Expedited Deliverability Study 2024-01 Report

A Report by the New York Independent System Operator Interconnection Projects

For September 3, 2024, TPAS Recommendation
For September 12, 2024, OC Approval

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Executive Summary

The Expedited Deliverability Study (EDS) is a study conducted by the ISO or a third-party consultant, in accordance with the NYISO Open Access Transmission Tariff (OATT),[1] to determine the extent to which an existing or proposed facility satisfies the NYISO Deliverability Interconnection Standard (DIS) at its requested CRIS level without the need for System Deliverability Upgrades.

As described in more detail in Section 1 of this Report, the purpose of the EDS 2024-01 is to identify deliverable MW under the DIS. The DIS is designed to ensure that the proposed project (at the requested CRIS MW level) is deliverable throughout the New York Capacity Region where the project is interconnected or will interconnect, and also that the Developer of the project restores the transfer capability of any Other Interfaces degraded by its interconnection, as determined under the DIS.

This report summarizes the results of the EDS 2024-01 to be presented to the Transmission Planning Advisory Subcommittee (TPAS) and the Operating Committee (OC).

Below is a summary of the projects that comprise the EDS 2024-01 (EDS projects) and their respective CRIS requests.

Table 1: Expedited Deliverability Study 2024-01 Projects

PROJECT	Point of Interconnection	Zone	Requested Summer CRIS MW	UNIT TYPE	CTO
Q513 Orangeville	Stony Creek 230 kV Substation	C	10	ES	NYSEG
Q804 KCE NY 10	Erie 34.5 kV Substation	A	20	ES	NYSEG
Q1329 ELP Granby Solar II	Curtis ST. - Teall 115 kV Line #13	C	20	CSR (Solar+ES)	NM-NG
Hudson Transmission	W49th St 345KV Substation	J	660	DC	Con Ed
KCE NY 14, LLC	Manchester Substation – 13.8 kV	G	20	ES	CHGE
New Athens Unit 1, 2 & 3	Athens 345 kV substation	F	992[2]	CC	NM-NG
Pomona ESR	O&R's 13.2kV distribution circuit, which is fed from 138kV New Hempstead Substation	G	3	ES	ORU

[1] The EDS 2024-01 was performed in accordance with Sections 25.5.9.2.1 and 25.7.1.2 of Attachment S to the OATT. Effective May 2, 2024, the applicable tariff sections for the EDS are Sections 40.19.1 and 40.13.1.2 of Attachment HH to the OATT.

[2] New Athens Units 1, 2, & 3 have existing SUM CRIS of 945 MW. The EDS 2024-01 Study evaluated CRIS addition of 47 MW for a total of 992 MW. New Athens Units 1, 2, & 3 have existing WIN CRIS of 1193.6 MW

PROJECT	Point of Interconnection	Zone	Requested Summer CRIS MW	UNIT TYPE	CTO
Brigis 2	Glendale Substation	J	20	ES	Con Ed
Juniper Valley	Glendale 27 kV Substation	J	20	ES	Con Ed

EDS Study Conclusions

Rest of State (ROS) Capacity Regions:

All EDS 2024-01 Projects located in the ROS Capacity Region are deliverable at their requested CRIS levels.

Lower Hudson Valley (LHV) Capacity Region:

All EDS 2024-01 Projects located in the LHV Capacity Region are deliverable at their requested CRIS levels.

New York City (NYC) Capacity Region:

All EDS 2024-01 Projects located in the NYC Capacity Region pass the NYC deliverability Byways test at their requested CRIS levels.

1. Deliverability Study Methodology

This section describes the methodology of the EDS.

1.1 Background

The EDS 2024-01 was performed in accordance with the applicable rules and requirements set forth under Attachment S to the OATT.

The EDS is a study conducted by the ISO or a third-party consultant to determine the extent to which an existing or proposed facility satisfies the NYISO Deliverability Interconnection Standard at its requested CRIS level without the identification of System Deliverability Upgrades. The main purpose of the EDS is to determine deliverable MW of EDS participants.

In order to become eligible to enter the EDS 2024-01, a Developer had to satisfy each of the following requirements:

(1) elect to enter the EDS by providing notice to the ISO by the EDS start date;

(2) satisfy the data submission requirements set forth in Section 23.4.5.7.3.6 of the ISO Services Tariff required for Class Year Projects requesting CRIS in a Mitigated Capacity Zone and have such data submission deemed complete by the ISO by the EDS start date; and

(3) be in service or have completed one of the following, as applicable: a Class Year Study for ERIS, a System Impact Study under the Small Generator Interconnection Procedures, or a utility interconnection study if the facility is not subject to the ISO interconnection procedures.

Projects that satisfied the above eligibility requirements for the EDS became members of the EDS 2024-01 upon completion of an Expedited Deliverability Study Agreement, submission of the required deposit, and submission of required technical data.

1.2 Overview of EDS Deliverability Methodology

As noted above, the EDS evaluates the deliverability of the proposed capacity associated with the EDS Projects. If the EDS determines that any of the proposed capacity is not fully deliverable, the study will determine deliverable MW.

Deliverability is broadly defined in the OATT as the ability to deliver the aggregate of NYCA capacity resources to the aggregate of the NYCA load under summer peak load conditions. This is implemented by evaluating the deliverability of proposed projects within each of the four Capacity Regions in New York State: Rest-of-State (ROS – Zones A through F), Lower Hudson Valley (LHV – Zones G, H, I), New York City

(NYC – Zone J), and Long Island (LI – Zone K).

The EDS 2024-01 used the base case representation of the 2028 Summer peak system condition, with all CY23 participant projects requesting CRIS modeled in-service as well as EDS 2023-01 projects that were found deliverable were modeled in-service (Pre-EDS) and with all EDS 2024-01 projects (Post-EDS). All proposed EDS projects seeking CRIS were evaluated on an aggregate EDS basis; that is, all EDS 2024-01 projects were evaluated as a group. Deliverability was determined by simulating generation-to-generation shifts within that Capacity Region and between the adjacent Capacity Regions.

1.3 Tariff Sections Regarding the EDS Test Methodology

The Deliverability test methodology used to determine the deliverability of resources is contained in the NYISO OATT. The following are the specific sections of the OATT defining the modeling of the system and the test methodology applied to the analysis in EDS 2024-01:

- NYISO OATT, Attachment S, 25.5.5.9.2
- NYISO OATT, Attachment S, 25.7

1.4 Transfer Limits Assessments of Required for Determination of Deliverability

The Pre-EDS base case was based on the 2028 Summer peak system condition, and further conditioned for deliverability study purposes. The base case conditioning steps are described in **Section 2.2**.

The transfer limit calculations were performed on the Pre and Post EDS cases using the linear transfer simulation function of the TARA software. Generation-to-generation shifts were simulated from combinations of zones within the Capacity Region from the "upstream" generation of an interface to the "downstream" generation of that interface. Simulation of power transfer within each Capacity Region determined the ability of the network to deliver capacity from generation in one (or more) surplus zone(s) to another deficient zone(s) within that Capacity Region.

The facilities monitored in the deliverability analyses were consistent with those in the Installed Reserve Margin analyses and the Comprehensive System Planning Process, and the defined Highway[3] and Byway facilities.

In the actual transfer limit assessment, all transmission facilities within the NYISO were monitored. Contingencies tested in the transfer limit assessment included all "emergency transfer criteria" contingencies defined by the applicable Northeast Power Coordinating Council (NPCC) Criteria and New

[3] The list of Highway facilities is included as Appendix 1.

York State Reliability Council (NYSRC) Reliability Rules.

The concept of First Contingency Incremental Transfer Capability (FCITC) is used in the determination of deliverable capacity across Highway interfaces within the ROS Capacity Regions. The FCITC measures the amount of generation in the exporting zone that can be increased to load the interface to its transmission limit. It is the additional generation capacity that could be exported from a given zone(s) above the base case dispatch level.

All generators in the exporting zone(s) are uniformly increased (scaled) in proportion to their maximum power limits (Pmax) while all generators in the importing zone(s) are decreased uniformly in proportion to the difference between their initial generation dispatch level (Pgen) and their minimum power limits (Pmin). The FCITC and Highway transmission constraint(s) for the exporting zone(s) are noted for each export/import combination.

The net generation available[4] is compared to the FCITC Highway transmission constraint(s) for the exporting zone(s) transfer. If the net generation available upstream is greater than the calculated FCITC, that amount of generation above the FCITC is considered to be constrained or "bottled" capacity and may not be fully deliverable under all conditions.

