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Independent System Operator

Energy Limited Resource (ELR) Modeling and Output Limitation Review – Special Case Resource (SCR) Modeling

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NYSRC Installed Capacity Subcommittee Meeting #307

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Background

- The 2021 ELR Modeling Whitepaper[1] noted that re-evaluating the continued use of a single generation output limit for all ELRs is warranted as the quantity of ELRs on the NYCA system increases over time.
- Currently, the output limitations for all small EL3 and ES units (including SCRs) are lifted at hour beginning (HB) 14.
  - The Enhanced SCR Modeling technique implemented as part of the 2025-2026 IRM study increases the utilization of the ELR functionality and significance of the output window limitation for ELR units.
- Within the IRM model, all SCRs are available at the same time and their utilization in the model may not align with actual operational practices.
- The NYISO has conducted preliminary research into historical SCR activations and operational conditions to better inform SCR utilization for the purposes of the IRM model.
  - The results of this preliminary research were presented at the 7/10/2025 ICS meeting

1. https://www.nysrc.org/wp-content/uploads/2023/03/ELR-Modeling-White-Paper-May-2021-FINAL.pdf

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SCR Start Time in the IRM Model

- **Within the current IRM model, SCRs are not permitted to be utilized prior to HB14.**
  - This modeling can result in inefficient utilization of SCRs and potential misalignment with historical activation of SCR events.
- **The NYISO recommends consideration of the two potential methodologies for determining an appropriate start time for SCRs in the IRM model (see 7/10/2025 ICS presentation for further details):**
  - Method 1: NYCA peak load hour
    - All SCRs starting HB15 (i.e., 3 hours before the weighted average NYCA summer peak load hour)
  - Method 2: Grouped by Upstate (A-F) and Downstate (G-K)
    - All SCRs in Load Zones A-F starting at HB16 (i.e., 3 hours before the weighted average summer peak load hour for Load Zones A-F)
    - All SCRs in Load Zones G-K starting at HB14 (i.e., 3 hours before the weighted average summer peak load hour for Load Zones G-K)

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Impact Analysis

Method	Zone	SCR Start Time	IRM (Parametric Results)	Delta (Test Case – Base)
BASE*: (Parametric) 2026-2027 IRM FBC presented at 9/3/2025 ICS without the inclusion of updates for Voluntary Curtailments and Public Appeals	NYCA	14	25.78	-
Method 1	NYCA	15	25.66	(0.12)
Method 2	A-F	16	25.62	(0.16)
	G-K	14		

*The base case of this impact assessment does not include updates for the Voluntary Curtailments and Public Appeals from the 2026-2027 IRM FBC parametric results presented at the 9/3/2025 ICS meeting. Although the Voluntary Curtailments and Public Appeals update shows 0.00% impact to the IRM, there is a slight reduction to the IRM beyond the second decimal point. Therefore, the base case for the impact assessment shows a 0.01% higher IRM than presented for the 2026-2027 IRM FBC parametric results.

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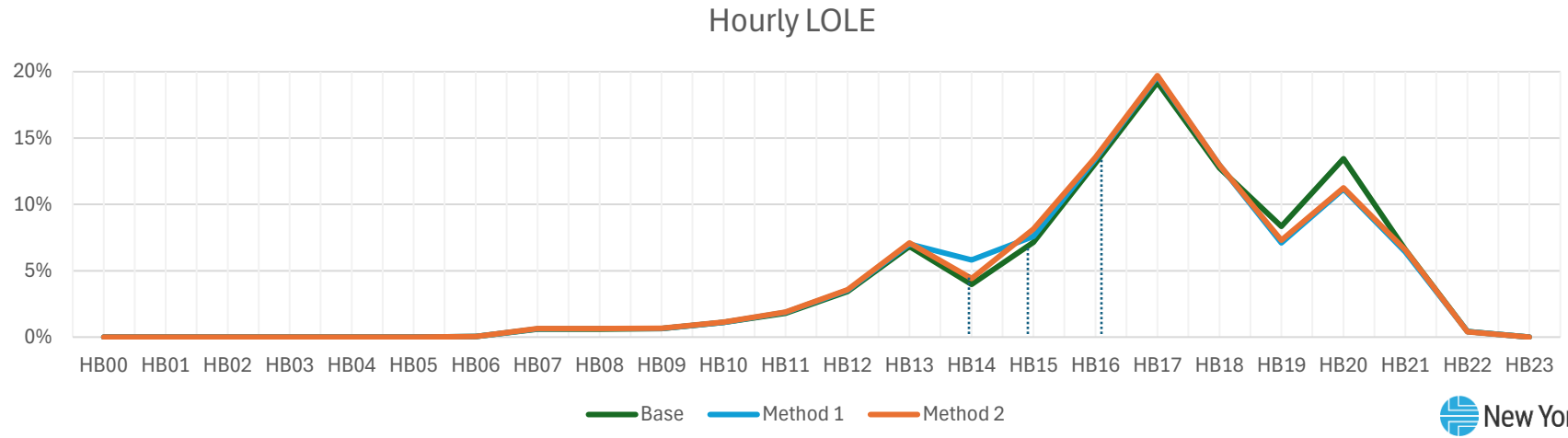
Hourly LOLE Analysis

- For both Method 1 (all SCRs in NYCA at HB15) and Method 2 (SCRs in Load Zones A-F at HB16, and SCRs in Load Zones G-K at HB14), small ELRs and ESR are permitted to generate beginning at HB14 which causes a valley in the LOLE risk
- For Method 1, the LOLE risk for HB 14 is higher due to SCRs not being permitted to start until HB15
- For Method 2, SCRs in Load Zones G-K are permitted to start at HB14, reducing the risk for HB 14 and hence similar hourly LOLE profile to the base case (i.e., all SCRs, small ELRs, and ESRs are permitted to generate beginning at HB14)
- For Method 2, SCRs in Load Zones A-F are permitted to start at HB16. However, the SCRs in Load Zones A-F have a similar response rate for Event Hour 1 and Event Hour 3 and therefore, a similar amount of SCRs is available for HB16 in both base case and the Method 2 test case



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Preliminary Recommendations

- For the 2026-2027 IRM FBC, the NYISO recommends updating the SCR start times for Load Zones A-F to HB16 and HB14 for Load Zones G-K to better align with operational practice and separate upstate and downstate net peak load/risk profiles.

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Next Steps

- Finalize ELR start time assumptions for the 2026-2027 IRM FBC
- Prepare a whitepaper to document research findings and recommendations
- Continue to work with GE Vernova to explore potential GE Multi-Area Reliability Simulation software program (MARS) improvements to the ELR functionality for potential implementation in future study years

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ELR Modeling and Output Limitation: Proposed Timeline

Milestone	Anticipated Timeline
Present draft scope to the ICS for approval	January 8, 2025
Review current GE MARS logic, existing software limitations, and recent software improvements	April 2, 2025
Review the utilization of ELRs within the IRM model and LOLE relationship	July 10, 2025
Discuss historical availability and operations of energy limited resources, optimal scheduling, and potential improvements to the modeling	July 10, 2025
Recommend near-term modeling improvements	September 3, 2025
Prepare whitepaper report on near-term improvements (Phase 1)	Q4 2025
Test alternative ELR scheduling strategies and continue to Phase 2	2025/2026

Questions?

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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

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