

Draft Minutes

**New York State Reliability Council - Installed Capacity Subcommittee (ICS)
Meeting #258 – March 2, 2022
Microsoft Teams**

Attendees **Present** **Phone**

Members / Alternates:

Brian Shanahan (National Grid) ICS Chair	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rick Brophy (NYSEG/RG&E)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rich Bolbrock (Unaffiliated)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Clay Burns (National Grid).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sanderson Chery (Con Edison).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
John Cordi (NYPA)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ayman Elkasrawy (NYSEG/RG&E)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Howard Kosel (Con Edison).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mike Mager (MI)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chris Wentlent (MEUA).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Rich Wright (CHG&E)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mark Younger (Hudson Economics)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Khatune Zannat (PSEG LI)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Advisers/Non-member Participants:

John Adams (ICS Consultant)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Al Adamson (EC Consultant)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
David Allen (NYISO).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Leen Almadani (CHG&E)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Andrea Calo (CES)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ryan Carlson (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kenneth Galarneau (Rise Light & Power)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ricardo Galarza (PSM Consulting)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ying Guo (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Karl Hofer (Con Edison).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Yvonne Huang (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Gary Jordon (ICS Consultant)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Scott Leuthauser (HQUS)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Aaron Markham (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Randy Monica Jr. (DPS)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Scott Nevins (DPS)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Otito Onwuzurike (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ben O'Rourke (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Kevin Osse (NYISO).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Carl Patka (NYISO).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Richard Quimby (DPS).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sushil Silwal (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Zachary Stines (Borrego)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Roll Call – R. Brophy

- Roll call was conducted.

2. Introduction and Request for Additional Agenda Items – R. Brophy

- No requests for additional agenda items.

3. Approval of Minutes for Meeting #257 – R. Brophy

- Meeting Minutes for #257 approved.

4. Review of Action Items List – R. Brophy

- 220-1: Transmission Owner responses to the follow-up question provided at the February 11th EC. Mr. Shanahan will follow-up on whether the EC wants the tracking done on an annual basis at the March 11th EC meeting.
- 249-17: Agenda item #8
- 254-1: Due in May, nothing to discuss today
- 255-1: Due in May, nothing to discuss today
- 257-1: Moved date for developing scope out to January 2023
- Current White Paper Topics:
 - Maintaining Operating Reserves – agenda item #9
 - High Renewable Phase 3 – agenda item #7
 - LFU/Load Shape selections – in-progress, due in May
 - Study of 2022 Sensitivity #11 & #12 – agenda item #8
- Future (2023 and beyond) White Paper / Study Topics: No updates

5. Chair update on recent EC actions – R. Brophy

- EC approved the ICS milestone schedule.
- Mr. Shanahan reviewed ICS white papers settled on for completion in 2022, revisions to the High Renewables Phase 3 study, and TO responses re Public Appeals for Load Reduction.

6. Proposed Rule Change from Reliability Rules Subcommittee

6.1. Updated PRR 149 Review – A. Adamson

- Mr. Adamson provided an overview of the proposed changes to PPR 149 and the rationale behind the changes. He said they've had some extensive discussions with NYISO staff on this change and they are agreeable with the change to the LOLE rule.
- Mr. Adamson also explained the process used by the Reliability Council to develop and modify reliability rules and requirements. He said the RRS will be reviewing it at their March 3rd meeting and decide what the appropriate next step will be.
- Mr. Adamson said if there were any questions after today's meeting to send them to him or Mr. Clayton.
- Mr. Cordi questioned whether NERC has accepted our current interpretation even though other areas have interpreted it differently and if there was any difficulty with our interpretation in New York or with the Reliability Council. Mr. Adams said he was not aware of any issue with NERC concerning the current interpretation or the proposed change. He explained the proposed LOLE criterion change is consistent with recommendations in the IEEE Resource Adequacy WG 's paper presented at a NERC conference and that there were no issues from NERC itself during that discussion.
- During the review Mr. Mager pointed out an error in the Appendix, 6th bullet: "2.4 days/year loss of load" should be "2.4 hours/year loss of load". Mr. Adamson said the RRS would be reviewing edits to the proposal and would add that to the list.

7. High Renewables Phase 3 Draft White Paper Study Scope for Approval – K. Osse

- Mr. Osse walked through the white paper scope that was revised based on conversations at the January 5th ICS meeting. The Phase 3 study will have three segments with the third segment incorporating the retirement of the units that will be unavailable starting in the summers of 2023 and 2025 due to the Peaker Rule. NYISO will be reporting those three segment results (Cases) separately. Mr. Osse confirmed that Case 2 will build on Case 1 and Case 3 will build on Case 2.
- During the review several issues came up including the amount, duration limits, and the locations to be used for the ESRs in the study. There was also a question as to the locations OSW is allocated to. After considerable discussion an agreement was reached between ICS members and the NYISO on these items.
 - The State has increased its CLCPA goal for ESRs to 6GWs, it was decided to increase it in the study from 3GWs to 6GWs.
 - A majority of ESRs in the NYISO queue are indicating a 4-hour duration, it was decided to model ESR capacity with a 4-hour duration in the study.
 - Rather the spreading the ESRs equally in each zone as proposed, it was decided that ESR Capacity will be distributed proportionally with respect to renewable ICAP by zone.
 - The placement of offshore wind capacity will be split between Zones J and K, with two-thirds of capacity in Zone J and one-third in Zone K.
- The NYISO also explained that making the changes requested by ICS could push the timeline for results out about one month. There was discussion about some workarounds that could save time and effort for the work that will be done.
- The NYISO will take the scope back and revise it according to the agreed changes, they will come back to the March 29th meeting and review the scope. It will be an ICS approval item.

8. Whitepaper/Study Update of 2022 Sensitivity #11 & #12 (GT retirements and AC Transmission Upgrades) – R. Carlson

- Mr. Carlson reported that the Tan45 values are complete and have looked pretty intuitive so far. They are still running the LCR cases and reviewing them. The goal is to come to the March 29th ICS with the results.
- The NYISO has completed the LCR runs for the most part, they are just testing different variables within them.
- If the NYISO gets the results for the LCR cases finalized and reviewed prior to the ICS meeting, they will try to present at an ICAPWG meeting then bring them to the ICS. The March 16th ICAPWG was offered as a possibility.

9. Maintaining Operating Reserves during Load Shedding Events – White Paper Discussion

9.1. Reliability Rules & Operations Implications – A. Markham

- Mr. Markham's goal was to come back to ICS to do some follow-up and answer a few of the questions raised in the last discussion at the February 2nd ICS. A modeling enhancement in the IRM process was proposed to maintain some level of Operating Reserves during load shedding events was presented and discussed at that meeting.
- Mr. Markham reviewed how the Reliability Rules apply to Eastern Interconnection, the Operating Reserve standard in WECC, and the Emergency Procedure involving Operating Reserves in ERCOT.
- For Operating Reserves in Real Time Operations, Mr. Markham explained that from the IRM perspective, operating reserves are considered as the last emergency procedure before initiating load shedding. However, during real time operations, grid operators need to manage the electricity grid and follow multiple reliability rules and operating standards and that the combined impact of multiple reliability rules and that operating standards in practice require the operator to maintain a certain level of Operating Reserves to manage volatility on the system, even during the time of emergency.
- The NYISO has looked at some of the other areas, what they are doing, and some of the lessons learned. Mr. Markham explained that not only does the NYISO have to comply with the NERC, NPCC, and NYSRC standards from a balancing area and operating reserve perspective they also have standards applicable to transmission line and inertia loadings.
- NYISO looks at the balancing area standards as well as the transmission standards. Mr. Markham stated that it was not reasonable to assume they could take reserves right to zero and still maintain compliance with all the standards. When considering all the volatility on the system – load is changing every 6-seconds, there is volatility in conventional and intermittent generation output, frequency on the interconnection moves – all those things bring us back to the fact that we can't operate the system right to the edge as we've been assuming in the IRM studies. An example of emergency operations was reviewed to help explain how the operators would handle an emergency situation.
- Mr. Markham said that the operating reserve modeling in the IRM assumes all the operating actions are exhausted prior to loss of load event and noted that this assumption does not capture the operating reality when load shedding is needed or the action of maintaining Operating Reserves during real time operation. He said that it is prudent to review the IRM assumption and consider maintaining some level of operating reserves in the model and we need to reflect the operating reality that some level of operating reserve will need to be maintained at load shedding in the IRM study will set the appropriate requirement to provide sufficient capacity to meet the 0.1 LOLE Criterion.

- Mr. Markham noted that ISONE maintains 700MW of minimum operating reserves in their ICAP assessment so they can manage the volatility. He said that New England is a little bit different in that it is basically islanded on all sides. Any volatility that comes to NY would load up the ties on the NY-NE interface. NY has ties to PJM and IESO which could pick up some of the variability and volatility but we are not in a lot better position because we are essentially blocked in the north by the AC/DC connections – don't get any inertial support there – and the NE system relative to the Eastern Interconnection is small so we would get very little assistance there. As we think through the value that might be appropriate to maintain, it may not be the 700MW value that NE has based on our unique characteristics in NY, but NYISO definitely thinks from an operational perspective that value is greater than the zero we've been modeling historically.
 - Mr. Younger pointed out that while ISONE maintains 700MWs of minimum operating reserves on their system we need to consider that it is 700MWs on a smaller system. Mr. Markham agreed that it was a valid point to consider when we think through what the right amount of operating reserves needs to be maintained in New York, factoring that in along with the connectivity of the NY system to the Eastern Interconnection.
- Mr. Markham laid out their schedule over the next few months for impact assessments, draft/final proposals, and a final review with the ICS and EC. Plans are to then go on to the appropriate processes to actually implement this in the IRM study for next year.

9.2. Preliminary Results – Y. Huang

- Building on Mr. Markham's presentation on why we need to look at the level of minimum operating reserves, Ms. Huang said that because of the importance of what happens in real-time operations during load shedding she will be discussing the impact of maintaining a level of operating reserves during load shedding to accommodate system volatility during times of stress.
- Ms. Huang reviewed the methodology they were considering. Currently 10-minute OR is modeled as Emergency Operating Procedure ("EOP") step 8 in the IRM, which MARS will count on to address system shortages. The NYISO deducted three MW levels of 10-minute OR in the EOP step 8, reflecting the reduced amount of OR being available during load shedding – maintain 327.7MW, 500MW, or 655MW of operating reserves. Different upstate/downstate allocation methods were also studied to try to get an understanding of the impact of these allocations versus the current allocation.
 - Mr. Younger commented that until alternative LCR runs are made we really don't know if there is locational impacts. Ms. Huang agreed, but said that there are nine different cases and didn't think we wanted to do Tan45s and subsequent LCRs on all nine cases. If everybody can look at the results parametrically and we get buy-in for potentially one or two scenarios we can proceed with that and look at the Tan45 and LCR results for an IRM perspective, if that looks good and they have everyone's support then we can proceed with applying the LCR optimizer.
- The analysis indicated that maintaining additional Operating Reserves at load shedding will proportionally increase the IRM, zonal allocations between upstate and downstate have ~0.5% impact on the IRM, and having the Operating Reserves maintained upstate and increasing upstate ICAP will alleviate issues in Zone A/B, hence reducing the EOP activations.
- The NYISO recommended selecting the 327.5 MW of Operating Reserves with the current NYCA allocation to proceed to a Tan45 assessment. The NYISO also wanted to consider combining it with other modeling changes, such as adopting GE ELR model for the Tan45 assessment.