If the net generation available upstream is less than the FCITC (that is, there is not sufficient available generation upstream to reach the transmission limit), the difference is an indication of the available "transfer capability" to accommodate additional generation resources in the upstream area.

[4] The "net generation available" in any defined exporting zone is the difference between the sum of the zonal generators' Pmax and the sum of the zonal generators' actual MW output (Pgen).

2. Expedited Deliverability Study Case Modeling and Assumptions

This section of the report describes the assumptions and base case conditioning steps of the Pre-EDS case for the EDS 2024-01.

2.1 Deliverability Study Assumption Matrix

The Deliverability Study baseline case setup utilized results from extensive NYISO studies and reports. The sources for the parameters used to create Pre-EDS case are summarized in Table 2.

Table 2: Parameters Established in other NYISO Studies and Reports

#	Parameter	Description	Reference
1	Installed Capacity Requirement	NYCA Installed Capacity Requirement to achieve LOLE less than 0.1 days per year, which is based on the Installed Reserve Margin (IRM) identified by the New York State Reliability Council (NYSRC) and accepted by the Commission	2023 NYSRC IRM report (for the 2023-2024 Capability Year)
2	RNA Emergency Transfer Limits	Emergency transfer limits on ROS interfaces corresponding to RNA study	Transfer limit from the 2023 RNA report used for the Interface limit
3	Locational Capacity Requirements	The Locational Capacity Requirements (LCR) for the NYC (Zone J) and Long Island (Zone K) Capacity Regions and for the G-J Locality	2023 NYISO LCR report (for the 2023-2024 Capability Year; approved by Operating Committee on January 23, 2023)
		Load model	
4	Peak Load Forecast	Study Capability Period peak demand forecast contained in the latest ISO's Load and Capacity Data report (i.e., "Gold Book")	2028 Summer peak load conditions from 2023 Gold Book Table I-3a
5	Impact of Load Forecast Uncertainty	The impact of IRM due to uncertainty relative to forecasting NYCA loads	2023 NYSRC IRM report
		Generator model	
6	Existing CRIS generators, and all projects with Unforced Capacity Deliverability Rights	Existing Capacity Resource Interconnection Service ("CRIS") generators and transmission projects in-service on the date of the latest ISO's Load and Capacity Data report	
7	Planned generation projects or Merchant Transmission Facilities	The project that has accepted either (a) Deliverable MW or (b) a System Deliverability Upgrade cost allocation and provided cash or posted required security pursuant to OATT Attachment S	2023 Gold Book Table III-2, IV-1, IV-2, IV-3, IV-4 and IV-5
8	UCAP Derate Factor (UCDF)	Convert ICAP to Unforced Capacity (UCAP) based on derated generator capacity incorporating availability	2023 NYSRC IRM report and 2023 NYISO LCR report
9	Inactive CRIS	CRIS for units with inactive CRIS are modeled unless the CRIS rights will expire prior to the scheduled completion of the applicable Expedited Deliverability Study, or the CRIS is associated with a Retired facility that cannot transfer such rights prior to CRIS expiration.	Generator units deactivated before April 1, 2021 and CRIS that will expire prior to the scheduled completion of the EDS 2024-01 are not modeled as existing CRIS.
		Transmission model	
10	Existing transmission facilities	Identified as existing in the ISO's Load and Capacity Data report	
11	Firm plans for changes to transmission facilities by TOs	Planned changes of facilities in the latest ISO's Load and Capacity Data report	
12	System Upgrade Facilities and System Deliverability Upgrades	Facilities associated with planned projects identified in (7) above, except that System Deliverability Upgrades will only be modeled if the construction is triggered	2023 Gold Book and updates consistent with CY23 MIS cases

#	Parameter	Description	Reference
Import/Export model			
13	External System Import/Export	NYCA scheduled imports from HQ/PJM/ISO-NE/IESO	NYISO Tariffs - OATT Section 25, Attachment S

2.2 Developing the Expedited Deliverability Study Base Case

The EDS cases are a five-year look-ahead of the New York Control Area (NYCA) system. The Pre-EDS 2024-01 case is based on the 2028 Summer peak system condition (which originated from the NYISO FERC Form No. 715 2028 Summer case (the FERC Case)) and is then further customized as part of the DIS to meet specific Attachment S requirements for the baseline system.

The case conditioning incorporates the parameters listed in Section 2.1:

- Load modeling: load forecast uncertainty is applied to the MW forecasted load. Details are included in Section 2.2.1.
- Generator modeling: only generators with CRIS rights listed in Table III-2 of the 2023 GB and proposed generators with CRIS that accepted their cost allocation in a prior Class Year are modeled in-service. Details are included in Section 2.2.2.
- Import/Export models: pursuant to Attachment S, Section 25.7.8.2, external imports and exports into NYCA are modeled in the cases. Details are included in Section 2.2.3.

The transmission system model in the Pre-EDS case is the same as that in the ATBA MIS study cases.

Load Modeling

The Load forecast used in the Pre-EDS is the coincident 2028 Summer firm peak load before reductions for emergency demand response programs in the RNA study. Load Forecast Uncertainty (LFU) is applied to each of the 4 (four) Capacity Regions:

ROS	10.62%
LHV	7.80%
NYC	5.60%
LI	8.20%

NYCA CRIS Modeling

The initial CRIS capability and available capacity resources were determined as follows:

- CRIS (MW) capability of existing units, as listed in the 2023 Gold Book, proposed generating units

with CRIS that accepted their cost allocation in a prior Class Year (Class Year 2019) and requested CRIS in Class Year 2023, were modeled in the EDS.

- CRIS (MW) capability of units that were found deliverable in EDS 2023-01 were modeled in the EDS.
- CRIS Expiration: Units that are CRIS-inactive for more than three years lose their CRIS rights pursuant to Section 25.9.3.1 of Attachment S of the OATT. The CRIS for a facility is modeled in the EDS unless that CRIS will expire prior to the scheduled completion of the EDS, or the CRIS is associated with a Retired facility that cannot transfer such rights prior to CRIS expiration. For EDS, CRIS for CRIS-inactive units that have or are scheduled to lose CRIS during the EDS is thus not modeled in the Deliverability case. No inactive CRIS was identified that would have expired prior to the scheduled completion of the EDS.
- CRIS updates included CRIS increases approved by the NYISO after the release of 2023 Gold Book.
- The Pmax data for each respective resource within the Pre-EDS base case and Post-EDS power flow representation is the CRIS value derated by the applicable equivalent forced outage rate below. This step incorporates the ICAP/ UCAP translation of different generators resources and Capacity Regions.
- Derates for intermittent resources are applied to the specific type of generation resource. For the EDS 2024-01, the derates for intermittent resources were as follows:
    - Small hydro 52.59%
    - Large hydro 1.28%
    - Land-based Wind 84.46%
    - Landfill Gas 30.57%
    - Solar 65.61%
    - Offshore Wind 65.00%
- Derates for non-intermittent resources, including Energy Storage resources, are applied to the aggregate of all remaining generation ("Uniform Capacity") within the Capacity Region. These are the ICAP/UCAP translation factors for each Capacity Region consistent with the applicable NYSRC Installed Reserve Margin study. For the EDS 2024-01, the derates for non-intermittent resources in the respective Capacity Region were as follows:
    - Rest of State 3.32%
    - Lower Hudson Valley (LHV) 10.77%

- New York City 6.78%
- Long Island 8.15%

- The "derated capacity," or Pmax, is available to supply load and losses within each Capacity Region and adjacent Capacity Region(s). When power transfers are simulated, all generation in the exporting area is uniformly increased in proportion to its Pmax.
- Table 3 and Table 4 summarize the Resource Capacity and Capacity Derates for the Pre-EDS base case.

