens PTI PSS®E Rev. 33 software in accordance with the "NYISO Guideline for Stability Analysis and Determination of Stability-Based Transfer Limits".

Since the last issuance of CECONY's LTP, NYISO observed stability violations within CECONY's Transmission District. The identified needs were addressed by system expansion / topology changes listed in Sections 2.3.1 and 2.4. Additionally, CECONY's LTP update on July 23, 2021 revised the dynamic database for the Con Edison Transmission District by the utilization of the latest available state-of-the-art dynamic load model (CMLD).

Moreover, due to the transition from base load fossil fuel power plants that provide continuous generation to renewable resources that are generally intermittent and at times energy limited, which adds complexity to the task of maintaining voltage requirements, CECONY is in early stages of integrating a dynamic voltage support facility – a STATCOM on its 345 kV system – to regulate voltage for the grid in transition. Moreover, CECONY is considering additional modifications to its transmission facilities for additional voltage support, such as modification to an existing Goethals 345 kV Shunt Reactor R26 to be a switchable Shunt Reactor. These projects are currently non-FIRM projects and can be helpful in responding to transient voltage stability issues during a real-time system event.

3.4. Extreme Contingency Assessment

CECONY's 2021 LTP also relies on concurrent analysis and conclusions from pertinent other studies (see section 3.1).

As Extreme Events analysis is a wide area impact analysis, the NYISO performs it. The analysis is carried out using the Siemens PTI PSS®E (steady state and dynamics) and PowerGEM TARA (steady state) programs.

The NYISO study for the steady state extreme event analysis concludes that most contingencies show no cascading for all steady state base and sensitivity cases. However, some contingencies cause voltage violations, significant voltage drops, and/or thermal overloads over the Short-Term Emergency (STE) rating on the transmission system. In addition, the NYISO concluded that, for stability Extreme Event analysis, most extreme contingencies evaluated converge, are stable and damped, and do not cascade. For some events, voltage recovery issues are observed but they are local to the contingency event.

For these extreme events, the NYISO further evaluated possible actions designed to reduce the likelihood or mitigate the consequences and adverse impacts of these events, which could be utilized in the future expansion of the transmission system.

3.5. Transient Assessment

There was no Transient Assessment performed as part of 2021 LTP. Transient Assessment is performed as major changes occur in the topography of the Con Edison transmission infrastructure to ensure that electrical equipment (e.g., circuit breakers, transformers) are protected against transient overvoltage and harmful resonance conditions caused by switching operations and/or potential contingency events.

4. Non-Firm Plans[8]

The CLCPA mandates the transformation of the New York State's energy supply portfolio. Integration of such large quantities of clean energy resources to local transmission and distribution facilities will require CECONY to determine how to accommodate such resources and deliver the power to loads through the implementation of local transmission system expansion projects. CECONY is preparing a portfolio of solutions to enable New York State's clean energy goals by acting on the following focus areas:

4.1. Voltage Support

An important aspect of grid management is ensuring the overall system maintains a narrow range of voltage to provide for the overall integrity and health of the grid. The transition from base load fossil fuel power plants that provide continuous generation to renewable resources that are intermittent, and at times energy limited, adds complexity to the task of maintaining overall grid voltage requirements. CECONY's initial studies have identified the potential for transient voltage response issues when additional fossil fuel fired generation located in CECONY's service territory retires or becomes seasonally unavailable. To address the transient voltage response violations, CECONY is in the early stages of integrating a dynamic voltage support facility – a STATCOM on its 345 kV system – to regulate voltage for the grid in transition.

[8] The New York Public Service Commission (NYPSC) is considering local transmission needs driven by the Public Policy Requirements of the CLCPA, and solutions to address them, in Case 20-E-0197 – Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act. The plans described below are conceptual only. CECONY will update its LTP to add a specific project as it becomes firm when the NYPSC has approved the project for cost recovery.

4.2. Expanding Interconnections for Renewable Generation Capacity

To achieve CLCPA requirements of 9,000 MW of offshore wind (OSW) in New York by 2035, the OSW will need to connect to New York City and/or Long Island. CECONY identified a plan to accommodate the injection of OSW into its service territory, considering local transmission constraints.

Brooklyn Clean Energy Hub: CECONY's plan outlines a make-ready Brooklyn Clean Energy Hub that will provide cost-effective interconnection for clean energy supplies such as Offshore Wind (OSW) to be directly connected to the system while simultaneously addressing local system constraints. The Brooklyn Clean Energy Hub will enable up to 6,000 MW of new large-scale resource interconnections and could be placed in commercial operation by Summer 2027.

An important value the Brooklyn Clean Energy Hub is that it will provide "on-ramps" and clearer signals to clean energy developers, such as OSW developers, on the optimal places to interconnect in New York City, improving on the current interconnection process to efficiently establish optimal interconnection locations. Reliance exclusively on the current process often results in delays due to the need to restudy points of interconnection and could ultimately increase the costs of reaching the CLCPA OSW goal.

