

Meeting Minutes

**New York State Reliability Council - Installed Capacity Subcommittee (ICS)
Meeting #257 – February 2, 2022
Microsoft Teams**

Attendees **Present** **Phone**

Members / Alternates:

- | | | |
|---|--------------------------|-------------------------------------|
| Brian Shanahan (National Grid) ICS Chair | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Noor Leghari (NYSEG/RG&E) ICS Vice Chair / Secretary | <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"/> |
| Ruby Chan (CHG&E)..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Sanderson Chery (Con Edison)..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| John Dellatto (PSEG LI)..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Ayman Elkasrawy (NYSEG/RG&E) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Jim Kane (NYPA) | <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:

- | | | |
|-------------------------------------|--------------------------|-------------------------------------|
| Alan Ackerman (CES)..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| John Adams (ICS 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"/> |
| Josh Boles (NYISO) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Patti Caletka (NYSEG/RG&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"/> |
| Nelson Eng (Con Edison) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Grant Flagler (Con Ed Energy) | <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"/>
Nate Gilbraith (NYISO)	<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"/>
Erin Hogan (UIU)	<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"/>
Tim Lundin (LS Power)	<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"/>
Max Schuler (NYISO)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mariann Wilczek (PSEG LI)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1. Roll Call – R. Brophy

- Roll call was conducted.

2. Introduction and Request for Additional Agenda Items - B. Shanahan

- No requests for additional agenda items.

2.1. Approval of Minutes for Meeting #256 – B. Shanahan

- Meeting Minutes for #256 approved.

3. Review of Action Items List – B. Shanahan

- 220-1: Mr. Shanahan presented the survey results at the January 14th EC meeting. It was unclear from the discussion at the meeting whether the EC wants this to be an ongoing item or not. He will seek clarity on that at the next EC meeting.
- 249-17: NYISO will present on this at today's meeting.

- 254-1 & 255-1: By May we should have some additional clarity on what, if anything, will be improved this year and whether we want to use the enhanced modeling or not.
- Current White Paper Topics (For 2023 IRM Study): Mr. Shanahan has updated the list of topics we have for this year based on the discussions at the January ICS meeting.
- Future (2023 and beyond) White Paper / Study Topics: Mr. Shanahan briefly reviewed the list of what other items he thought needed to be looked at in the future.

3.1. ICS 2022 Roster Update – B. Shanahan

- Mr. Shanahan said he has updated the roster and briefly went through the changes/updates to the roster that he was aware of.
- Mr. Shanahan announced that Gary Jordan has been hired as our second ICS consultant, he is replacing Greg Drake. Mr. Jordan gave a brief background on his work experience related to the processes and tools used in the IRM study.
- Mr. Shanahan mentioned that he has received most of the Conflict Disclosure Forms back from members and will follow-up with those that haven't submitted their forms yet.
- Members were asked to review theirs and their company's information on the roster and provide any updates to Brian.

4. 2022 White Paper / Study Prioritization Topic Discussion - B. Shanahan / N. Gilbraith

- Mr. Shanahan did a high level review of the 2022 whitepaper topics, model improvement work activities for this year, and the future discussion / ongoing topics.
- Mr. Younger asked why LFU Phase 2 wasn't listed as one of the white paper topics. He noted that it is near completion, but until we make a decision and incorporate new shapes and other things it should show up on a list as an ongoing effort. Mr. Shanahan agreed, it was an oversight when he was making up the list. It is on the action item list under current white papers. He'll update the white paper list and send it out for next month's meeting..

4.1. Maintaining Operating Reserves During Load Shedding Events – N. Gilbraith

- Mr. Gilbraith said the NYISO has been looking at load shedding in other control areas and are considering bringing proposals to enhance the IRM process so that it is in-line to what they believe is a more robust load shedding process. The presentation is essentially a scoping document that they want to put forward for discussion at this meeting. This is at a very high level and they don't have an enhancement proposal here but it's a proposal to study the topic and produce a white paper during this IRM cycle.
- The NYISO was asked how the NERC reliability standards would impact the proposal, specifically, whether the standards require certain changes or if the potential changes were consistent with the standards. Mr. Gilbraith said he believes the changes are consistent with the standards, but that they would have someone that is familiar with the reliability standards involved when ICS comes back to have a discussion on specific elements of the proposal.
- In response to a question about whether this was something we have to do or something we should do now, Mr. Gilbraith explained that with the experience the NYISO has observed in recent load shedding events in other control areas where those control areas actively chose to maintain reserve he thinks it is an important question for the NYISO. Whether we should or even be able to fully deplete our reserves and still maintain a stable system that's not prone to cascading outages. He believes it is something we should be investigating.
- The NYISO was asked if there was ever a situation involving a load shedding event that they experienced and if so how it was handled. Mr. Markham said that the NYISO has never been in a situation where they needed to shed load for statewide capacity issues as modeled in