Table 3: Pre-EDS – Summary of Capacity by Resource Type

Zone	DC	Landfill Gas	Large Hydro	Offshore Wind	Small Hydro	Solar	Uniform	Wind	Pre-EDS Grand Total CRIS
A	0	18.4	2700	0	3.1	2165	887.9	779	6553.4
B	0	11.2	0	0	54.8	1145	716.8	200.1	2127.9
C	0	42.5	0	0	72.2	2224.2	6098	1553.2	9990.1
D	0	6.4	856	0	59.6	704.9	335.9	1434	3396.8
E	0	11.2	0	0	398.1	1668.9	296.6	952.2	3327
F	0	14.1	1165.1	0	313.4	1170.5	3037.7	0	5700.8
ROS	**0**	**103.8**	**4721.1**	**0**	**901.2**	**9078.5**	**11372.9**	**4918.5**	**31096**
G	0	0	0	0	74	173.2	5536.4	0	5783.6
H	0	0	0	0	0	0	1509.9	0	1509.9
I	0	0	0	0	0	0	40	0	40
LHV	**0**	**0**	**0**	**0**	**74**	**173.2**	**7086.3**	**0**	**7333.5**
J	**2550**	**0**	**0**	**3616**	**0**	**0**	**11161.5**	**0**	**17327.5**
K	**0**	**0**	**0**	**2320**	**0**	**90.4**	**6744.3**	**0**	**9154.7**
Grand Total	**2550**	**103.8**	**4721.1**	**5936**	**975.2**	**9342.1**	**36365**	**4918.5**	**64911.7**

Total CRIS Capacity represents the CRIS capacity basis for the EDS case.

Uniform Capacity is the CRIS capacity related to any facility that is not in a technology-specific group.

Table 4: Pre-EDS – Summary of Capacity Derates by Resource Type

Zone	DC	Landfill Gas	Large Hydro	Offshore Wind	Small Hydro	Solar	Uniform	Wind	Pre-EDS Grand Total UCAP
A	0	12.8	2665.4	0	1.5	744.6	859.03	121	4404.33
B	0	7.8	0	0	26	393.8	693	31.1	1151.7
C	0	29.5	0	0	34.2	764.925	5895.5	241.4	6965.525
D	0	4.4	845	0	28.3	243.637	324.7	222.8	1668.837
E	0	7.8	0	0	188.7	573.9425	286.8	148	1205.2425
F	0	9.8	1150.2	0	148.6	402.5	2936.8	0	4647.9
ROS	**0**	**72.1**	**4660.7**	**0**	**427.3**	**3123.405**	**10995.83**	**764.3**	**20043.53**
G	0	0	0	0	35.1	59.6	4940.1	0	5034.8
H	0	0	0	0	0	0	1347.3	0	1347.3
I	0	0	0	0	0	0	35.7	0	35.7
LHV	**0**	**0**	**0**	**0**	**35.1**	**59.6**	**6323.1**	**0**	**6417.8**
J	**2550**	**0**	**0**	**1265.6**	**0**	**0**	**10404.8**	**0**	**14220.4**
K	**0**	**0**	**0**	**812**	**0**	**31.1**	**6194.6**	**0**	**7037.7**
Grand Total	**2550**	**72.1**	**4660.7**	**2077.6**	**462.3**	**3214.105**	**33918.33**	**764.3**	**47719.43**

Each Derate column is the amount of capacity reduction based on the application of the derate factor to the represented capacity.

Uniform Capacity Derate uses the specific ICAP/UCAP translation factor for the Capacity Region; hydro and wind use the technology-specific derate factors.

Total All Capacity Derates is the sum of category derates by zone.

External System Imports Modeling

The initial generation and interchange schedules for the NYCA and the four New York Capacity Regions[5] were determined as follows:

External Generation Source

1. Inter-Area external interchange schedules include the following grandfathered long-term firm power transactions for the case year (2028):

    a. External CRIS Right: Quebec (via Chateauguay) to NY: 1190 MW

    b. Existing Transmission Capacity for Native Load (ETCNL):
    PJM to NYSEG: 1080 MW

[5] Schedules representing short-term external ICAP are not modeled in this assessment; deliverability of external ICAP is determined during the annual process of setting import rights.

Generating capacity associated with firm export commitments are represented as follows:

c. NYPA to AMP-Ohio, PA-RECs 183 MW

d. NYPA to ISO-NE (Vermont) 84MW

2. External firm capacity import rights:

   a. ISO-NE to NY 0 MW

   b. Ontario (IESO) schedule 0 MW

3. Generator reactive (MVAr) capabilities as determined by appropriate NYISO procedures, NPCC Criteria, and NERC Standards requirements.

4. Wheeling contracts:

   a. ROS to NYC via ABC/JK through PJM 0 MW

   b. ROS to NYC via Lake Success/Valley Stream through LIPA 287 MW

   c. ROS to LIPA via Northport Norwalk Cable through ISO-NE 0 MW

The total external generation resources including items 1 to 5, are summarized in Table 5.

Table 5: Summary of External Generation Resources (MW)

Capacity Regions / External Regions	ROS Import (A-F)	LHV Import (G-I)	NYC Import (J)	LI Import (K)	NYCA
Ontario	0	0	0	0	0
HQ + EDR	1,190[6]	0	0	0	1,190
PJM	491	343	63	0	897[7]
ISO NE	-84	0	0	0	-84
Total External Generation Source	1598	0	0	0	2,003

ROS and LHV Direct MW Transfer

Actual base case interchange schedules between New York Capacity Regions were consistent with the Installed Reserve Margin and the Locational Capacity Requirements:

[6] ROS import from HQ is the sum of External CRIS right 1,110 MW via Chateauguay and 80 MW External-to-ROS Deliverability Rights associated with the Cedar Rapids Transmission Project.

[7] NYCA import from PJM is the sum of ETCNL 1,080 MW into NYCA and 183 MW NYPA export to AMP-Ohio and PA-RECs (1,080-183 = 897 MW).

- ROS (A-F) supply to New York City through LHV (G-I): 2,831 MW
- ROS (A-F) supply to Long Island through LHV (G-I): 492 MW
  (combined with 287 MW wheeling contract)
- LHV (G-I) supply to New York City: 300 MW

Capacity Deliverability Rights (UDR)

The following transmission projects with CRIS were represented at their respective Unforced Capacity Deliverability Rights (UDR) capacity from the external Area into the respective NYISO Zone.

- Linden VFT to New York City 315 MW
- Cross-Sound Cable to Long Island 330 MW
- Neptune HVDC to Long Island 660 MW
- Hudson Transmission Project to New York City 0 MW
- Cedar Rapids Transmission Project 80 MW

The total import of each Capacity Region is summarized in Table 6. As derived from the external resources, Table 7 and Table 8 detail the NY-PJM scheduled flows.

Table 6: Summary of External Resources into Capacity Regions (MW)

From \ To	ROS Import (A-F)	LHV Import (G-I)	NYC Import (J)	LI Import (K)
Total External Source	1598	343	63	0
ROS direct MW transfer	0	608	2,832	779
LHV direct MW transfer	0	0	300	0
Total UDR	0	0	315	990

Table 7: PJM – New York Scheduled Interchange and Wheels

PJM – New York Scheduled Interchange and Wheels	MW
ETCNL (PJM to ROS)	1080
NYPA Exports (from ROS)	-183
ConEd /PSE&G Wheel:	
ROS to PJM via LHV (ROS to LHV, LHV to PJM via the J&K tie-lines)	0
PJM to NYC (via the ABC tie-lines)	0
Wheel for RECO Load:	

PJM – New York Scheduled Interchange and Wheels	MW
PJM to ROS and LHV (20% PJM to ROS, ROS to LHV, 80% PJM to LHV)	394
LHV to PJM (RECO Load)	-394
PJM to NY Net Interchange Schedule via the AC Tie-lines (1080 – 183)	897
PJM to A-I Net Interchange Schedule (1080 - 183)	897

Table 8: PJM – New York Scheduled Flows

PJM – New York Scheduled Flows	MW
PJM to ROS (A – F):	
46% of PJM to NY Net Interchange (0.46 * 897)	412
20% of RECO Load (0.20 * 410)	78
Total Scheduled Flow to ROS via the Zones A and C tie-lines	490
PJM to LHV (to Zone G):	
32% of PJM to NY Net Interchange via 5018 tie (0.32 * 897)	287
80% of RECO Load via the 5018 tie (0.80 * 410)	315
Total scheduled flow on the 5018 tie	602
J&K ties (0 MW Wheel and 15% of PJM to NY Net Interchange) (0.15 * 897)	134
RECO Load delivered from LHV	-394
Total Scheduled Flow to LHV via the Zone G tie-lines	342
PJM to NYC (to Zone J)	
ABC ties (0 MW Wheel and 7% of PJM to NY Net Interchange, B&C out) (0.07 * 897)	62

2.3 Balancing Generation and Load

This step balances the supply of resources and the demand of loads and losses. All CRIS generation within each Capacity Region is placed-in-service and scaled proportional to the ratio of its Pmax to the sum of the Pmax in the respective exporting or importing zone(s) or Capacity Region. The actual generation is proportionally scaled (up or down) to match the demand.[8]

Phase Angle Regulators (PARs) controlling external tie lines are set consistent with NYISO Service Tariff, Attachment M-1, NYISO-PJM Joint Operating Agreement, and applicable operating procedures and

[8] Demands include load (including load forecast uncertainty), transmission losses, and external schedule commitments

agreements.[9]

The UDRs are converted into proxy generators while the amount of external resources remains the same.

