

Agenda Item 4.1: ICS Report to NYSRC Executive Committee (EC)
November 5, 2025, ICS Meeting #309
November 11, 2025, ICS Meeting #310
Prepared for: November 14, 2025, EC Meeting #319
Prepared by: William Gunther (Con Edison)

4.1.1 FBC Special Sensitivity Reflecting Q3 STAR – EC Approval Item

ICS identified the need for a FBC Special Sensitivity reflecting the recent 2025 Q3 STAR findings related to generator retirements in load zones J and K. Resources to be modified in the special sensitivity are outlined below. ICS approved the special sensitivity with the added note that winter fuel constraints will be modified to reflect the updated generation.

- Zone J additions (512.9 MW): Gowanus 2-1 to 2-8, 3-1 to 3-8, with exception of Gowanus 3-6; Narrows 1-1 to 1-8, 2-1 to 2-8, with exception of Narrows 2-1 and 2-7
- Zone K additions (204.4 MW): Far Rockaway GT1 and GT2, Glenwood GT3, Shoreham IC1
- Zone A removals (126.5 MW): Cassadaga Wind

Note: The above list does not represent an official determination of NYISO, ConEd, or PSEG-LI. The NYISO solution solicitation will begin this month and conclude in early 2026.

Some additional clarifications offered during discussion are:

- This FBC Special Sensitivity includes both CHPE and the barges and, therefore, has similarity to PBC sensitivity 7B.
- Y. Huang indicated that the FBC Special Sensitivity will receive full Tan45 analysis.
- M. Schwall stated that based on timing of processes downstream of the Q3 STAR, the barges will certainly be needed in 2026.
- NYISO indicated the reason for removing Cassadaga Wind is that they lost their CRIS rights.

4.1.2 NYSRC ICS 2026 Goals

ICS reviewed and approved the draft 2026 goals.

- A1.1: Update winter fuel availability modeling based on NYISO consultant study and generator firm fuel elections.
- A1.2: Incorporate winter maintenance outages and derates in IRM model.
- A1.3: Introduce seasonal topology
- A1.4: Improve parametric method representation of expected Tan 45 IRM outcomes.
- A1.5: Investigate Tan 45 methodology improvements or alternative IRM establishment methodologies.
- A1.6: Incorporate improved seasonal representation of EOP call limitations.
- A1.7: Incorporate more detailed analysis of alternative reliability metrics (EUE, LOLH) in IRM report.

M. Schwall indicated a preference to “frontload” A1.1 to provide clarity in advance of Aug 1 firm fuel elections. W. Gunther noted EC AI 312-1 scheduled for Jan is a good starting point for the firm fuel discussion.

R. Stalter asked for additional details on A1.3 and ties to other NYISO work. NYISO replied that the current model uses summer limits, but the goal is to shift to using seasonally appropriate limits. NYISO also clarified that seasonal MARS topology does not necessarily tie directly to the “Winter Reliability Capacity Enhancements” project but indirectly impacts the market through IRM determination.

G. Jordan indicated that for item A1.7, ICS has reported alternative reliability metrics for several IRM cycles. C. Wentlent noted the need to discuss the timing of when ICS should consider alternative or additional metrics beyond just LOLE. M. Lenoff asked ICS to provide an analysis of confidence in EOP steps. Stakeholder discussion ensued regarding the purpose of item A1.7, exploring additional metrics and their meaning rather than immediate implementation of incremental or

new criteria.

4.1.3 2026 ICS Schedule Changes

ICS approved 2026 schedule changes to avoid emergent conflicts with ICAP-WG.

- Wednesday, Apr 1, 2026, moved to Tuesday, Mar 31, 2026
- Wednesday, Nov 4, 2026, moved to Tuesday, Nov 3, 2026
- Wednesday, Dec 2, 2026, moved to Thursday, Dec 3, 2026

4.1.4 ICS Chair and Vice Chair Rotation

W. Gunther indicated that ICS Vice Chair, T. Primrose, agreed to take over the Chair role starting in 2026 and that ICS will be looking for a new Vice Chair. In the past, the positions rotated among the TOs and based on recent service the new Vice Chair should come from NYPA, NYSEG/RG&E, or Central Hudson.