Additional Energy Hubs: CECONY is in the early stages of designing other additional Clean Energy Hubs that would prime the electric system to meet both the needs of the CLCPA 9,000 MW OSW requirement and stand ready to accommodate future clean energy injections, including HVDC connections.

One of the Clean Energy Hubs could provide enhanced resiliency in the regions of Brooklyn and Queens, creating new connections that will support future area stations to supply expected electrification of load. The other Clean Energy Hub, potentially in Manhattan, could create interconnections to accommodate up to 1,500 MW, while simultaneously transferring load from other constrained TLAs. This enables renewable resources to access unconstrained load in decongested TLAs and reduces the load's dependency on fossil fuel plants to maintain system reliability.

CECONY's Clean Energy Hubs could provide direct connections to our system, giving clear and important information that developers can use to develop viable bids for submission into the State's OSW solicitations. In this way, the Clean Energy Hubs can significantly enhance both the competitiveness and success of future OSW solicitations, thereby facilitating the timely achievement of the State's OSW goals.

4.3. Energy Storage Hubs

In addition to directing the interconnection of large renewable projects through the Clean Energy Hubs, CECONY is planning to enable interconnections for energy storage with the goal of reducing interconnection costs and providing greater certainty to developers.

CECONY is in the early stages of conceptually designing Energy Storage Hubs, at least one within NYC (Zone J) and another in its northern service area (Zone H or I). Like wind developers, energy storage developers need clear signals about the optimal places to interconnect in and around New York City. CECONY aims to proactively address these issues ahead of the NYISO interconnection process to achieve the following:

1. Directly contributing to meeting the CLCPA goal of 3,000 MW of energy storage by 2030
2. Increasing renewable energy consumption by storing potentially curtailed clean energy for subsequent use by customers
3. Augmenting grid services such as capacity, ancillary services, and voltage support

4.4. Additional Feeders into NYC

CECONY identified off-peak transmission constraints that may prevent the export of OSW into the upstate New York system at certain times of the year. These constraints, if not addressed, would limit OSW production as well as limit its delivery throughout the local and statewide electric system. CECONY identified three potential local, cost-effective feeders that will address the identified constraints. Each local feeder, located within CECONY service territory, will be rated at approximately 700 MW and will also allow upstate renewable resources access to downstate loads. This streamlined connection between upstate clean generation and downstate load effectively utilizes generation during peak and off-peak periods, allowing electricity to be both imported and exported during periods that would otherwise lead to curtailment.

4.5. Future Load Growth

CECONY has been successful in deploying a combination of traditional infrastructure construction and non-wires alternatives through the Brooklyn Queens Demand Management (BQDM) Program to defer the need to expand our existing transmission system. However, various indicators from demand forecasting and planning process implore CECONY to accelerate the development of new and upgraded substations to prime the system for future load growth in the wake of electrification.

Specifically, CECONY expects increases in customer heat and transportation electrification which would result in several local networks being faced with increasing overloads in ensuing years. To address reliability design criteria and build greater resiliency for various contingency events, as well as supporting CLCPA goals, CECONY is considering a number of substation expansions or upgrades over the term of the LTP. These substations will work in tandem with the planned Clean Energy Hubs, enabling renewable energy supply to access local loads, as well as reduce dependency on local fossil fuel plants.

5. Conclusions

Consolidated Edison Company of New York (CECONY) conducted its 2021 Local Transmission Planning Process (LTPP) for its own Transmission District. The following is CECONY's conclusion as it relates to its Local Transmission Plan (LTP) for years 2021 through 2030.

> *2021 Local Transmission Plan Findings:*
>
> The 2021 CECONY's Local Transmission Plan (LTP) does not identify any transmission reliability needs in CECONY's Transmission District under the assumptions established for this assessment over the 10-years planning horizon (years 2021 through 2030).

Due to fast moving changes to projected transmission system topology and generation mix, including changes in load behavior and its associated forecast, the Local Transmission Plan (LTP) is expected to be updated more frequently.

Appendix

New York City 345/138 kV Transmission Load Area (TLA)

The New York City 345/138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal, voltage and stability limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is the loss of the 345 kV feeder Q11 (Mott Haven – Rainey). The second level controlling contingency for this TLA is Ravenswood 3.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

West 49th Street 345 kV Transmission Load Area (TLA)

The West 49th Street 345 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is loss of the 345kV feeder M51 (Sprain Brook – West 49th Street). The second level controlling contingency for this TLA is loss of the 345 kV feeder M52 (Sprain Brook – West 49th Street).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

East 13th Street 138 kV Transmission Load Area (TLA)

The East 13th Street 138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is the loss of the 345 kV feeder 46 (East 13th Street – Farragut) with and associated 345/138 kV feeder 37372 (East 13th Street 345 kV – East 13th Street 138 kV). The second level controlling contingency for this TLA is the loss of the 345 kV feeder Q35M (East 13th Street – Astoria Annex) with an associated 345/138 kV feeder 37376 (East 13th Street 345 kV – East 13th Street 138 kV).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Astoria East/Corona 138 kV Transmission Load Area (TLA)