2.4 Creating the EDS Case

All rules apply to the 2028 power flow representation of transmission system, and resource capacity additions in the Pre-EDS base case are also applicable to the Post-EDS base case for the Deliverability Study.

The requested CRIS and resulting UCAP of the EDS 2024-01 projects are included in Table 9.

Table 9: EDS 2024-01 Projects with UCAP

PROJECT	Point of Interconnection	Zone	Requested Summer CRIS MW	UCAP MW	UNIT TYPE	CTO
Q 513 Orangeville	Stony Creek 230 kV Substation	C	10	9.9	ES	NYSEG
Q804 KCE NY 10	Erie 34.5 kV Substation	A	20	19.9	ES	NYSEG
Q1329 ELP Granby Solar II	Curtis ST. - Teall 115 kV Line #13	C	20	6.8	CSR (Solar+ES)	NM-NG
Hudson Transmission	W49th St 345KV Substation	J	660	599.8	DC	Con Ed
KCE NY 14, LLC	Manchester Substation – 13.8 kV	G	20	17.8	ES	CHGE
New Athens Unit 1, 2 & 3	Athen 345 kV substation	F	992[2]	991.6	CC	NM-NG
Pomona ESR	O&R's 13.2kV distribution circuit, which is fed from 138kV New Hempstead Substation	G	3	2.6	ES	ORU
Brigis 2	Glendale Substation	J	20	18.1	ES	Con Ed
Juniper Valley	Glendale 27 kV Substation	J	20	18.1	ES	Con Ed

[9] The MW schedules of the PARs are included in Appendix B.

All EDS 2024-01 projects were added to the Pre-EDS case and evaluated in each Capacity Region. The level of CRIS requested was derated to calculate the Pmax (UCAP) by applying ICAP to UCAP translation factors (derates). The Levelized generation dispatch within each of the affected Capacity Regions was adjusted to reflect the additional capacity represented by the EDS 2024-01 projects.

In the Post-EDS case, the representational values for existing capacity resources (CRIS, ICAP, UCAP, and Pmax) were the same as for the Pre-EDS case with the EDS 2024-01 projects added.

Table 10 and Table 11 summarize the Resource Capacity and Capacity Derates for the Post-EDS base case.

Table 10: Post-EDS – Summary of Capacity by Resource Type (MW)

Zone	DC	Landfill Gas	Large Hydro	Offshore Wind	Small Hydro	Solar	Uniform	Wind	Post-EDS Grand Total CRIS
A	0	18.4	2700	0	3.1	2165	907.9	779	6573.4
B	0	11.2	0	0	54.8	1145	716.8	200.1	2127.9
C	0	42.5	0	0	72.2	2224.2	6128	1553.2	10020.1
D	0	6.4	856	0	59.6	704.9	335.9	1434	3396.8
E	0	11.2	0	0	398.1	1668.9	296.6	952.2	3327
F	0	14.1	1165.1	0	313.4	1170.5	4029.7	0	6692.8
ROS	**0**	**103.8**	**4721.1**	**0**	**901.2**	**9078.5**	**12414.9**	**4918.5**	**32138**
G	0	0	0	0	74	173.2	5559.4	0	5806.6
H	0	0	0	0	0	0	1509.9	0	1509.9
I	0	0	0	0	0	0	40	0	40
LHV	**0**	**0**	**0**	**0**	**74**	**173.2**	**7109.3**	**0**	**7333.5**
J	**3210**	**0**	**0**	**3616**	**0**	**0**	**11201.5**	**0**	**17327.5**
K	**0**	**0**	**0**	**2320**	**0**	**90.4**	**6744.3**	**0**	**9154.7**
Grand Total	**3210**	**103.8**	**4721.1**	**5936**	**975.2**	**9342.1**	**37470**	**4918.5**	**65953.7**

Table 11: Post-EDS – Summary of Capacity Derates by Resource Type (MW)

Zone	DC	Landfill Gas	Large Hydro	Offshore Wind	Small Hydro	Solar	Uniform	Wind	Post-EDS Grand Total UCAP
A	0	12.8	2665.4	0	1.5	744.6	879.023	121	4424.323
B	0	7.8	0	0	26	393.8	693	31.1	1151.7
C	0	29.5	0	0	34.2	764.925	5925.5	241.4	6995.525
D	0	4.4	845	0	28.3	243.637	324.7	222.8	1668.837
E	0	7.8	0	0	188.7	573.9425	286.8	148	1205.2425
F	0	9.8	1150.2	0	148.6	402.5	3928.47	0	5639.57
ROS	**0**	**72.1**	**4660.7**	**0**	**427.3**	**3123.405**	**12037.49**	**764.3**	**21085.2**
G	0	0	0	0	35.1	59.6	4960.622	0	5055.322
H	0	0	0	0	0	0	1347.3	0	1347.3
I	0	0	0	0	0	0	35.7	0	35.7
LHV	**0**	**0**	**0**	**0**	**35.1**	**59.6**	**6343.1**	**0**	**6438.322**
J	**3149.808**	**0**	**0**	**1265.6**	**0**	**0**	**10441.15**	**0**	**14220.4**
K	**0**	**0**	**0**	**812**	**0**	**31.1**	**6194.6**	**0**	**7037.7**
Grand Total	**3149.808**	**72.1**	**4660.7**	**2077.6**	**462.3**	**3214.105**	**35016.35**	**764.3**	**48781.62**

3. Expedited Deliverability Study 2024-01 Results

In this EDS 2024-01, the following Deliverability tests were performed to evaluate the impact to the transmission system from the EDS 2024-01 projects:

1. Highway Deliverability Test for ROS:
    a. Highway Interfaces transfer capability "No Harm" assessment: results are summarized in Section 3.1.
    b. "Regular" Capacity Deliverability within the ROS Capacity Region assessment: results are summarized in Section 3.2.
2. ROS Byway deliverability assessment: results are summarized in Section 3.3.
3. Other Interfaces transfer capability "No Harm" assessment: results are summarized in Section 3.4.
4. NYC Byway deliverability assessment: results are summarized in Section 3.5.

3.1 Highway Interfaces Transfer Capability "No Harm" Assessment

Transfer capability for the ROS & LHV Highway Interfaces was evaluated from west-to-east and north-to-south by exporting from one (or more) zones in upstate NY to the remaining zone(s) within the ROS & LHV Capacity Region.

A summary of these interface transfer limits for the Pre and Post EDS cases are presented in Table 12.

Table 12: Highway Interfaces "No Harm" Study Results

EDS 2024-1 Highway Interfaces "No Harm" Test								
Interface	**Exporting Zone**	**Importing Zone**	**RNA Limit**	**2% of Pre-EDS Total Transfer Limit**	**Pre-EDS Total Transfer Limit**	**Post-EDS Total Transfer Limit**	**Impact (Post-EDS minus Pre-EDS)**	**Constraint**
West Central	AB	CDEF	1500	27.896	1394.8	1412.9	18.1	(1)
Dysinger East	A	BCDEF	2150	46.45	2322.5	2304.8	-17.7	(2)
Volney-East	ABC	DEF	5650	112.31	5615.5	5799.1	183.6	(3)
Total-East	ABCDE	F	4260	178.598	8929.9	8904	-25.9	(4)
UPNY -CONED	G	HI	6675	141.78	7089	7253.4	164.4	(5)

Notes:

(1)	146512 Q571POI	115	135861 MORTIMER	115	1	@STE	153	MVA L/O	135874 SWDN-113	115	146512 Q571POI	115 1
(2)	147834 NIAG 345	345	148770 DYSINGER	345	1	@STE	1685	MVA L/O	NIAG - DYSINGER ND2			
(3)	130757 WATRC345	345	130755 OAKDL345	345	1	@STE	717	MVA L/O	OAKDLE - CLARKCRNS 345 36			
(4)	137200 EDIC	345	148964 GORDON ROAD	345	1	@Norm	1331	MVA @	Base Case			
(5)	126263 BUCHANAN S	345	147832 IP3 345	345	1	@Norm	1566	MVA @	Base Case			

