

Emergency Operating Procedures in Resource Adequacy Model - Scope

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Background

- **The Resource Adequacy (“RA”) model includes the modeling of Emergency Operating Procedures (“EOP”) to allow emergency control actions in grid operation to be reflected in the IRM study**
 - The EOPs in the model are triggered when there is not sufficient capacity to meet demand in the MARS simulation
 - The EOPs include SCRs, voltage reductions, Operating Reserve and Emergency Assistance (“EA”) etc.
 - While the EOPs in the RA model follows the similar order as the emergency control actions, it is not exactly the same as grid operation due to the nature of the MARS simulation
- **The current RA model includes 3500 MW of a global limit for EA at a later step of the EOP**
 - Each neighboring control area also has individual tie limits with NY
 - EA is modeled at EOP Step 8, after SCRs, Voltage Reduction and 30-min Operating Reserve
 - In the current IRM model, non-firm MWs from neighboring systems will not be available until EA is needed AND reserves are available in the neighboring systems
 - Limits for earlier EOP steps, such as SCRs, can be reached before EA becomes available
- **The ICS had an interest to explore the feasibility and impact of advancing some support from neighboring systems, in addition to the ICAP supplies, prior to EOPs in the IRM model**
 - Flows beyond the ICAP supplies from neighboring systems may exist in grid operation before the emergency conditions arise
 - The IRM model only considers ICAP supplies from neighboring systems before EA is triggered during EOPs

Background (con't)

- **Advancing some support from neighboring systems prior to EOPs is expected to have two effects on the IRM study:**
 - It will lower SCR activations in the IRM base case and potentially lower the system LOLE
 - It can also be a possible solution to remove the arbitrary output window limitation in the ELR model, and hence better reflecting the capacity accreditation value for ELRs, SCRs and batteries
 - Current ELR model utilizes ELRs prior to EOPs and therefore requires an output window limitation to avoid the energy storage being exhausted too early
- **Late last year, the NYISO received support from ICS and NYSRC on the 5-year strategic plan for RA modeling improvement**
 - The plan include the focuses to develop comprehensive winter modeling, including the modeling of natural gas constraints, seasonal external supports, as well as enhancement to the ELR model
- **Therefore, a comprehensive research on the EOP in the RA model, particularly the modeling of EA, lays an important foundation to improve the RA model for winter modeling and the ELR modeling**

ICS Presentation on RA Model Strategic Plan:

[https://www.nysrc.org/PDF/MeetingMaterial/ECMeetingMaterial/EC%20Agenda%20283/4.1.3%20RA Strategic Plan%20-%20Attachment%204.1.3.pdf](https://www.nysrc.org/PDF/MeetingMaterial/ECMeetingMaterial/EC%20Agenda%20283/4.1.3%20RA%20Strategic%20Plan%20-%20Attachment%204.1.3.pdf)

2023 Whitepaper Objective

- **The whitepaper will focus on researching how EOPs are being accounted for during the MARS simulation, as well as the EOPs implemented during grid operations**
 - Among all the EOP steps, research on EA will be the primary focus
- **If any changes to EOP and EA modeling are considered reasonable based on research, this whitepaper will also conduct modeling test and make potential modeling change recommendations**
- **Any modeling changes being contemplated under the 2023 whitepaper will need to consider implications for 2024 initiatives, where tie- and seasonal-specific EA modeling is the priority**

Scope of work

- **The 2023 whitepaper aims to answer the following 4 questions:**
 - How are EOPs, especially EA, accounted for in MARS?
 - Timing, magnitude and associated system conditions?
 - How do neighboring systems support NYCA during emergency conditions?
 - Any differences between firm and non-firm transactions, and emergency assistance?
 - Any seasonal differences?
 - Based on the research on MARS model and grid operations, how much can NY depend on neighboring jurisdictions during emergency situations?
 - Consider conditions in any of the specific neighboring systems, under current operating experiences and their Resource Adequacy outlook in near future.
 - Is it appropriate to consider advancing some support from neighboring systems on top of ICAP supplies in the IRM study ahead of the EOPS?
 - If so, should there be any impacts to current modeling of SCRs (as the first step of the EOPs)?
- **The work will leverage capabilities and expertise in NYISO's Resource Adequacy team and Operations team**
 - Analysis from MARS perspective and grid operations perspective will be conducted
 - Additional information and analysis may also be used, especially on neighboring system conditions

Capacity Accreditation Coordination

- **Under the Modeling Improvements for Capacity Accreditation project, the NYISO is also conducting researches that may lead to potential modeling improvements in the Resource Adequacy model**
 - The 2023 initiatives include gas constraints, start-up times, SCR modeling and correlated derates¹
- **The NYISO will coordinate its work on the Gas Constraints and EOP Review whitepapers with the efforts under the Modeling Improvements for Capacity Accreditation project**

¹ Place holder for the link to 1/26 ICAPWG presentation

Timeline

Milestone	Date
Present Scope to NYSRC	2/1/2023
Finalize Scope	2/15/2023 (Following NYSRC approval)
Monthly NYSRC Updates	Ongoing
Review of EA Model and EA in Grid Operations Complete	April 2023
Determine Potential Changes to EA Model and Modeling Test	May-July 2023
Present Research and Recommendations to NYSRC	August ICS Meeting
Potential New Modeling Adoption and Sensitivity Cases	Pending ICS Review (2024/25 FBC)
Final Modeling Change (if applicable) <ul style="list-style-type: none"> – adoption in the FBC of 2024/25 IRM, or – sensitivity in the PBC of 2025/26 IRM 	Following NYSRC Review
Initiate Scoping for Tie and Seasonal EA Modeling Whitepaper (2024 initiative) <ul style="list-style-type: none"> –consider mid-year 2024 completion 	Q4 2023

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

Questions?