- Mr. Younger recommended to go with the 500MW level for maintaining Operating Reserves not the 375MW level the NYISO was recommending, but did think that the determination for the OR MW level should ultimately be determined by NYISO Operations. He also reiterated his request that the NYISO do an Alternative LCR run on whatever case is selected to see if there are changes that would result in significant movement in the LCR results that is different than what the Tan45 would have implied. The benefit being, we have the straight case that can be compared to our final IRM and then we have the Alternative LCR case that can be compared to the final Alternative LCRs, and we can see whether maintaining these levels shifts around risk in ways that show up in the Alternative LCR but didn't show up in the Tan45.
 - Mr. Markham said that they have been discussing this within the Operations group. They do think that 327.5MWs is probably the minimum they would recommend. They will take back Mark's 500MW recommendation and continue to discuss internally. The NYISO will come forward, with Operation's feedback, with a final recommendation. They will factor in the observations and recommendations in their recommendation.
- Ms. Huang said that if we look at the parametric study the results are actually very intuitive, so whichever MW level we take with the Tan45 we can gauge, based on those results, what it could be at a different level when keeping the same allocation. She also said that she hoped that we're not trying to land on one level and one allocation method and just be done with it – that modeling and that assumption would just sit there for 10 years. This is the first step in working on this; we can start bringing it into our base case assumptions then on an ongoing basis we should continually review it and tweak it because we know that when you have one modeling change and you get new or additional information it can be fine-tuned. We need to keep in mind it is not a static number, we should review it on an ongoing basis.
- Mr. Boles went through the schedule he envisioned for this. Between now and the preliminary base case assumptions matrix lockdown which happens in June: 1) NYISO can be tasked with conducting a Tan45 and an Alternative LCR run – using the 500MW mid-point as informational for everyone. Make sure the Tan45 remains intuitive as a parametric and that the LCRs don't do something unexpected. 2) When we have the preliminary base case assumptions matrix set we would run that case. 3) By that time we would look for Operations to come out with their final recommendation, which we would run as an actual sensitivity on the preliminary base case with the hope of adopting it in the final base case.
- Ms. Huang asked if when we conduct the Tan45 assessment whether we wanted to see that combined with GE ELR model or with the original fixed output shape. She recommends doing the assessment with the GE ELR model because we are planning to adopt that model this year. If we can but that GE ELR model in the base case, potentially run a sensitivity with the original fixed output shape, that would give another datapoint of comparison to look at the performance of the GE ELR model functionality. It would be helpful to look at the cumulative effect while we have the GE ELR model in place. In addition to that, based on our previous sensitivity, we know that with the GE ELR model we saw roughly a .7% to .9% reduction in the IRM. That model seems to be a bit more stable and predictable and if we include it in the Tan45 assessment it gives a more cumulative view of the impacts.
 - Mr. Younger and Mr. Jordan said they would like to see two runs done, one without the GE ELR model and a second with the GE ELR model. Mr. Jordan said that if you want to see the impact on the LCRs from holding Operating Reserves you need to keep everything else constant then bring that in, and then compare that to the addition of the GE ELR model.

- Mr. Boles thought that what would be good is if we focus on what we've discussed so far – a Tan45 with the 500MWs and the current allocation methodology without the GE ELR model. The reason being is that model is well understood and the ICS and EC are poised to adopt it as part of the base case this year. We'll be able to do a sensitivity on just that GE ELR model as part of the normal sensitivity cases. The main reason it was offered as an option is because NYISO feels strongly about the operating reserves issue. The final number will be up to Operations to decide. We also know that using GE's automated ELR tool is expected to reduce the IRM by ~1%. The worst thing for reliability, the markets, and predictable, stable, and transparent results is for us to adopt the GE ELR model, have the IRM fall, and have market prices fall all while knowing we want to make this operating reserves change. If you make those changes together you maintain the stable, predictable, reliable signal we're trying to send through all of our processes.
- Mr. Boles added that we can focus on the operating reserves component between now and June and once we have a preliminary base case we can run the two items separately – the operating reserves then the GE ELR model, the people can look at both sets of results and decide whether to adopt both of them.

10. Additional Agenda Items

- None

Next Meeting

Meeting #259 – Wednesday, March 29, 2022, 10 am – Microsoft Teams