Discussions

1. For the West Central interface, the constraint, Q571 POI – Mortimer 115 kV ckt 1 for the loss of SWDN-113 – Q571 POI 115 kV ckt 1, was identified in Pre-EDS 2024-01 and Post-EDS 2024-01 cases. Based on the results, the transfer limit on this interface increased by 18.1 MW. Hence , The 2024-01 projects passed the Highway Interfaces "no harm" test for Volney East Interface.
2. For the Dysinger East interface, the constraint, Niagara – Dysinger 345 kV ckt 1 for the loss of Niagara – Dysinger ND2 line, was identified in Pre-EDS 2024-01 and Post-EDS 2024-01 cases. Based on the results, the transfer limit on this interface decreased by 17.7 MW. Since this is within the de-minimus level (the lesser of 25 MW or 2% of the base transfer limit), EDS 2024-01 projects passed the Highway Interfaces "no harm" test for Dysinger East Interface.
3. For the Volney East interface, the constraint, Watercure – Oakdale 345 kV ckt 1 for the loss of Oakdale – Clarks Corners 345 kV ckt 1, was identified in Pre-EDS 2024-01 and Post-EDS 2024-01 cases. Based on the results, the transfer limit on this interface increased by 183MW. Hence, EDS 2024-01 projects passed the Highway Interfaces "no harm" test for Volney East Interface.
4. For the Total East interface, the constraint, Edic – Gordon Rd 345 kV ckt 1 pre-contingency, was identified in Pre-EDS 2024-01 and Post-EDS 2024-01 cases. Based on the results, there was a degradation of 25.9 MW on this interface transfer level. However, since this is above the RNA Limit of the interface, EDS 2024-01 projects passed the Highway Interfaces "no harm" test for Total East Interface.
5. For the UPNY-ConEd interface, the constraint, Buchanan South to IP3 345kV Ckt 1 pre-contingency, was identified in Pre-EDS 2024-01 and Post-EDS 2024-01 cases. Based on the results, there was a increase of 164.4 MW on this interface transfer level. Hence the EDS 2024-01 projects passed the Highway Interfaces "no harm" test for UPNY-ConEd Interface.

Conclusion – Highway Interface "No Harm" Results

All EDS 2024-01 projects in ROS passed the Highway "No Harm" Test.

3.2 Highway Interface Deliverability within the ROS & LHV Capacity Region Assessment

The deliverability tests within the ROS Capacity Region were evaluated from west-to-east and north-to-south by exporting from one (or more) zones in upstate NY to the remaining zone(s) within the ROS Capacity Region, similar to the Highway Interface Capability assessment.

Additional Transmission Capacity or Bottled Generation Capacity was calculated by FCITC less the amount of net available capacity. A summary of these interface transfers for the Post-EDS and Pre-EDS cases are presented in Table 13.

Table 13: Highway Interface "Regular" Capacity Deliverability Study Results (MW)

EDS 2024-1 Highways Capacity Deliverability Test							
Capacity Zone	Interface	Exporting Zone(s)	Importing Zone(s)	Net Available Capacity (MW) A	FCITC (export limit) (MW) B	Constraint	Deliverable (+) Generation Capacity C=B-A
Pre EDS							
ROS	**West Central**	AB	CDEF	657.9	1967.2	1	1309.3
	Dysinger East	A	BCDEF	504.7	1782	2	1277.3
	Volney-East	ABC	DEF	1500	2673	3	1173
	Total-East	ABCDE	F	1775.7	5265	4	3489.3
	UPNY CONED	G	HI	2442.7	2672	5	229.3
Post EDS							
ROS	**West Central**	AB	CDEF	604	2023.2	1	1419.2
	Dysinger East	A	BCDEF	463.9	1780.9	2	1317
	Volney-East	ABC	DEF	1375.4	2879.3	3	1503.9
	Total-East	ABCDE	F	1628	5324.2	4	3696.2
	UPNY CONED	G	HI	2147.1	2244.7	5	97.6

Net Available Capacity is the remaining CRIS available after consideration of base generator dispatch, capacity derates, and net capacity exports.

FCITC is the incremental transfer limit corresponding to the most limiting FCTTC in the Highway interface analysis calculated by the TARA software.

Additional Transmission Capacity or Bottled Generation Capacity is the available unused transfer capability (+) or the amount of CRIS that is bottled (-) by the interface transfer limit constraint. It is calculated by FCITC (B) less Net Available Capacity (A).

Notes:

(1) 146512 Q571POI 115 135861 MORTIMER 115 1 @STE 153 MVA L/O 135874 SWDN-113 115 146512 Q571POI 115 1

(2) 147834 NIAG 345 345 148770 DYSINGER 345 1 @STE 1685 MVA L/O NIAG - DYSINGER ND2

(3) 130757 WATRC345 345 130755 OAKDL345 345 1 @STE 717 MVA L/O OAKDLE - CLARKCRNS 345 36

(4) 137200 EDIC 345 148964 GORDON ROAD 345 1 @Norm 1331 MVA @ Base Case

(5) 126263 BUCHANAN S 345 147832 IP3 345 345 1 @Norm 1566 MVA @ Base Case

Conclusion – Highway Interface "Regular" Capacity Deliverability within ROS Capacity Region

All EDS 2024-01 projects in the ROS Capacity Region passed the Capacity Deliverability test.

3.3 ROS & LHV Byway Deliverability Assessment

The ROS Byway assessment was performed for EDS 2024-01 projects. If the FCITC was greater than the net available capacity at the Point of Interconnection (POI), then the respective project passed the test. Each transfer was from all the generation at each POI into the Capacity Region where the project is located. Table 14 shows the FCITC resulting from the ROS Byway test.

Table 14: ROS & LHV Byway Test Results

EDS 2024-1 ROS & LHV Byway Test (Post EDS)					
Capacity Zone	**Projects**	**Net Available Capacity at POI (MW) (A)**	**Post-EDS FCITC (MW) (B)**	**Deliverable (+) or Bottled (-) Generation Capacity C=B-A**	**Constraint**
ROS (A-F)	Q 513 Orangeville	0	83.6	83.6	1
	Q804 KCE NY 10	0	91.3	91.3	1
	Q1329 ELP Granby Solar II	0	27.7	27.7	2
	New Athens Unit 1, 2 & 3	0	926.5	926.5	4
LHV(G-I)	KCE NY 14, LLC	0	35.9	35.9	3
	Pomona ESR	0	46.7	46.7	5

Notes:

(1)	131018 LOUNS115	115	131850 STAGECOA	115	1	@ STE	143	MVA	ST03:L/O WATERCURE-OAKDALE 345 31
(2)	136216 HTHSE HL	115	136218 MALLORY	115	1	@STE	108	MVA L/O	136173 ANHBS-13 115 145716 Q1329_POI 115 1
(3)	126121 MANCH B1	13.8	125036 MANCHEST	115	1	@Norm	42.5	MVA	Base Case
(4)	137455 ATHENS	345	137451 LEEDS 3	345	1	@ STE	1724	MVA	TE44:L/O ATHENS-VW 345 91
(5)	146768 N.HEMPST	138	146866 LITTLE TOR	138	1	@STE	108	MVA L/O	O&RLINE-531

Conclusion – ROS Byway Deliverability Assessment Results

The study results in Table 14 showed that Q513 Orangeville, Q804 KCE NY10, Q1329 ELP Granby Solar II , KCE NY 114, LLC., Pomona ESR located in the ROS Capacity Region passed the ROS Byway tests and are therefore deliverable.

3.4 Other Interfaces Transfer Capability "No Harm" Assessment

This is the "Other Interfaces No Harm" test to determine the impact of the EDS 2024-01 projects on the transfer capability and is performed by evaluating the following interfaces.

- UPNY-SENY
- ROS to LHV

The analysis is summarized in Table 15.

