

2023 - 2024 IRM Proposed MARS Topology Updates

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NYISO

ICS Meeting # 261

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Objective

- **Update the topology for 2023 - 2024 IRM study**
 - Proposed UPNY-CONED limits based on the STAR 2023 topology
 - Proposed West Central reverse limit
 - Proposed Central East forward limits
 - Update to Neptune cable transfer limits and external transfer limits based on updated NPCC database

UPNY-ConED Interface Transfer Limits

- **The UPNY-ConED Interface Transfer Limits are updated for summer 2023 due to the changes to the series reactors assumptions starting 2023**
 - Series reactors M51 & M52 and Dunwoodie 71 and 72 will change from bypassed to in service starting 2023
 - The associated impact from this change is updated in the 2021 UPNY-ConEd Voltage Collapse Transfer Limits study, which captured the corresponding status of remaining series reactors of Y49 and Gowanus 41 &42
- **The updated limit is captured in the Q1 2022 STAR topology for year 2023, as well as the 2022 RNA Base Case Preliminary MARS Topology.**
 - Specifically, the UPNY-ConEd transfer limit is reduced from 7000 MW to 6675 MW
- **Therefore, for 2023-2024 IRM study, the transfer limit for UPNY-ConEd Interface is proposed to change to 6675 MW**

2021 UPNY-ConEd Voltage Collapse Transfer Limits study: <https://www.nyiso.com/documents/20142/3692483/UPNY-ConEd-Voltage-Collapse-FINAL.pdf>

Q1 2022 STAR: <https://www.nyiso.com/documents/20142/16004172/2022-Q1-STAR-Report-vFinal.pdf/99def70b-b66f-4bc4-3f45-f5524e7f7749>

2022 RNA Base Case Preliminary MARS Topology:

https://www.nyiso.com/documents/20142/29635167/05_2022RNA_MARS_PreliminaryTopologyChanges.pdf/bde1a2a1-b689-381d-35d0-b02596d20b96

Proposed West Central Reverse Limit

- The West Central Reverse Limit in the IRM has been 1600 MW since it was reviewed and approved by TPAS in 2017
- Based on the Summer 2022 Operating Study (to be published in June 2022), the West Central Reverse Limit will be 2275 MW
 - The West Central Reverse Limit is now part of the Summer 2022 Operating Study which captures the increased thermal ratings on the limiting circuit segments due to the local upgrades by the Transmission Owners
 - No significant changes to the conditions affecting the Summer 2022 West Central Reverse Limit are expected for summer 2023
- Therefore, for 2023-2024 IRM study, the negative (i.e. reverse) limit of the West Central Limit is proposed to change to 2275 MW

West Central Limit (MW)	Positive	Negative
2022-2023 IRM	1500	1600
Proposed change for 2023-2024 IRM	1500	2275
<i>Delta</i>	<i>N/A</i>	<i>+675</i>