the IRM study. As the NYISO has thought about it from an operations perspective they don't think it is appropriate or they have the ability to operate a system all the way down to zero reserves and expect to still maintain the tie line control we need and avoid cascading outages. As they have looked at load shed events occurring in other areas recently it has become clear that there is a need to maintain some level of reserves for these situations. This is essentially why it is being brought back to ICS to have these discussions and kick-off an evaluation of whether what we're modeling is appropriate from a real-time operations perspective if we were to get in these conditions.

- Mr. Markham noted that the procedures today give the flexibility to the operators to maintain some level of reserve for tie line control. If we do make this change they will probably make some clarifications to the procedures so it is clear.
- Mr. Jordan said the results that come out of the MARS study will tell you how many times you have load disconnects – one day in 10. Asked if they knew how many times it is telling you to touch your 10-min operating reserves, just as an estimate of what kind of impact we have. If the number of times you are hitting the operating reserves is 10 times in 10 years then there could be a significant shift in the IRM if you maintain that. Mr. Gilbraith said that as we go through the process of reviewing whether we should enhance the IRM model an important part of that will be what the impacts of those enhancements are and are they intuitive and in the expected direction, etc.
- Ms. Hogan noted that as the NYISO was introducing this concept they referenced California and ISO New England, she asked if they knew whether PJM has been in this load shedding due to capacity shortages situation. Mr. Gilbraith was not aware of this being an issue in PJM. She said that she raised the question because geographically speaking, NY and PJM are different from CAISO and ISONE and she thought that needed to be taken into account when we look at the issue – NY and PJM have more tie lines to other regions than California and New England. Mr. Gilbraith agreed that it was important to consider, not only the experiences that other control areas have had and the modeling practices they use but also how we sit relative to those other experiences and modeling practices.
- Mr. Gilbraith reminded ICS members that we have a few initiatives going on this year and they all could have an impact on the IRM or the distribution between the IRM and LCRs. He said we have this topic of maintaining operating reserves, we also have enhanced ELR modeling and updating load shapes. He wanted to make sure we keep our focus on all three of these and as we go through the process and as we have proposals for each of them that we also keep an eye on what the joint impact is. Mr. Mager added that as the NYISO is recommending multiple changes to the IRM methodology it is important that we maintain some overall balance to those changes.

4.2. LFU Phase 2 White Paper Status Update – M. Schuler

- Mr. Schuler gave an update on the status of the white paper. The Load Forecasting team has made an internal recommendation on updated load shapes to be used in reliability studies. They considered the 2012 through 2020 load shapes. They started with 2012 because that is when their history of estimated BTM solar begins. Their recommendations are primarily based on an analysis of the load duration curves and the linkage of peak weather conditions to the LFU bins. Currently the IRM and RNA teams are performing impact analyses of the updated recommendation.
- Mr. Schuler's team is planning to present the recommendation and impact analysis results at the February 25th LFTF/ESPWG meeting and then at the March 2nd ICS meeting.
- Mr. Schuler said they have the capability to adjust the load shapes as appropriate for either study to reflect the increasing penetration of BTM solar. A lot of that discussion and

examples of how they did that are in the Load Forecasting Task Force presentations linked in the #256 meeting notes. They have compiled as found net load shapes with the load as found for whatever the BTM solar estimated actual was in that given year. Also gross load shapes with BTM solar added back; they have those load shapes historically for 2012 through 2020. They also have the capability to adjust historical load shapes to reflect projected BTM solar capacity levels in a given forecast year.

- Mr. Younger asked if they were going to make a recommendation on whether the load shape should be adjusted for future solar for IRM study purposes or is the NYISO planning to be agnostic on that point and leave up to the ICS to decide. Mr. Schuler said that from a load forecasting perspective their main priority is to just recommend the updated load shapes – the historical years linked to the bins – and provide different applications of BTM solar and just show that they can provide the historical load shapes, adjust for solar, and which ever way is most appropriate for any given study. That might involve collaborating with the IRM and RNA teams to try to figure out the best way. For this immediate recommendation it is just for the load shapes and to provide some information on what they can do with BTM solar. Mr. Younger made a request regarding certain additional BTM solar information and examples for future periods that should be included in NYISO’s March presentation.
- Mr. Schuler said that in the future they are planning to look into further load shape and duration analyses as a follow-up to the LFU whitepaper work including the investigation into how the variability and loads for the peak load might be different as you go down further on the load duration curve to secondary peak hours or just typical summer peak hours. There is some information on preliminary analysis that was discussed in the [May 24 LFTF](#) last year.

4.3. The Sensitivity Analysis Required by ICS: Additional Retirement + Series Reactor – R. Carlson

- Mr. Carlson presented the scope and some results for the request to model AC transmission and peaker retirements. He reviewed the assumptions, the cases, results, and the next steps.
- Mr. Carlson said it was important to note that the assumptions were fluid, they are simply a projection and are subject to change between now and the actual implementation of these cases.
- Mr. Carlson explained that the specific peaker retirement units were pulled from the most recent 2022 RNA study. The NYISO was asked to provide the list of specific units and their summer/winter statuses prior to our next ICS meeting.
- The NYISO was asked to provide the different case results as they become available. NYISO said they preferred to provide the complete results rather than by piecemeal. They believe they can get the results out with the materials for the March 3rd ICS meeting if not before.

4.4. High Renewables Phase 3 Draft White Paper Study Scope – K. Osse

- The High Intermittent Renewable Resource Analysis – Phase 3 Scope was presented and discussed at the January 5th ICS meeting. Mr. Osse said that there was some interest expressed at that ICS meeting and at the January 14th EC meeting concerning the impact of the peaker rule. Mr. Osse explained that the peaker rule will have an impact on the availability of generation in the LHV, NYC, and LI. The NYISO has come up with a plan to expand the scope of the Phase 3 study into three separate portions: 1) adding the 27,000 of renewable ICAP (9GW each of Solar PV, On-shore Wind, and Off-shore Wind) and presenting those results, 2) add the 3GW Energy Storage Resources as a means of isolating the impacts of ESRs and seeing how that impacts the system, and 3) retire the relevant units that will be affected by the Peaker Rule during the summers of 2023 and 2024.

- This scope is still in its review phase and will be sent to ICS as soon as it is ready. It should be before the March 2nd meeting but no later than the March 29th meeting.
- Mr. Younger reiterated a concern expressed at the last meeting, that it is unreasonable to assume this amount of capacity being added to the system without expecting some generic level of retirements of existing units. It is the policy goal of the state to retire a number of older units. Mr. Osse said that according to the information he was provided, the primary concern in terms of retirements coming out of the EC involved units affected by the peaker rule. He does remember discussion at the last meeting about retiring about 4GWs of units for the study [it was actually 5GWs], but as of right now the NYISO doesn't have plans to include retirements of that magnitude in a study. This is one reason why this scope isn't finalized yet and is something they are still willing to consider.
- In response to MR. Osse's comments, Mr. Younger said that there should explicit consideration, maybe it requires a step 4, of less generation than what has already been retired in the peakers – about another 4GWs of generic steam units being retired. There is a significant difference in the availability of the current fossil fuel generators and the intermittents that will be in place in the future, that change will have a major impact on the IRM and LCRs. This is important information to be out there especially for those who are not involved in or knowledgeable of reliability modeling. It is something that we have never explicitly showed.
- Mr. Gilbraith sought clarification on the comments wondering if they take the High Renewable Phase 3, which is some incremental ESRs and renewables and also layer on the NOx peakers, if that will not be sufficient to provide the insight folks are looking for in terms of the impact of relatively low EFORd resources on the IRM in a high renewable system. Mr. Younger didn't think so, he said it wouldn't come close to the resource mix we would have to have after that level of renewables came on the system. Mr. Patka pointed out that we did discuss this before and that NYISO is trying to ascertain the affects of the additional renewables on a system where the peakers retire, but the NYISO at this point doesn't know and it would be speculative to a great degree to decide which units would be deactivated in the absence of additional action by the State or the DEC on air permits, etc. He noted that in last month's discussion Mr. Smith said that the NYISO has done additional retirement scenarios as part of the Road to 2030 and Road to 2040 scenarios and we are planning to do additional scenarios like that for impact modeling for the 2022 RNA that's starting this year. Mr. Younger responded by saying that is why we propose the generator retirements are done generically, which is what the Planning group has generally done in the past, no need to identify specific units especially in light that the system is modeled with no transmission constraints. In addition, the fact that the Planning group has done these studies shows that it can be done. Mr. Patka added that it would mute the impact of studying the real purpose of the scenario which is to examine the impacts on the IRM from adding renewables to the system and projecting additional retirements will not accurately show that impact on the IRM based on the system as we know it, based upon the known retirements that are occurring. Mr. Patka also said that the NYISO is limited in the number of scenarios it can do, have limited resources.
- A number of ICS members agreed with the concerns raised by Mr. Younger about the unrealistic picture that would emerge if there is no analysis taking into account the significant amount of fossil fuel generation that will retire once these state policy renewable resources come on the system and what the final impact on the IRM and LCRs would be. There was agreement that the Phase 3 study as proposed would produce some valuable information and provide a good comparison to Phase 2 results. The suggestion was made to add another phase to the study to be done next year where we would remove ~5GWs of