Table 15: Other Interface Deliverability Study Results

EDS 2024- 1 Other Interfaces "No Harm" Test								
Interface	**Exporting Zone**	**Importing Zone**	**2% of Pre-EDS Total Transfer Limit**	**Pre-EDS Total Transfer Limit**	**Constraint**	**Post-EDS Total Transfer Limit**	**Constraint**	**Impact (Post-EDS minus Pre-EDS)**
UPNY-SENY	ROS	LHV	172.62	8631	(1)	8675	(1)	44
LHV-J	LHV	J	84.02	4201	(2)	4235	(2)	34

Notes:

(1) 701801 KNICK_SCAP_1 345 126294 PLTVLLEY 345 1 @STE 2297 MVA L/O TE43:L/O LEEDS-VW 345 92

(2) 126600 REAC71 345 126641 MOTT HAVEN 345 3 Norm 785 Base Case

Discussion

For the UPNY SENY interface, the constraint Knickerbocker – Pleasant Valley 345 kV line for loss of Leeds – Van Wagner 345 kV line was identified in Pre-EDS 2024-01, and Post-EDS 2024-01 cases. Based on the results, there was a 44 MW increase on this interface transfer level in post-EDS 2024-1 case, hence EDS 2024-01 projects passed the Other Interface "no harm" test for UPNY SENY Interface.

For LHV- J Transfer Limit, the constraint Mott haven to REAC71 Ckt 3 345kV Line pre-contingency was identified in Pre-EDS 2024-01, and Post-EDS 2024-01 cases . Applicable system adjustments within NYISO's normal operating procedures were applied when testing LHV-J interface. Based on the results there was increase of the 34 MW, hence the EDS 2024-01 Projects pass the Other interface "No Harm " Test for the LHV-J Interface.

Conclusion – Other Interfaces Transfer Capability "No Harm" Results

All EDS 2024-01 projects passed the Other Interface No Harm Tests in the Post-EDS 2024-01 case.

3.5 NYC Byway Deliverability Assessment

The purpose of the NYC Byway Capacity Deliverability Assessment was to identify whether the NYC EDS 2024-1 project can deliver the power throughout the NYC Capacity Region.

Table 16 shows the FCITC resulting from the NYC Byway Capacity Deliverability Assessment. The NYC Byway transfer limit was evaluated by shifting CRIS generation from the sub-zone where the project is interconnected, to the rest of the CRIS generation in NYC Capacity Region.

Table 16: NYC Byway Test Results

EDS2024-1 Project	Exporting zone	Importing zone	Post EDS				Pre EDS			
			Net Available Capacity (MW) a	FCITC (Export Limit) (MW) b	Bottled Generation Capacity (-) (c = b-a)	Constraint	Net Available Capacity (MW) a1	FCITC (Export Limit) (MW) b1	Bottled Generation Capacity (-) (c1 = b1-a1)	Constraint
Hudson Transmission	Case 10: The West 49th Street	Rest of NYC	294.59	~~724.7~~804.3	~~430.11~~510.36	~~1~~1	336.23	~~766.36~~817.2	~~430.13~~481.1	~~1~~2
Brigis 2	Case 4 : Vernon/Queensbridge	Rest of NYC	494.94	1826.53	1313.6	~~2~~3	564.9	1979.2	1414.3	~~2~~3
Juniper Valley	Case 4 : Vernon/Queensbridge	Rest of NYC	494.94	1826.53	1313.6	~~2~~3	564.9	1979.2	1414.3	~~2~~3

Notes:

1	126584 ER PAR 111 69.0 126582 EAST RIVER 69.0 1	@ STE	-87	MVA	Base case
2	126584 ER PAR 111 69.0 126582 EAST RIVER 69.0 1	@LTE	256	MVA	FARRAGUTE - E13ST 345 Q35L
3	126434 GRENWOOD N 138 126454 KENTTAP 138 1	@ STE	-194	MVA	Base case
~~1~~	~~126384 E13 ST 138 126465 FDR ERGT1 138 1~~	~~@ STE~~	~~-252~~	~~MVA~~	~~Base case~~
~~2~~	~~126434 GRENWOOD N 138 126454 KENTTAP 138 1~~	~~@ STE~~	~~-194~~	~~MVA~~	~~Base case~~

Conclusion – NYC Byway Test Results

The results in Table 16 show that the Hudson Transmission, Brigis 2, and Juniper Valley Projects all pass the NYC Byway test and are deliverable in the NYC Capacity region.

4. Conclusions

Q513 Orangeville, Q804 KCE NY 10, Q1329 ELP Granby Solar II, New Athens Units 1,2,&3 from EDS 2024-01 projects passed the Highway "No Harm" test, the Highway Capacity Deliverability test, the ROS Byway test, and the Other Interfaces "No Harm" test. Therefore, these projects are determined to be fully deliverable at their requested CRIS MW levels.

Q513 Orangeville, Q804 KCE NY 10, Q1329 ELP Granby Solar II, New Athens Units 1,2,&3, KCE NY14 and Pamona ESR passed ROS byway tests.

Hudson Transmission project, Brigis 2 and Juniper Valley passed the NYC Byway Test.

Table 17 summarizes the results.

Table 17: EDS 2024-01 Projects with Deliverable MW

PROJECT	Point of Interconnection	Zone	Requested Summer CRIS MW	Summer Deliverable CRIS MW	Winter Deliverable CRIS MW
Q513 Orangeville	Stony Creek 230 kV Substation	C	10	10	10
Q804 KCE NY 10	Erie 34.5 kV Substation	A	20	20	20
Q1329 ELP Granby Solar II	Curtis ST. - Teall 115 kV Line #13	C	20	20	20
New Athens Unit 1, 2 & 3	Athen 345 kV substation	F	992	992[22]	1230[22]
Pomona ESR	O&R's 13.2kV distribution circuit, which is fed from 138kV New Hempstead Substation	G	3	3	3
KCE NY 14, LLC	Manchester Substation – 13.8 kV	G	20	20	20
Hudson Transmission	W49th St 345KV Substation	J	660	660	660
Brigis 2	Glendale Substation	J	20	20	20
Juniper Valley	Glendale 27 kV Substation	J	20	20	20

Appendix A List of Rest-of-State and Lower Hudson Valley Highway Facilities

** From bus **		** To bus **		CKT
Bus Number	Bus Name	Bus Number	Bus Name	
130754	SOMERSET345 345.00	149000	ROCH 345 345.00	1
130754	SOMERSET345 345.00	149690	NEWROCH345 345.00	1
135452	LOCKPORT 115.00	135851	SHEL-113 115.00	1
135452	LOCKPORT 115.00	135865	NAKR-108 115.00	1
135452	LOCKPORT 115.00	135867	OAKFLDTP 115.00	1
135452	LOCKPORT 115.00	135872	SOUR-111 115.00	1
135452	LOCKPORT 115.00	135875	TELRDTP1 115.00	1
135452	LOCKPORT 115.00o	135876	TELRDTP1 115.00	1
147834	NIAG 345 345.00	149000	ROCH 345 345.00	1
147834	NIAG 345 345.00	149690	NEWROCH345 345.00	1
135289	NILE115 115.00	149224	S178 34.500	1
135954	BURT 34.500	136016	PHILIPSR 34.500	1
130767	STOLE230 230.00	130770	SHLDN230 230.00	1
135260	ANDOVER1 115.00	131344	PALMT115 115.00	1
130767	STOLE230 230.00	130770	SHLDN230 230.00	1
135260	ANDOVER1 115.00	131344	PALMT115 115.00	1
135861	MORTIMER 115.00	135860	LAWLER-1 115.00	1
135861	MORTIMER 115.00	136213	LAWLER-2 115.00	1
149001	PANNELL3 345.00	136150	CLAY 345.00	1
149001	PANNELL3 345.00	136150	CLAY 345.00	2
149004	S121 B#2 115.00	131243	SLEIG115 115.00	1
149010	STA 162 115.00	131345	S.PER115 115.00	1
149025	PANNELLI 115.00	136197	FRMGTN-4 115.00	1
149026	QUAKER 115.00	131242	MACDN115 115.00	1
149074	STA127 34.500	136167	HOOKRD 115.00	3
149075	FARMNGTN 34.500	136194	FARMNGTN TP2115.00	2
149118	CLYDE 34 34.500	149005	CLYDE199 115.00	1
149122	C708 LD 34.500	130926	WOLCOT34 34.500	1
149141	FRMNGT2 34.500	136197	FRMGTN-4 115.00	1
149146	S168 12.000	136197	FRMGTN-4 115.00	3
130755	OAKDL345 345.00	130753	FRASR345 345.00	1
130819	KATEL115 115.00	130817	JENN 115 115.00	1