The Astoria East/Corona 138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is Astoria Energy I. The second level controlling contingency for this TLA is the loss of feeder 34901 and Astoria 2.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Astoria West/Queensbridge 138 kV Transmission Load Area (TLA)

The Astoria West/Queensbridge 138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is the loss of NYPA CC1/CC2. The second level controlling contingency for this TLA is loss of Astoria 5.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Vernon/Queensbridge 138 kV Transmission Load Area (TLA)

The Vernon/Queensbridge 138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The first level controlling contingency for this TLA is the loss of Ravenswood 1. The second level controlling contingency for this TLA is loss of Ravenswood 2.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

East River 138 kV Transmission Load Area (TLA)

The East River 138 kV Transmission Load Area (TLA) is designed for second contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls. In addition, after the second contingency has occurred, the system must be returned to within its normal state limits using all available operating reserves and system controls (N-1/-1/-0).

The controlling contingency for this TLA is the failure of breaker BT 6-7 at East River 69 kV substation resulting in the loss of East River 6 and East River 7 (single event: N-1/-0). Other N-1/-1/-0 contingencies can be mitigated by the utilization of placing an Emergency Tie feeder 44372 in-service.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied, and the system was returned to within its Normal state limits (N-1/-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Millwood/Buchanan 138 kV Transmission Load Area (TLA)

The Millwood/Buchannan 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of 345/138 kV transformer TA2 (Millwood 345 kV – Millwood 138 kV). The second level controlling contingency for this TLA is the loss of 345/138 kV transformer TA5 (Buchanan North 345 kV – Millwood 138 kV).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Eastview 138 kV Transmission Load Area (TLA)

The Eastview 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. In addition, the system must be able to be returned to within its normal state limits using all available operating reserves and system controls (N-1/-0).

The first level controlling contingency for this TLA is the Loss of Common Tower, transformers 1N and 1S and 345 kV feeders W78, W85, W64, and W99.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Dunwoodie North/Sherman Creek 138 kV Transmission Load Area (TLA)

The Dunwoodie North/Sherman Creek 138kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of 345 kV feeder M29 (Sprain Brook – Academy). The second level controlling contingency for this TLA is loss of 345/138 kV feeder W74 (Dunwoodie 345 kV – Dunwoodie North 138 kV).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Dunwoodie South kV Transmission Load Area (TLA)

The Dunwoodie South 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of 345 kV feeder W73 (Dunwoodie 345 kV – Dunwoodie South). The second level controlling contingency for this TLA is loss of 345 kV feeder 99942 (Sprain Brook 345 kV – Dunwoodie South 138 kV).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

The Bronx 138 kV Transmission Load Area (TLA)

The Bronx 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of 345 kV feeder M29 (Sprain Brook – Academy). The second level controlling contingency for this TLA is the loss of the 345 kV feeder X28 (Sprain Brook – Tremont).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system.

In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Eastern Queens 138 kV Transmission Load Area (TLA)

The Eastern Queens 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is Astoria Energy I. The second level controlling contingency for this TLA is the loss of feeder 34901 and Astoria 2.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Brooklyn/Queens 138 kV Transmission Load Area (TLA)

The Brooklyn Queens 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of NYPA CC1/CC2. The second level controlling contingency for this TLA is loss of Astoria 5.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Corona/Jamaica 138 kV Transmission Load Area (TLA)

The Corona/Jamaica 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The controlling contingency for this TLA is the loss of loss of 345 kV feeder Y50 (Dunwoodie – Shore Road); resulting in the loss of 300 MW wheeling service on 901L/M and 903 138 kV circuits. The second level controlling contingency for this TLA is the loss of the 138 kV feeder 701 (Hudson Avenue East – Jamaica).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Greenwood/Fox Hills 138 kV Transmission Load Area (TLA)

The Greenwood/Fox Hills 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The controlling contingency for this TLA is the failure of breaker 4S at Greenwood resulting in the loss of Gowanus GT 2 and 4, NYPA GT 5 and 6, and feeder 42231 (Gowanus – Greenwood); a single event (N-1/-0) which is more severe than other N-1/-1 contingencies which can be mitigated.

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system. In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.

Staten Island 138 kV Transmission Load Area (TLA)

The Staten Island 138 kV Transmission Load Area (TLA) is designed for first contingency. For the limiting scenario testing, applicable post-contingency thermal and voltage limits shall not be exceeded. Prior to testing for the second contingency, the system should be able to be returned to its normal state limits utilizing ten-minute operating reserves and system controls (N-1/-1).

The first level controlling contingency for this TLA is the loss of Arthur Kill 2. The second level controlling contingency for this TLA is loss of the 345/138 kV feeder 21191 (Fresh Kills 345 kV – Fresh Kills 138 kV).

Applicable immediate post-contingency thermal and voltage limits were not exceeded when the controlling (N-1) contingency was applied, and the local system was returned to within its Normal state limits (N-1/-0). Applicable immediate post contingency thermal and voltage limits were also not exceeded when the controlling (N-1/-1) contingency was applied and the system.

In addition, all local design contingencies were applied to the area in order to ascertain the list of controlling contingencies.