Proposed Central East Forward Limits

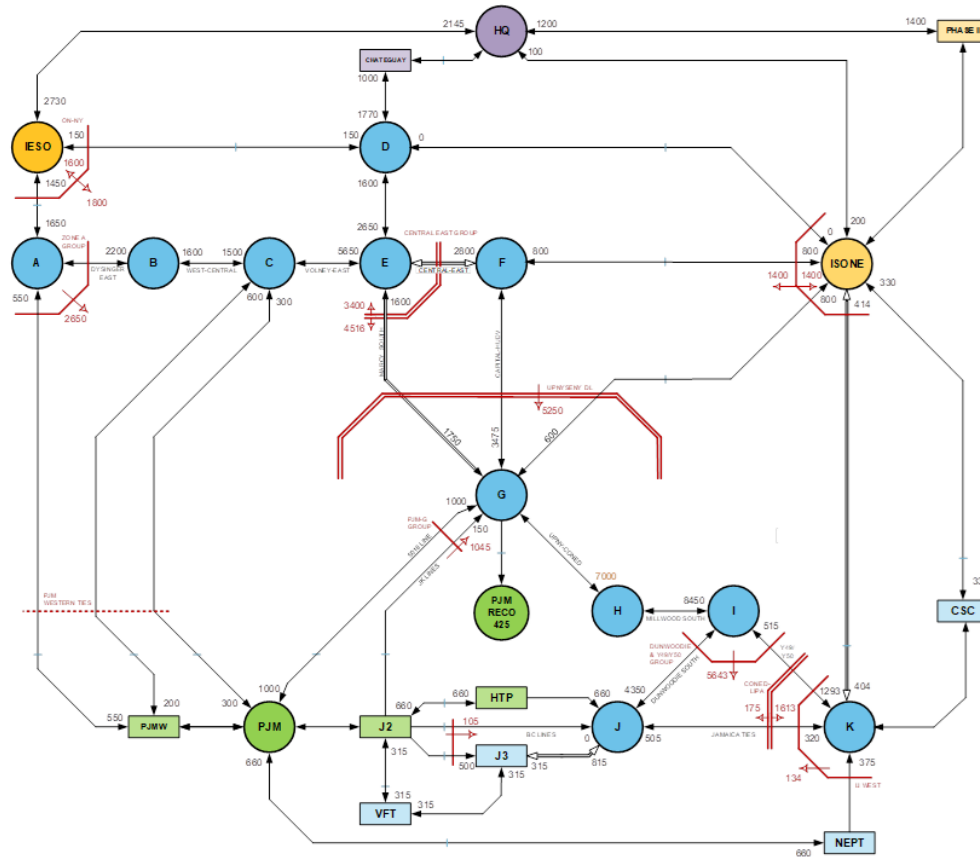
- The Central East forward limits were updated in the 2022-2023 IRM study, based on the derate due to Porter-Rotterdam (30 & 31) being out of service
 - The same derate is also applied to the limit of Central East + Marcy group ([2022-2023 IRM Appendix Table A.11](#))
- The base limits for Central East were updated in the April 2022 Central East Voltage Collapse Limit Analysis with consideration of retirement of Porter-Rotterdam (30 & 31) and Segment A Project construction, which is expected to continue in summer 2023
 - The Central East Voltage Collapse base limits consist of 6 different statuses of the Oswego AVR units ([April Central East VC Limit](#))
- Therefore, for 2023-2024 IRM study, the forward limits for Central East are proposed to change according to the Central East voltage collapse base limits
 - Proportional adjustments are also applied to the limit of Central East + Marcy group as no changes are proposed for Marcy South limits

Forward Limits (MW)	Central East	Central East + Marcy Group
2022-2023 IRM	2800/2740/2650/ 2605/2490/2415	4515/4425/4290/ 4230/4055/3935
Proposed Change for 2023-2024 IRM	2645/2640/2585/ 2530/2440/2365	4260/4260/4185/ 4100/3970/3845
<i>Delta</i>	-155/-100/-65/-75/-50/-50	-255/-165/-105/-130/-85/-90

Neptune and External Transfer Limits

- **The transfer limit of Neptune cable is proposed to be restored to full capability (660 MW) for the 2023-2024 IRM**
 - The import limit of the Neptune cable was derated in the 2022-2023 IRM study due to the outage on one of the transformers (NEWBRDGE_345_138_BK_1)
 - Based on current information, the effective date of the transformer outage will end on August 1, 2022
- **Transfer limits with the external systems are also updated to reflect the latest information in the annual NPCC summer study base case**
 - Based on the NPCC database, the outage impacting phase shifters L33/34P is expected to end by next summer, restoring the transfer limits between IESO and NYCA
 - Transfer limits between IESO and HQ are updated based on the latest NPCC database

2022-2023 IRM Topology For New York Control Area



- Notes**
1. PJM to NY emergency assistance (EA) assumption for calculating the PJM NY Western ties, PJM-G Group, and ABC Line Group flow distribution limit: 1500 MW
 2. NYCA EA simultaneous import limit: 3,500 MW
 3. External areas representation based upon information received from the NPCC CP-8 WG