generation. Mr. Patka said that the NYISO is agreeable to removing the peaker units in the Phase 3 study. He said the NYISO folks working on the Reliability Assessment are actively thinking on how to address the concerns that are being raised here in the RNA. Because they are just kicking-off the RNA process he suggests we take the Phase 4 approach. Let the RNA team address first how they would remove either units or, as was suggested, generic capacity from the model for purposes of modeling resource adequacy – ICS and other stakeholders will have input on that in the ESPWG. Next, we would consider how to then translate what is learned over to the IRM study process. Mr. Younger’s response was that as long as there is a commitment from the NYISO that this issue will be studied in a Phase 4 he could accept that – this is something that ought to be studied and will be studied. Mr. Wentlent agreed with that response and added that there enough other reports out there that show what you are going to need behind the scene to keep the grid operating, and we need to understand it from all aspects and needs to part of the next phase.

- Mr. Shanahan said it makes sense to do the Phase 3 with the peakers removed. He will make up an action item for the Phase 4 study that looks at removing additional non-renewable resources and keep it on the list for future activities. He observed that some of the other studies are not looking at IRM and LCR impact specifically. It seems to him that at some point we would want to take a look at this future state with significantly more non-renewables removed so that we don’t show up in the future with big surprise numbers, if for no other reason that having to field questions about why we didn’t see this coming.
- Mr. Boles commented that the NYISO is very supported of performing the Phase 3 work as outlined at this meeting. He is also agreeable to having a discussion with ICS about Phase 4 and what that might look like but he wasn’t ready to commit to what the scope of the Phase 4 study would be at this point. He believes we shouldn’t just consider the retirement of additional technologies without having a robust discussion about what the NYSRC and other stakeholders are looking to gain from these studies they are conducting. That conversation will gear us toward the next phases of what these high renewable reports will look like. Because we are picking on one assumption here, the removal of some additional technologies, we are missing all the other things that are transforming on the grid. There are Tier 4 projects that have been awarded from HQ and an internal UDR, there is a mesh network that is being studied off the NYC and LI coasts for OSW, there is going to be a demand curve reset with changes to the proxy unit and Net CONE, and in addition there are no transmission constraints in the model. We need to have that conversation before we nail down a Phase 4 scope.
- Mr. Shanahan said he would also discuss this at the EC, the general path that we want to go on with this which is Phase 3 with peaker units removals and then we are going to look at a potential Phase 4 study that would include the possibility of other system changes and potential technology removals or inclusions.

5. Chair Update on recent EC actions – B. Shanahan

5.1. Update Status on Additional Public Appeal Questions for TO’s (AI 220-1)

- Mr. Shanahan provided an update to the EC regarding the results of our survey to the Transmission Owners. He said that at this point we will continue to evaluate it as time goes on, whether or not any changes would be warranted for what we see in the EOP manual and in the IRM study process for individual TOs.
- There was a follow-up question from the in EC, Paul Gioia was wondering if the TOs have a formal procedural process for implementing the public appeals load reduction. Mr. Shanahan said that he hadn’t heard back from every TO but the responses has gotten back

are very similar, the TO Control Centers will contact their corporate Public Relations/Communications department and they take care of it. He will bring this information back to the EC.

6. Initial Assumptions Matrix Review – K. Osse

- The matrix has last year's data, nothing yet for 2023 Model Assumptions.
- There has been a formatting change to the columns to make them of equal size.

7. Review of IRM Milestone Schedule for 2022 – for ICS Approval – B. Shanahan

- This was reviewed last month. Changes were made to update the dates from 2021 to appropriate 2022 dates.
- Mr. Shanahan has not received any further comments on the schedule since it was reviewed last month. There were no additional comments made at the meeting.
- ICS approved the 2022 Milestone Schedule, it will go to the February 11th EC meeting for their approval.

8. Additional Agenda Items

- None

Next Meeting

Meeting #258 – Wednesday, March 2, 2022, 10 am – Microsoft Teams