** From bus **		** To bus **		CKT
Bus Number	Bus Name	Bus Number	Bus Name	
130838	OAKDL115 115.00	130794	DELHI115 115.00	1
130863	WILET115 115.00	130796	E.NOR115 115.00	1
131036	CENTERVL 34.500	131842	AFTON CE 34.500	1
136150	CLAY 345.00	137200	EDIC 345.00	1
136150	CLAY 345.00	137200	EDIC 345.00	2
136156	VOLNEY 345.00	147833	MARCY T1 345.00	1
136216	LTHSE HL 115.00	136755	BLACK RV 115.00	1
136216	LTHSE HL 115.00	136768	E WTRTWN 115.00	1
136244	TEALL 115.00	137233	ONEIDA 115.00	1
136250	WHITMAN 115.00	137233	ONEIDA 115.00	1
136529	OMEGAWIR 34.500	137360	CAMDEN 34.500	1
137234	PETRBORO 115.00	137233	ONEIDA 115.00	1
147830	JA FITZP 345.00	137200	EDIC 345.00	1
136751	ALLENS F 115.00	136764	COLTON 115.00	1
136760	BRADY 115.00	136757	N.O-BRG 115.00	1
136767	DENNISON 115.00	136752	ANDRWS-4 115.00	1
136767	DENNISON 115.00	136782	LWRNCE-B 115.00	1
136855	GILPINT 46.000	147946	TUPR LK 46.000	1
147828	MASS 765 765.00	147827	MARCY765 765.00	1
147840	MOSES W 230.00	147835	ADRON B1 230.00	1
147840	MOSES W 230.00	147836	ADRON B2 230.00	1
130753	FRASR345 345.00	147831	GILB 345 345.00	1
130797	E.SPR115 115.00	137886	INGHAM-E 115.00	1
137200	EDIC 345.00	137452	N.SCOT77 345.00	1
137210	PORTER 2 230.00	137730	ROTRDM.2 230.00	1
137210	PORTER 2 230.00	137730	ROTRDM.2 230.00	2
137228	INGMS-CD 115.00	137886	INGHAM-E 115.00	1
147833	MARCY T1 345.00	137453	N.SCOT99 345.00	1
147852	PLAT T#3 115.00	107440	NE_PV20_NY 115.00	1
130750	COOPC345 345.00	148995	DOLSON 345.00	2
130750	COOPC345 345.00	146754	MDTN TAP 345.00	1
130862	W.WDB115 115.00	131560	W.WDBR69 69.000	1
200091	HOPATCONG 500.00	126250	RAMAPO 5 500.00	1
217063	WALDWICK 345.00	146752	SMAHWAH1 345.00	1
217063	WALDWICK 345.00	146753	SMAHWAH2 345.00	1
218300	LINDEN 230.00	126321	GOETHALS 230.00	1
217066	HUDSON1 345.00	126278	B3402 PAR1 345.00	1
217058	MARION 345.00	126278	B3402 PAR1 345.00	1

** From bus **		** To bus **		CKT
Bus Number	Bus Name	Bus Number	Bus Name	
217058	MARION 345.00	126279	C3402 PAR1 345.00	1
218529	LINDEN VFT	126265	LINDEN VFT	1
217178	Q206_INV 345.00	126304	W 49 ST 345.00	1
234603	HCOR138 138.00	146776	WNYA138 138.00	1
234603	HCOR138 138.00	146868	CORPORATEDR 138.00	1
234604	SMAH138 138.00	146752	SMAHWAH1 345.00	1
234604	SMAH138 138.00	146769	RAMP138 138.00	1
234608	HCOR69 69.000	146812	WNYA69 69.000	1
234609	MONTVALE 69.000	146777	BLUHILL 69.000	1
234609	MONTVALE 69.000	146777	BLUHILL 69.000	2
234609	MONTVALE 69.000	146850	L491T 69.000	1
234610	SMAH69 69.000	146790	HILB69 69.000	1
234611	HCOR34 34.500	146826	PEARL34 34.500	1
234614	CRESSKIL 69.000	146807	SPARKILL 69.000	1
128842	NEPTCONV 345.00	128847	NWBRG 345.00	1
130607	Q363INV 260.00	130606	Q363INVXFRM 138.00	1
125002	ROSETON 345.00	126281	E FISHKILL 345.00	1
125022	E FISH I 115.00	126281	E FISHKILL 345.00	1
125022	E FISH I 115.00	126281	E FISHKILL 345.00	2
125026	FISHKILL 115.00	131112	SYLVN115 115.00	1
126290	LADENTWN 345.00	126263	BUCHANAN S 345.00	1
146874	NORTHRCKLD 345.00	126263	BUCHANAN S 345.00	1
126294	PLTVLLEY 345.00	126281	E FISHKILL 345.00	1
126294	PLTVLLEY 345.00	126281	E FISHKILL 345.00	2
126294	PLTVLLEY 345.00	126291	MILLWOOD 345.00	1
126294	PLTVLLEY 345.00	126319	WOOD C 345.00	1
126294	PLTVLLEY 345.00	126306	WOOD B 345.00	1
126297	RAMAPO 345.00	126262	BUCHANAN N 345.00	1

Appendix B Summary of Phase Angle Regulator Schedules in Deliverability Power Flow Cases

External Tie PAR schedules

Circuit #	Controlled Line	Schedule (MW)
ISO-NE to NYCA		
7/K37	Blissville – Whitehall	25
138-1385	Norwalk Harbor – Northport	0
PV-20	Sandbar – Plattsburgh	0
PJM to NYCA		
5018	Hopatcong – Ramapo	602
B-3402	Hudson – Farragut	0
C-3403	Hudson – Farragut	0
A-2253	Linden – Goethals	63
J3410/69	Waldwick – South Mahwah	-1
K3411/70	Waldwick – South Mahwah	-135
IESO to NYCA		
L33P	St. Lawrence – Moses	0
L34P	St. Lawrence – Moses	0

PAR schedules between Capacity Regions (Inter-Capacity)

Circuit #	Controlled Line	Schedule (MW)
LHV to NYC		
99031	Dunwoodie N – Sherman Creek	85
99032	Dunwoodie N – Sherman Creek	85
99153	Dunwoodie S – E. 179th St.	150
M29	Sprain Brook – Sherman Creek	320
X28	Sprain Brook – Tremont	380
LHV to LI		

Circuit #	Controlled Line	Schedule (MW)
Y49	Sprain Brook – E. Garden City	-638 (128822)
NYC to LI		
903	Jamaica – Lake Success	200
901	Jamaica – Valley Stream	87

PAR schedules inside Capacity Regions (Intra-Capacity)

Circuit #	Controlled Line	Schedule (MW)
ROS		
	Inghams	120
NYC		
18001	Corona – Jamaica	20
18002	Corona – Jamaica	20
21191	Fresh Kills (345/138)	195
21192	Fresh Kills (345/138)	195
42231	Gowanus (345/138)	195
42232	Gowanus (345/138)	155
LI		
	Barrett – Freeport	115
	Pilgrim – Hauppauge	115

Appendix C CY23 list included in the Pre-EDS case

Projects Subject to Class Year SUF Study and the Class Year Deliverability Study

QUEUE POS.	PROJECT	ZONE	Point of Interconnection	Requested Summer ERIS MW	Requested Summer CRIS MW	UNIT TYPE	CTO
Q522	NYC Energy	J	Hudson Avenue East 138kV	79.9	79.9	ES	ConEd
Q560	Deer River Wind	E	Black River-Lighthouse Hill 115kV	100	100	W	NM-NG
Q680	Long Island Offshore Wind	K	Ruland Rd. 138kV	1200	N/A	DC	LIPA
Q700	Robinson Grid	J	Gowanus Substation 345kV	300	300	ES	ConEd
Q716	Moraine Solar Energy Center	C	Moraine Substation 115kV	93.5	93.5	S	NYSEG
Q770	KCE NY 8a	G	South Cairo 13.2kV substation	20	20	ES	CHGE
Q774	Tracy Solar Energy Centre	E	Thousand Island - Lyme 115kV	119	119	S	NM-NG
Q777	White Creek Solar	B	Sta 82 - Sta 128 115kV	135	135	S	RG&E
Q785	Erie-Wyoming County Solar	C	High Sheldon - Stolle Road 230 kV	175	175	CSR	NYSEG
Q800	Rich Road Solar Energy Center	E	Moses - Adirondack 230 kV Line #2 (MA2)	240	240	CSR	NYPA
Q822	Whale Square Energy Storage 1	J	Narrows Barge Feeder 23162	58.2	58.2	ES	ConEd
Q825	Setauket Energy Storage	K	Port Jefferson - Terryville 69kV	65.3	65.3	ES	LIPA
Q834	Luyster Creek Energy Storage 2	J	Astoria West Substation 138kV	79	79	ES	ConEd
Q852	Niagara Dolomite Solar	A	Robinson Rd - Stolle Rd 230kV Line 65	180	180	S	NYSEG
Q858	Genesee Road Solar Energy Center	A	Stolle Rd - Five Mile Rd 345kV	250	250	S	NYSEG
Q859	Ridge View Solar Energy Center	A	Somerset - Dysinger 345kV	350	350	CSR	NYSEG
Q860	Rosalen Solar Energy Center	B	Clay - Pannell 345kV PC2	200	200	S	NYPA
Q866	North Country Wind	D	Moses - Willis 230 kV (MW1)	306.6	306.6	W	NYPA
Q869	Tabletop Solar	F	Clinton - Clinton Tap 115 kV	80	80	S	NM-NG
Q878	Pirates Island	A	Huntley - Gardenville 115kV	100	100	ES	NM-NG
Q880	Brookside Solar	D	Chateaugay - Willis 115kV	100	100	S	NYSEG
Q882	Riverside Solar	E	Coffeen - Thousands 115 kV (Lyme tap)	100	100	S	NM-NG
Q950	Hemlock Ridge Solar	B	Lockport - Mortimer	200	200	S	NM-NG
Q952	Catskill Grid, LLC	G	North Catskill - Milan 115kV line	100	100	ES	CHGE
Q953	Sugar Maple Solar	E	North Carthage - Taylorville #8 and Black River - Taylorville #2 115kV	125	125	S	NM-NG
Q957	Holtsville Energy Storage	K	Holtsville - Patchogue 69kV	76.8	76.8	ES	LIPA
Q967	KCE NY 5	G	Ohioville 115 KV Substation	94	94	ES	CHGE
Q971	East Setauket Energy Storage	K	Holbrook - Miller Place 138kV	125	125	ES	LIPA
Q974	KCE NY 19	G	Sugarloaf - Wisner 69kV	79	79	ES	O&R
Q995	Alabama Solar Park LLC	B	Lockport - Batavia 115kV (Line#112)	130	130	S	NM-NG

QUEUE POS.	PROJECT	ZONE	Point of Interconnection	Requested Summer ERIS MW	Requested Summer CRIS MW	UNIT TYPE	CTO
Q1007	NYC Energy LLC - Phase 2	J	Hudson Ave 138 kV Substation	220.1	220.1	ES	ConEd
Q1009	Yellow Barn Solar	C	Milliken – Etna 115 kV line #975	160	160	S	NYSEG
Q1012	Suffolk County Storage II	K	Southold 69 kV Substation	76.8	76.8	ES	LIPA
Q1016	EI Steinway 1	J	Mott Haven - Rainey West 345kV, Mott Haven - Rainey East 345kV	1300	1300	OSW	ConEd
Q1017	EI Steinway 2	J	Mott Haven - Rainey West 345kV, Mott Haven - Rainey East 345kV	1300	1300	OSW	ConEd
Q1031	Mill Point Solar Project	E	Marcy - New Scotland 345kV Line #18	250	250	CSR	NM-NG
Q1036	Mainesburg ESS	C	Mainesburg - Watercure 345kV	130	130	ES	NYSEG
Q1038	ELP Rotterdam Solar	F	Maple Ave - Rotterdam 115kV Line #10	20	20	S	NM-NG
Q1042	Fort Edward Solar Farm (NY53)	F	Mohican - Battenkill 115kV Line #15	100	100	S	NM-NG
Q1068	Buchanan Point BESS	H	Buchanan North Substation 345 kV	300	300	ES	ConEd
Q1077	Rutland Center Solar	E	Middle Rd Substation 115 kV	110	110	S	NM-NG
Q1079	Somerset Solar	A	Kintigh 345 kV	125	125	S	NYSEG
Q1080	Mineral Basin Solar Power	C	Homer City- Mainesburg 345kV	401.6	401.6	S	NYSEG
Q1088	Harvest Hills Solar	C	Wright Avenue – Milliken 115 kV line	200	200	CSR	NYSEG
Q1089	Flat Creek Solar	F	Edic to Princetown 345kV Line 352	200	200	S	NYPA
Q1096	Allegany 2 Solar	C	Andover - Palmeter 115 kV, Line 932	120	100	CSR	NYSEG
Q1103	Thousand Island Solar	E	Coffeen Street - Thousand Island 115 KV	110	110	S	NM-NG
Q1115	Flat Creek Solar 2	F	Edic to Princetown 345kV Line 352	100	100	S	NYPA
Q1117	CLIES 70MW	K	Sills Road 138kV substation.	70	70	ES	LIPA
Q1122	East Fishkill	G	Shenandoah 115kV Substation	205	205	ES	CHGE
Q1123	KCE NY 29	K	Kings 138 kV substation	150	150	ES	LIPA
Q1130	Hoffman Falls Wind	C	Fenner - Cortland 115kV Line #3	72	72	W	NM-NG
Q1136	Honey Ridge Solar	E	Black River 115 kV Substation	125	125	CSR	NM-NG
Q1148	Agricola Wind	C	Milliken – Wright Ave 115 kV line #973	97	97	W	NYSEG
Q1150	Moss Ridge Solar Project	E	Corning - Battle Hill 115 kV Line #4	60	60	S	NM-NG
Q1151	York Run Solar	A	Falconer – Warren 115 kV line #171	90	90	S	NM-NG
Q1159	Innisfree Storage	K	Port Jefferson - Mt. Sinai 69 kV transmission line	50	50	ES	LIPA
Q1174	NY48 – Diamond Solar Project	E	Porter - Valley 115kV line #4	60	60	S	NM-NG
Q1178	NY115 – Newport Solar Project	E	Porter - Deerfield 115 kV Line # 9	130	130	S	NM-NG
Q1180	BPUS Generation Development	H	Union Valley - Croton Falls 115 kV line #991	116	116	ES	NYSEG
Q1182	NY128 - Foothills Solar	F	Mayfield-Northville 69kV	40	40	S	NM-NG
Q1183	NY125A - Fort Covington Solar	D	Moses-Willis 230kV (MW1)	250	250	S	NYPA

QUEUE POS.	PROJECT	ZONE	Point of Interconnection	Requested Summer ERIS MW	Requested Summer CRIS MW	UNIT TYPE	CTO
Q1184	NY125B - Two Rivers Solar	D	Moses - Willis 230 kV (MW2)	200	200	S	NYPA
Q1188	North Seneca Solar Project	C	Hooks Road - Elbridge 115kV	105	105	S	NM-NG
Q1194	Crane Brook Solar Project	C	State St - Clinton Corn 115kV Line	130	130	S	NM-NG
Q1199	El Steinway 1.1	J	Mott Haven - Rainey West 345kV, Mott Haven - Rainey East 345kV	200	200	OSW	ConEd
Q1236	Gravel Road Solar	C	Station 127 (Hook Rd) - Elbridge and Mortimer-Elbridge 115 kV lines	128	128	S	NM-NG
Q1254	Barrett Hempstead Battery Storage	K	Barrett to Long Beach 33 kV circuit No 1(33-224)	40	40	ES	LIPA
Q1255	Holtsville Brookhaven Battery Storage	K	Line 69-849 from West Yaphank to North Bellport	79.9	79.9	ES	LIPA
Q1256	Canal Southampton Battery Storage	K	Canal Substation 138kV	100	100	ES	LIPA
Q1257	Edwards Calverton Battery Storage	K	Edwards Avenue Substation at 138 kV	60	60	ES	LIPA
Q1288	CPNY-X	E and J	Fraser 345 kV and Rainey 345 kV substations	1300	1300	DC	NYSEG and ConEd

CRIS-Only Requests – Subject Only to Class Year Deliverability Study

QUEUE POS.	PROJECT	ZONE	Point of Interconnection	Requested Summer ERIS MW	Requested Summer CRIS MW	UNIT TYPE	CTO
Q1059	Jaton	C	South Oswego – Clay 115kV Line #4	N/A	16.2	S	NM-NG
Q1061	Teele	E	Alcoa – North Ogdensburg 115 kV	N/A	19.8	S	NM-NG
PAM-2020-77593	West Babylon Energy Storage	K	West Babylon 13 kV	N/A	9.9	ES	LIPA