Year	Vice Chair	Chair
2016	PSEG-LI (M. Wilczek)	NYPA (R. Boyle)
2017	NYPA (T. Lundin)	PSEG-LI (M. Wilczek)
2018	Con Edison (H. Kosel)	PSEG-LI (M. Wilczek)
2019	Central Hudson (A. Faisal/R. Chan)	Con Edison (H. Kosel)
2020	National Grid (B. Shanahan)	Central Hudson (R. Chan)
2021	NYSEG/RG&E (P. Didsayabuttra/R. Brophy)	National Grid (B. Shanahan)
2022	NYSEG/RG&E (N. Leghari)	National Grid (B. Shanahan)
2023	NYSEG/RG&E (N. Leghari)	National Grid (B. Shanahan)
2024	National Grid (B. Shanahan)	Con Edison (H. Kosel/W. Gunther)
2025	PSEG-LI (T. Primrose)	Con Edison (W. Gunther)
2026	NYPA, NYSEG/RG&E, or Central Hudson	PSEG-LI (T. Primrose)

4.1.5 Standard Error Analysis – EC Exception Needed to Policy 5

B. Prinsloo presented on standard error in the IRM FBC study covering the following:

- Policy 5-19 requirement for standard error value for mean LOLE at 95% confidence level to be ≤ 0.025
- Inefficient standard error convergence due to the high variance introduced by the heavy-tailed LOLE distribution
- Last FBC parametric run took 8,750 replications to meet Policy 5 requirement as compared to 2,000 in PBC
- Runtime challenges with excessive iterations (Tan45 using 3,000 replications presented at this meeting required a week to complete due to multiple interruptions)
 - Increased replications beyond 3,000 risk failure to provide timely results for NYSRC deliverables
- Recommendation for short-term solution of reduced 90% confidence level
 - 3,000 replications reached 92% confidence level prior to Tan45 and 94% after Tan45
 - Explore longer-term solutions as part of the Parametric Improvement Whitepaper in early 2026.

R. Gonzalez asked for more details on the cause of the need for more replications to reach convergence. G. Jordan replied that the system increased in complexity and that large single source losses (such as CHPE) have been introduced. G. Jordan further opined that a 95% confidence interval works well with a symmetric distribution but may not be appropriate with a heavily tailed distribution, and that lowering the confidence level will likely not introduce any error. W. Gunther speculated that the FBC Special Sensitivity adding back capacity in J and K may reduce the required iterations. T. Primrose explained that both dynamic bin-based limits to EA and fuel constraints contribute to lower capacity availability in higher load bins, which drives “out” the high LOLE tail.

W. Gunther solicited input from EC members on the best way to approach the issue at EC. He also mentioned that M. Sasson thought a one-off exception for this year’s study to allow 90% CI in place of the prescribed 95% CI is preferred over codifying a change to Policy 5 on short notice. M. Mager suggested that at face value it seems to be a reasonable request. C. Wentlent asked if the FBC could be completed without an exception or modification to Policy 5. W. Gunther replied that the FBC likely could not be completed on time. D. Zhang noted that there is no workaround, and this is purely a time constraint. B. Prinsloo noted that each individual model replication has tripled in runtime in recent years. C.

Wentlent expressed a preference for a one-time exception for the current study and Policy 5 edits if this becomes an ongoing issue.

Going forward, stakeholder discussion noted that replications for the FBC Special Sensitivity should match the FBC. ICS plans to investigate the higher replications next year. G. Jordan suggested future coordination with GE to improve Tan45 process performance and recovery from failed iterations.

4.1.6 Policy 5-19 Revisions

G. Jordan presented Policy 5-19 revisions to accompany the preceding Standard Error Analysis presentation. Limited edits to Section 3.8 “Standard Error” enable remedies and require EC notification for non-convergence of IRM model within a reasonable number of MARS iterations. Edits also outline suggested validation of final IRM/LCR point with single MARS case at full SE/CI criteria. ICS did not vote on approval of Policy 5 revisions as a one-off exception for this year’s study appeared to be the preferred path. In parallel, ICS will continue to clarify the draft language for downstream NYISO processes and overall consistency. The current addition reads:

“In the event that any changes in the load, capacity, and transmission models that are input to the MARS program for determining NYCA IRM requirements result in a significant increase (i.e., an increase of at least 100% or more) in the number of iterations to achieve convergence and the desired LOLE standard error of 0.025 at a confidence level of 95%, the ICS shall immediately notify the EC of such an outcome, the reason for and potential remedies such as the relaxation of the confidence level. The notification should also state why the remedy(s) are needed such as to ensure the timely completion of the IRM Study. If a remedy is implemented that imposes relaxation of any statistical constraint, the ICS shall make all reasonable efforts to perform a single MARS run at the determined IRM requirement to ensure that the NYCA LOLE shall be, on average, no more than 0.1 loss of load event-days per year at the original standard error criteria.”

4.1.7 Parametric Process Improvements

D. Riendeau-Krause presented background info on the current parametric process and identified issues (misalignment with Tan45, limited predictive value, expectation gap, obscurement of interactive effects). He also proposed design principles and a path forward including back testing of potential design changes. M. Mager noted his support for this project and emphasized its importance.

4.1.8 Summer 2025 Maintenance Sensitivity

H. Fox presented an analysis of maintenance considerations in the IRM model covering the following:

- Current maintenance assumption (50 MW summer only, split evenly in J/K)
- Recap of summer 2024 maintenance analysis that identified 362.7 MW average outage across all zones when load exceeded 28,000 MW
- Zonal allocation of maintenance outages during peak hours in 2024
- PBC parametric sensitivity showed IRM increased 0.44% with similar increases in all LCRs
- Next steps include 2026 whitepaper assessing enhancements to maintenance modeling in the IRM model

M. Mager requested additional details on maintenance events on near-peak days. NYISO replied that the maintenance/derate events are generator-driven. C. Wentlent asked if the high Zone G maintenance allocation was driven by one outlier or multiple units. NYISO replied that it was multiple units. C. Wentlent also asked if winter maintenance had been considered. NYISO replied that it was not but that the fuel constraints model may already be implicitly accounting for some winter maintenance. R. Gonzalez noted that it is important to align with the NYISO outage scheduling process and that each summer tends to be unique, thus researching a sample of years would be ideal. W. Gunther noted that scheduled maintenance may reflect comfort with operational margins rather than the number of outages that would be granted if margins were tighter. M. Cadwalader noted that recent MMU analysis identified gaps between EFORD and actual unit availability, which may explain some of the gap in maintenance assumptions noted by this analysis.

4.1.9 Tan45 Methodology Review

R. Subramanian presented an update on the Tan45 methodology review phase 2 covering the following:

Background on research efforts to date and Tan45 foundational principles

- Next steps involving review of the compatibility of the evolving system configuration and the current Tan45 methodology, impact assessment of the Long Island PPTN, and continued exploration of alternatives and enhancements to Tan45

M. Mager asked if the Tan45 challenges are related primarily to offshore wind. NYISO replied that Tan45 may be challenged by the changing resource distribution and makeup even in the absence of offshore wind.

T. Primrose asked NYISO to investigate alternative transportation algorithms available in MARS. Current models may distribute EA based on order of definition in the master input file as a default setting (currently in zonal alphabetical order A->K). He noted that it would be preferable to test the alternate setting where EA is shared based on depth of zonal shortfall, which may be more aligned with the Tan45 philosophy.

R. Gonzalez noted that some of the original Tan45 principles may not be relevant today, such as economic considerations post-adoption of the LCR optimizer. He also noted the importance of reviewing binding transmission constraints in the IRM model. R. Stalter followed up for more detail on economic considerations. G. Jordan noted that the original Tan45 development did not directly consider dollars and simply balanced LCR/IRM tradeoff. M. Cadwalader added that the current LCR optimizer takes the IRM as fixed, so it is not doing a full economic optimization of IRM/LCR parameters.

4.1.10 Table 6 – IRM Report (Parametric Results) – EC Approval Item

R. Subramanian presented the IRM 2026-2027 FBC parametric results.

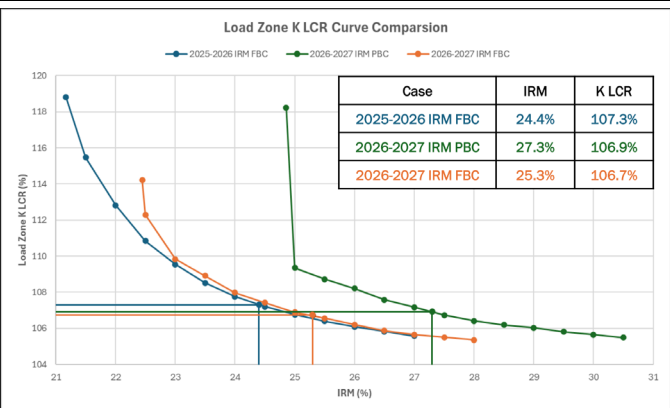
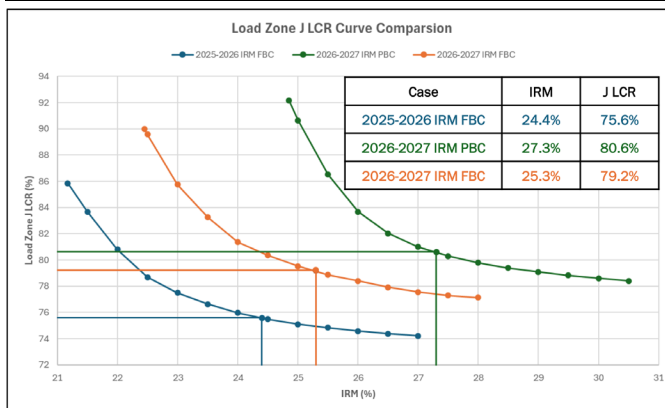
- Material updates include new generator inclusion, voluntary curtailment call limit update, HQ imports modeling update, NERC EFORD: 2020-2024, load zone K topology update, manual & remote voltage reduction MW update, and fall load forecast
- Parametric results stand at 27.48% IRM, 79.70% NYC, 89.49% LHV, and 104.48% LI

W. Gunther added that the parametric process implies a slight increase to the IRM from PBC to FBC whereas the Tan45 IRM decreases significantly.

4.1.11 IRM 2026-2027 Tan45 Results – EC Approval Item

L. Carr presented the IRM 2026-2027 FBC Tan45 results as shown below:

IRM Case	IRM (%)	J LCR (%)	K LCR (%)	G-J LCR (%)	Summer LOLE (%)	Winter LOLE (%)	EOP Calls (Days/Yr)
2025-26 FBC	24.4	75.6	107.3	86.9	100.0	0.0	7.0
2026-27 PBC	27.3	80.6	106.9	89.7	86.2	13.8	7.5
2026-27 FBC	25.3	79.2	106.7	88.8	86.0	14.0	6.3



- Key drivers of changes from PBC to FBC include SCR/DER enrollments, fall load forecast, revised call limit for voluntary curtailments, and new generator inclusion
- Key drivers of changes from 2025/26 FBC to 2026/27 FBC include Enhanced Load Modeling (ELM), BTM solar modeling, winter fuel availability constraints modeling, and CHPE modeling
- 2026-27 IRM FBC alternative metrics include:

Season	LOLE (Event-Days/Yr)	LOLH (Event-Hours/Yr)	EUE (MWh/Yr)	EOP Calls (Days/Yr)
Annual	0.0993	0.3613	169.51	6.3
Summer	0.0854 (86.0%)	0.3212 (88.9%)	149.74 (88.3%)	4.6
Winter	0.0139 (14.0%)	0.0402 (11.1%)	19.77 (11.7%)	1.7

Stakeholder discussion noted that the final TSL floor for Zone J with CHPE in service (81.9%) is higher than the Tan45 result, but the TSL floor with CHPE out of service (78.2%) is lower. D. Zhang noted that final TSL floors would be updated if the FBC Special Sensitivity is adopted. M. Cadwalader asked NYISO to run a test with the IRM case incorporating TSL floors as bounds on LCRs to bring to the EC. NYISO replied that they will take it back and attempt to provide more information before the December EC meeting. W. Gunther noted that changes last year to dynamic EA have reduced the likelihood that TSL floors are significantly higher than Tan45 LCR values. ICS approved the FBC results for inclusion in the IRM report.

4.1.12 Table 7 – IRM Report (Sensitivities) – EC Approval Item

ICS previously approved the PBC sensitivity results, which are re-referenced here off the ICS approved FBC result. Table 7 is attached here to facilitate EC approval for inclusion in the IRM report following established timelines.

4.1.13 Fuel Constraints Phase 2 Whitepaper – EC Approval Item

L. Carr presented the Winter Fuel Availability Constraints Modeling Whitepaper – Phase 2 nearly unchanged from the version presented last month. The draft summarizes key changes and updates since completion of Phase 1 (available oil duration requirements, available gas regression, consideration of firm fuel elections, interaction between CHPE and fuel constraints). ICS approved the Fuel Constraints Phase 2 whitepaper toward fulfillment of 2025 NYSRC goal A1.2.

4.1.14 ELR Whitepaper

B. Prinsloo gave an initial page turn on the draft ELR whitepaper. ICS requests comments and will return to the next EC meeting for approval. This whitepaper fulfills 2025 NYSRC goal A1.4.

4.1.15 IRM Study 2026-2027 Draft Technical Report and Appendices

G. Jordan provided an overview of the initial draft IRM study technical report and appendices and requested comments via email. NYISO highlighted that section 5.6 on winter reliability is new.

----- ICS #310 on Nov 11, 2025 -----

4.1.16 IRM Study 2026-2027 Report Tables 6 and 7

ICS approved IRM Report Tables 6 and 7, which contain previously discussed parametric and sensitivity results.

4.1.17 Continued Discussion of Standard Error and Policy 5

Continuing the standard error discussion from ICS #309, W. Gunther proposed language for the Policy 5 exception (see 4.1.5 attachment for edited version). Since this is a one-off exception, M. Mager asked if we should directly insert the 94% CI achieved in the FBC Tan 45 analysis. ICS supported a 90% lower bound to provide flexibility for the in-progress FBC Special Sensitivity. NYISO indicated that they reached 95% CI at 8,750 replications for the FBC parametric analysis and the exception is only needed for the Tan 45 analysis. NYISO indicated support for the approach and that they would review and provide edits. C. Wentlent indicated it would be helpful to include the final language in Herb's revised EC materials distribution.

4.1.18 ELR Whitepaper

ICS reviewed the ELR whitepaper including an additional paragraph clarifying that method 2 (distinct upstate-downstate start times) was selected because it aligns with operational practices more than method 1 (single NYCA-wide start time). ICS approved the whitepaper.

4.1.19 IRM Study 2026-2027 Draft Technical Report and Appendices

ICS continued to discuss minor edits of the documents. T. Duffy asked how the results of the FBC Special Sensitivity will be documented. G. Jordan indicated they would be included in this report by the Nov 24th ICS meeting. M. DeSocio asked where IRM is defined in Policy 5, previous technical studies, or this study. The IRM Report defines ICR with a formula but not IRM. The IRM Appendix glossary on page 88 includes a sentence definition for IRM but does not specify the capacity is installed capacity and uses firm system demand rather than peak load. G. Jordan and NYISO will take this request back and add additional clarifying language.

4.1.20 Additional Agenda Items

W. Gunther mentioned that Patrick Danner from NYPA volunteered to be the ICS Vice-Chair next year.