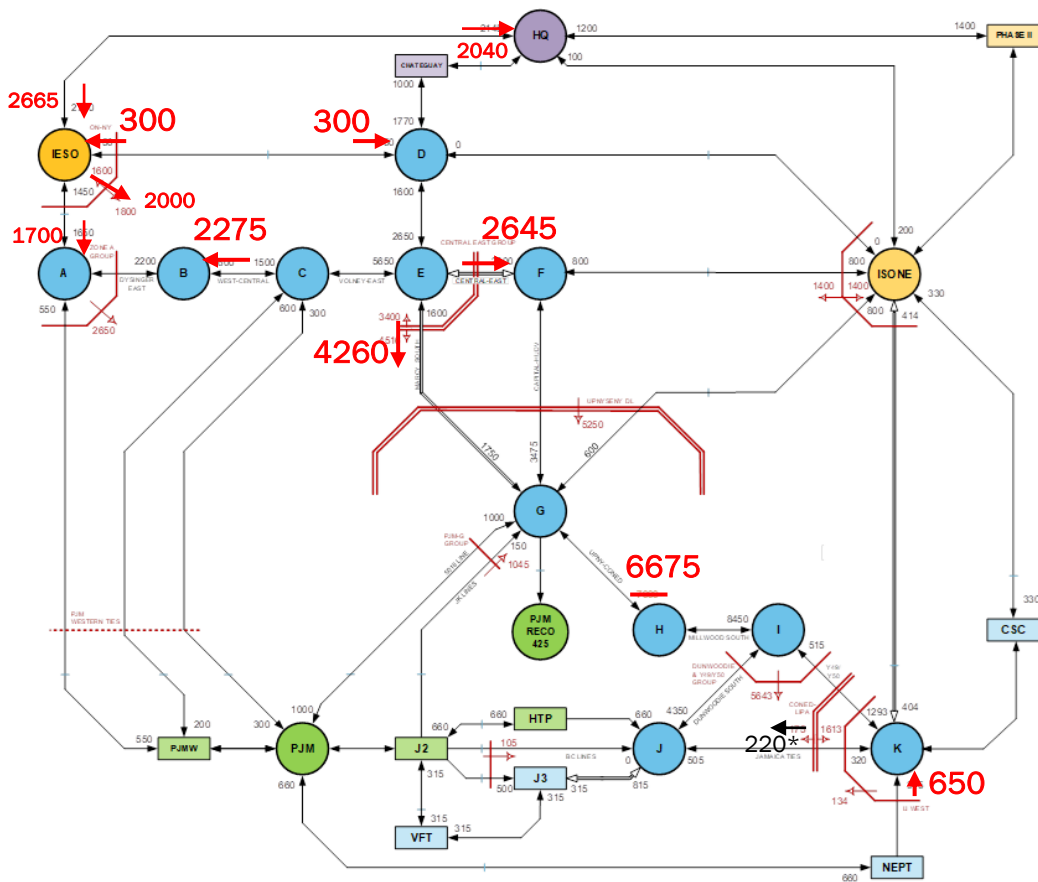
Legend

- Interface
- Unidirectional Interface
- Interface w/ Dynamic Ratings
- Interface Group
- Interface Group w/ Dynamic Ratings
- Monitoring Interface Group
- NYCA EA Interface Group Marker
- xx "Dummy Bubble" i.e. no load

NOTE: An interface is considered to not have a MW limitation if no number is specified



Proposed internal topology changes



* Error identified in the diagram. Update to reflect correct limit in the model

Notes

1. PJM to NY emergency assistance (EA) assumption for calculating the PJM-NY Western ties, PJM-G Group, and ABC Line Group flow distribution limit: 1500MW
2. NYCA EA simultaneous import limit: 3,500 MW
3. External areas representation based upon information received from the NPCC CP-8 WG

Legend

- ↔ Interface
 - Undirectional Interface
 - ↔ Interface w/ Dynamic Ratings
 - Interface Group
 - Interface Group w/ Dynamic Ratings
 - Monitoring Interface Group
 - NYCA EA Interface Group Marker
 - XX "Dummy Bubble" i.e. no load
- NOTE: An interface is considered to not have a MW limitation if no number is specified

Potential Sensitivity – Y49

- According to the latest outage information, an outage involving transformer SPRNBRK_-EGRDNCTR_345_Y49 will be in effect between October 1, 2022 and May 31, 2023 (<http://mis.nyiso.com/public/pdf/ttcf/20220525ttcf.pdf>)
- The outage will reduce Long Island import capacity by 700-800 MWs
- While the outage is expected to end before the study period, it is prudent to monitor and update the status on the outage and make adjustments to study assumptions accordingly
 - Consider a sensitivity including this outage after completion of the Preliminary Base Case

Questions?

Our Mission & Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation