Final Minutes

New York State Reliability Council - Installed Capacity Subcommittee (ICS) Meeting #309- November 5th, 2025 Microsoft Teams and NYISO KCC

Attend	ees	Present	Phone
Memb	ers / Alternates:		
	William Gunther (Con Edison – ICS Chair)		
	Brian Shanahan (National Grid)		🖂
	Rich Bolbrock (Unaffiliated)		
	Clay Burns (National Grid)		🖂
	Ruby Chan (CHG&E)		🖂
	Caroline Decker (CHG&E)		🖂
	Sanderson Chery (Con Edison)		🖂
	Ayman Elkasrawy (NYSEG/RG&E)		🖂
	Jin Hao (NYSEG/RG&E)		
	Jim Kane (NYPA)		🖂
	Patrick Danner (NYPA)		
	Mike Mager (MI)		🖂
	Chris Wentlent (MEUA)		🖂
	Hilme Athar (PSEG LI)		🖂
	Thomas Primrose (PSEG LI)		🖂
	Mike DeSocio (Luminary)		
Advise	rs/Non-member Participants:		
	Gary Jordan (ICS Consultant)		
	John Adams (ICS Consultant)		🖂
	Henry Fox (NYISO)		
	Dylan Zhang (NYISO)		
	Laura Popa (NYISO)		🖂
	Max Schuler (NYISO)		
	Yvonne Huang (NYISO)		
	Bianca Prinsloo (NYISO)		
	Lucas Carr (NYISO)		

Sanket Milind Ulagadde (NYISO)		
Ryan Carlson (NYISO)		
Heidi Nielsen (NYISO)		
Brendan Long (NYISO)		
Carter Hempstead (NYISO)		
Garrett Bissell (NYISO)		
Kathleen O'Hare (NYISO)		 \boxtimes
Josif Figueroa (NYISO)		
Pramila Nirbhavane (NYISO)		
Ethan Avallone (NYISO)		
Keegan Guinn (NYISO)		
Pallavi Jain(NYISO)		
Oyin Agunbiade (NYISO)		
Andrew Gregory (NYISO)		
Arjun Malhotra (NYISO)		
Claudia Bustamente (NYISO)		
Leila Nayar (NYISO)		
Sushant Varghese(NYISO)		
Diego Meucci (NYISO)		
Benjamin O'Rourke (NYISO)		
Jack Garrett (NYISO)		
Afreen Vahora (NYISO)		
Syeda Lubna (NYISO)		
Akin Aroge (NYISO)		
Manish Sainani (NYISO)		
Zach T. Smith (NYISO)		
Helena Frudit (NYISO)		
Chris Hamilton (NYISO)		
Aaron Markham (NYISO)		
Rajesh Subramanian (NYISO)	\boxtimes	
Alexis Drake (NYISO)		
Ansa Altaf (NYISO)		
Yi-An Chen (NYISO)		

Dominic Riendeau-Krause (NYISO)	\boxtimes	 🗌
Mikaela Lucas (GE)		
Matt Elkins (GE)		
Adam Evans (DPS)		 🖂
Richard Quimby (DPS)		 🖂
Randy Monica Jr. (DPS)		 🖂
Wes Yeomans (RRS/RCMS)		 🗌
Kristine Agati (Avangrid)		 🖂
Leen Almadani (CHG&E)		 🔲
Andrea Calo (CES)		 🖂
Joe Coscia (Potomac Economics)		 🗌
Mike Cadwalader (Atlantic Economics)		 🖂
Grant Flagler (Con Ed Energy)		 🖂
Karl Hofer (Con Edison)		 🖂
Mariann Wilczek (PSEGLI)		 🔲
Lucy Khazanovich (PSEGLI)		 🔲
David Mirabella (PSEGLI)		 🖂
Manny Panaligan (PSEGLI)		 🔲
Mark Magliola (PSEGLI)		 🔲
Mariann Wilczek (PSEGLI)		 🖂
Tim Lundin (LS Power)		 🖂
Julia Popova (NRG)		 🖂
Ricardo Galarza (PSM)		 🔲
Richard Bratton (IPP NY)		 🔲
Khatune Zannat (NPCC)		 🔲
Herb Schrayshuen (NYSRC)		 🔲
Vincent Gabrielle (RTO Insider)		 🖂
Aaron Breidenbaugh (C Power)		 🖂
Eve Marenghi (Luminary)		
Ray Stalter (Luminary)		 🖂
Michael Lenoff (Earth Justice)		 🖂
William Sanchez (NYSERDA)		 🖂
Rick Gonzales		 🖂

Elynor Reyes
Michael Swider
Benjamin Cohen
Mackenzie Poulton
Haizhen Wang
Jared Anderson
Mark Gaines
Kenneth Galarneau
John Norris
Leon Almadani
Yannick Vennes
Stephen Conant
Nilkesh Gowalani
Matthew Schwall
Stephanie Palmer
James Pigeon
John Haff
Matthew Napoli
Alan Ackerman
Marisa Doherty
Scott Niemann
Vaibhav Parekh
Travis Atkinson
Daniel Jerke
Asna Altaf
Timothy Duffy
Ryan Martin

1&2 Roll Call and Request for Additional Agenda Items – W. Gunther / T. Primrose

W. Gunther noted a handful of updates for ICS as follows:

- P. Danner is the new NYPA alternate member for ICS
- Final TSL floor values were presented at the 10/28/25 ICAPWG

• Draft NERC Standard issued on Project 2024-2 "Planning Energy Assurance"

3. Approval of Previous Meeting Minutes - T. Primrose

Meeting minutes for previous meeting #308 were approved with no edits.

R. Stalter requested that T. Primrose note the following in the minutes for ICS 309 relating to the ICS 308 minutes:

- On the topic of ICS 308 agenda item 7, Luminary is requesting follow up regarding charging logic constraints for ELRs such that ELR charging do not take margins to 0. W. Gunther noted that ICS does not add action items for every request, but that ICS will note this as a topic to address.
- On the topic of UDR elections from ICS 308 agenda item 10, the NYISO reiterated that UDR elections are confidential and the NYISO will not be providing more detail on specific UDR elections at the ICS.

4. Review of Action Item List - W. Gunther

W. Gunther highlighted updates to action items as follows:

- Added EC action item related to gas constraints
- Reflected updates to whitepaper status
- Updated Gantt chart and additional topics to monitor

5. Chair update on recent EC actions – W. Gunther

W. Gunther provided an update on the EC covering the following:

- EC approved the FBC assumptions matrix as approved by ICS
- C. Wentlent requested ICS add a goal related to alternative reliability metrics

6. FBC Special Sensitivity Reflecting Q3 Star (Approval Item) – W. Gunther

W. Gunther raised the FBC Special Sensitivity Reflecting Q3 Star as an approval item. Resources to be modified in the special sensitivity are outlined below. ICS approved the Special Sensitivity Reflecting Q3 Star (with added note that fuel constraints will be modified to reflect updated generation).

- Zone J additions (512.9 MW): Gowanus 2-1 2-8, 3-1 3-8, with exception of Gowanus 3-6,
 Narrows 1-1 1-8, 2-1 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

W. Gunther emphasized that the above list is for the purpose of a special sensitivity and it 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.

M. Schwall asked for clarification on how FBC special sensitivity results may be incorporated into the IRM determination. W. Gunther replied that the EC has the ability to consider however many sensitivities they want in order to make an IRM determination.

T. Duffy asked for clarification that the FBC special sensitivity would include CHPE and the barges. W. Gunther replied that the special sensitivity would include both CHPE and the barges. Also asked for clarification on why Cassadaga wind will be excluded. NYISO replied that the Cassadaga wind lost its CRIS.

M. Mager asked if the expectation is for the (NYC) barges to continue operating in 2026. W. Gunther replied that the special sensitivity's purpose is to inform the EC based on the result of the Q3 star reflecting a realistic set of system conditions. M. Mager stated that the EC may need an update on the status of the barges prior to the next meeting. M. Schwall stated that based on timing of processes downstream of the Q3 STAR, the barges will certainly be needed in 2026.

M. Lenoff asked for clarification on the purpose of the special sensitivity. W. Gunther replied that the purpose of the sensitivity is to reflect a realized system condition rather than move the IRM up or down. Y. Huang added that the IRM special sensitivity will receive full Tan45 analysis.

S. Conant asked how this sensitivity differed from previous sensitivities run with barges and CHPE in service (specifically PBC S07B). Y. Huang noted that this special sensitivity on the FBC is due to late-breaking changes (Q3 STAR) whereas PBC sensitivities are designed to gauge impact for a range of conditions. S07B was done relative to the PBC while this special sensitivity would be done starting from the FBC. There have been intervening changes as outlined in the parametric analysis. L. Carr noted that this special sensitivity also requires adjustment to fuel constraints due to modification of F-K generation. ICS will upload a redline noting that the fuel constraints will be updated.

7. NYSRC ICS 2026 Goals (Approval Item) – W. Gunther

W. Gunther presented the ICS 2026 goals as an approval item. Goals include:

- 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.

G. Jordan noted that for item 7 the ICS has reported alternative reliability metrics for several IRM cycles. W. Gunther noted that possible options include reporting metrics before EOPs or in greater detail. C. Wentlent noted that the main question is to have a discussion on when the ICS should consider alternative or additional metrics beyond just LOLE. M. Lenoff asked for the ICS to provide an analysis of confidence in magnitude and dependability of EOP steps. Stakeholder discussion ensured regarding the purpose of item A1.7 as exploring additional metrics and what they mean rather than immediate implementation of incremental or new criteria.

M. Schwall noted a preference to "frontload" item A1.1 to provide clarity in advance of the August 1st 2026 firm fuel elections. W. Gunther noted EC action item 312-1 is a good starting point for the firm fuel discussion and the 2026Q4 deadline is just a conservative estimate.

R. Stalter asked for additional detail on item 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.

ICS approved the goals.

8. 2026 ICS Schedule Changes (Approval Item) – W. Gunther

W. Gunther proposed updates to the 2026 ICS schedule as an approval item. ICS meeting changes to avoid conflicts are as follows:

- Wednesday, April 1, 2026, moved to Tuesday, March 31, 2026
- Wednesday, Nov 4, 2026, moved to Tuesday, Nov 3, 2026
- Wednesday, Dec 2, 2026, moved to Thursday, Dec 3, 2026

ICS approved the schedule changes as presented.

9. ICS Chair and Vice Chair Rotation- W. Gunther

W. Gunther presented the proposed and historical ICS Chair and Vice Chair rotation. Introduced T. Primrose as ICS chair for 2026 and noted that ICS is looking for a volunteer for Vice Chair for 2026.

C. Wentlent thanked W. Gunther for his time as chair and noted that many significant issues have been handled in his tenure.

10. Standard Error Analysis - B. Prinsloo

- B. Prinsloo gave a presentation on standard error in the IRM study covering the following:
 - Background on Policy 5-19 requirements for standard error and confidence level
 - Details on standard error in the IRM FBC and inefficient convergency due to the high variance introduced by the heavy-tailed LOLE distribution.
 - Runtime concerns for Tan45 with excessive iterations (Tan45 using 3,000 replications that is presented at this ICS meeting required a week to complete due to multiple interruptions)
 - Increased replications beyond 3000 risk failure to provide timely results for NYSRC deliverables
 - Recommendation to update NYSRC Policy 5-19 to allow for short-term solution of reduced 90% confidence level
 - 3,000 replications meets a 92% confidence level prior to the Tan45 and 94% after the Tan45
 - Explore options for longer-term solutions as part of the Parametric Improvement Whitepaper in early 2026.

R. Gonzalez asked for more detail on the cause of the need for more replications to reach convergence. G. Jordan replied that the system has gotten more complex and that large single source losses (such as CHPE) have been introduced. Also noted that a deep dive into high LOLE replications is a potential topic for future exploration. 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 special sensitivity may reduce the iterations required for convergence via increased resource availability.

T. Primrose explained that several recent changes to align the model with real operations risks have contributed to the heavily tailed LOLE distribution. Dynamic bin-based limits to emergency

assistance and fuel constraints both contribute to lower capacity availability in higher load bins which drives "out" the high LOLE tail.

W. Gunther asked for input from EC members on the call on the best approach to address the issue at EC. He 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 a better approach than codifying a change to Policy 5 on short notice. M. Mager suggested bringing this up at the EC but that at face value it seems like 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 that this is purely a time constraint. B. Prinsloo noted that each individual model replication has tripled in runtime in recent years. C. Wentlent noted a preference for a one-time exception for this year, and Policy 5 edits if this becomes an ongoing issue.

G. Jordan suggested future coordination with GE to improve Tan45 process performance and recovery from failed iterations.

Stakeholder discussion noted that replications for the FBC special sensitivity should match the FBC.

11. Policy 5-19 Revisions (Approval Item)- G. Jordan/J. Adams

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.

W. Gunther/ G. Jordan noted that this is no longer necessary as the ICS will be asking for a one-time exception for this year, but that ICS should review the language anyway to get initial feedback. Also noted a need for clarification of language for downstream NYISO processes and overall consistency.

ICS did not move to vote on approval of Policy 5 revisions as ICS will be asking for special one-time exception for this year.

12. Parametric Process Improvements – D. Riendeau-Krause

- D. Riendeau-Krause presented parametric process improvements covering the following:
 - Background, purpose, and methodology of the current parametric process
 - Summary of parametric process issues (misalignment with Tan45, limited predictive value, expectation gap, obscurement of interactive effects)
 - Proposed design principles and potential enhancements
 - Next steps include back testing of potential design changes, investigation of alternative methodologies, and draft whitepaper.
- M. Mager noted his support for this project and emphasized its importance.

13. Summer 2025 Maintenance Sensitivity – H. Fox

- H. Fox presented an analysis of maintenance considerations in the IRM model covering the following:
 - Background on current maintenance model (50 MW summer only, split evenly in J/K)
 - Recap of Summer 2024 maintenance analysis that identified 362.7 MW daily average quantity of maintenance outages across all zones when load exceeded 28,000 MW
 - Analysis of zonal allocation of maintenance outages during peak hours in 2024

- Parametric sensitivity results incorporating 363 MW of summer maintenance based on aforementioned zonal allocations
 - o Relative to 2026-2027 PBC IRM increased .44% with similar increases in all LCRs
 - Maintenance sensitivity demonstrated slight increase in summer LOLE risk relative to PBC
- Next steps including whitepaper effort in 2026 to assess enhancements to maintenance modeling in the IRM model
- M. Mager asked for additional detail on the nature of 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 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. Stalter asked about testing this on the Tan45 2026-2027 FBC. NYISO replied that if this analysis was refreshed in the future they would update the underlying model.
- R. Gonzalez noted that it is important to align with the NYISO outage scheduling process and that each summer tends to be unique so researching a sample of years would be ideal. W. Gunther noted that outage scheduling practices may reflect operational margins in real time rather than how many outages 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.

14. Tan45 Methodology Review – R. Subramanian

- R. Subramanian presented an update on the Tan45 methodology review phase 2 covering the following:
 - Background on research efforts to date and foundational principles of Tan45
 - Next steps involving review of the compatibility of the evolving system configuration and the current Tan45 methodology, impact assessment of Long Island PPTN on Tan45, and continued exploration of alternatives and enhancements to Tan45.
 - Proposed timeline for continued research efforts.
- M. Mager asked if the Tan45 challenges are related primarily to offshore wind or if they would occur regardless of offshore wind buildout. NYISO replied that the Tan45 may be challenged by 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 emergency assistance in MARS 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 emergency assistance is shared based on depth of zonal shortfall which may be more aligned with the philosophy of the Tan45.
- R. Gonzalez noted that some of the original principles of the Tan45 may not be relevant today, such as economic considerations post-adoption of the LCR optimizer. Also noted the importance of reviewing binding transmission constraints in the IRM model. R. Stalter followed up for more detail

on economic considerations now that the LCR optimizer is in use. G. Jordan noted that the original Tan45 development did not directly consider dollars, it simply balanced LCR/IRM tradeoff.

M. Cadwalader added that the current LCR optimizer takes the IRM as an unchangeable constant so it is not doing a full economic optimization of IRM/LCR parameters.

15. IRM 2026-2027 FBC Results - R. Subramanian

R. Subramanian presented an update for the IRM 2026-2027 FBC 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, Fall Load Forecast
- Parametric result stands at 27.48% IRM, 79.70% NYC, 89.49% LHV, 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 result decreases.

16. IRM 2026-2027 Tan45 Results (Approval Item) - L. Carr

L. Carr presented an update for the IRM 2026-2027 FBC Tan45 results.

Case	IRM	Zone J LCR	Zone K LCR	G-J LCR	Summer LOLE	Winter LOLE	EOP Calls
	%	%	%	%	%	%	Days/Yr
2026-2027 IRM FBC	25.3%	79.2%	106.7%	88.8%	86.0%	14.0%	6.3
2026-2027 IRM PBC	27.3%	80.6%	106.9%	89.7%	86.2%	13.8%	7.5
2025-2026 IBM FBC	24 4%	75.6%	107.3%	86.9%	100.0%	0.0%	7.0

- Key drivers of changes from PBC to FBC include Special Case Resource (SCR)/Distributed Energy Resources (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
- Load Zone J Curve Comparison:
 - Between the 2025/26 IRM FBC and 2026/27 IRM PBC, there was a large shift up and to the right with three large drivers being BTM solar modeling, winter fuel availability constraints modeling and implementation of CHPE
 - Between the 2026/27 IRM PBC and 2026/27 IRM FBC, there was a shift down and to the left primarily due to typical IRM study annual updates in addition to certain assumption updates such as revising the call limit for voluntary curtailments.
- Load Zone J Curve Comparison:
 - Between the 2025/26 IRM FBC and 2026/27 IRM PBC, there was a large shift to the right primarily resulting from BTM solar modeling, winter fuel availability constraints
 - Between the 2026/27 IRM PBC and 2026/27 IRM FBC, the curve shifted down and to the left primarily due to generator deactivations, the fall load forecast update, and the revised call limit for voluntary curtailments

Stakeholder discussion noted that final TSL floor for Zone J with CHPE in service is higher than the Tan45 result, but TSL floor with CHPE out of service is lower. D. Zhang noted that final TSL floors would be updated if FBC special sensitivity is adopted.

M. Lenoff asked why the IRM results differ from the NYISO CRP results. NYISO noted that the IRM study shifts and removes capacity to meet FERC .1 days/year LOLE criteria rather than modeling the system as found or expected system with future additions.

M. Cadwalader asked NYISO to run a test with the IRM case incorporating TSL floor as bounds on LCR to bring to the EC. NYISO replied that they will take it back and attempt to provide more information before the December EC.

W. Gunther noted that changes to dynamic EA have reduced the likelihood that TSL floors are significantly higher than Tan45 LCR values.

ICS approved the FBC results.

17. IRM 2026-2027 Tan45 Points/Curve (Posting Only)

18. Fuel Constraints Phase 2 Whitepaper (Approval Item) - L. Carr

L. Carr presented a copy of the Winter Fuel Availability Constraints Modeling Whitepaper – Phase 2 substantially unchanged from the last ICS. This 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. The whitepaper will proceed to the November EC for approval.

19. ELR Whitepaper – B. Prinsloo

B. Prinsloo gave an update on the ELR whitepaper covering an initial page turn of the draft whitepaper.

ICS requests comments prior to the November 24th meeting to facilitate whitepaper approval at that meeting.

20. IRM Study 2026-2027 Technical Report Draft – G. Jordan

G. Jordan provided an overview of the draft IRM Study 2026-2027 Technical Report. He requested comments via email.

NYISO highlighted that section 5.6 on Winter Reliability is new.

21. IRM Study 2026-2027 Report Appendices – G. Jordan

22. Additional Agenda Items

No major additional agenda items identified.

D. Zhang noted that it may not be possible to run a full Tan45 on the FBC special sensitivity prior to ICS 310. Results will be available for ICS 311.

Next Meeting

Meeting #310-Tuesday, November 11th, 2025, 10:00 am -MS Teams
Meeting #311 -Monday, November 24th, 2025, 10:00 am-NYISO KCC and MS Teams