

NYSRC Installed Capacity Subcommittee

Meeting #157

March 5th, 2014

10:00 a.m. – 3:00 p.m.

Meeting Minutes

Attendees

| | Present | Tel |
|---|-------------------------------------|-------------------------------------|
| Members / Alternates: | | |
| Mr. Yuri Fishman (LIPA) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Gregory Chu (Con Edison), ICS Vice Chair/Secretary | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Richard Brophy (NYSEG-RGE) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mr. Robert Boyle (NYPA)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Mark Younger (Hudson Energy Economics, LLC.) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Advisers/Non-member Participants:

| | | |
|---|-------------------------------------|-------------------------------------|
| Ms. Erin Hogan (NYSERDA), ICS Chair | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Frank Ciani (NYISO)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Greg Drake (NYISO)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Nicholas Occhionero (NYPSC) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Al Adamson (Consultant)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Frank Vitale (Consultant) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. John Adams (Consultant) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mr. Scott Leuthauser (Consultant for H.Q. Services) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Henry Chao (NYISO) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Howard Tarler (NYISO) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Wes Yeomans (NYISO)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. Dana Walters (NYISO) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Mr. David Allen (NYISO)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Dr. Kai Jiang (NYISO)..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Guests Present:

| | | |
|--|--------------------------|-------------------------------------|
| Mr. Alan Ackerman (Customized Energy Solutions)..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|-------------------------------------|

Mr. Jim Scheiderich (Energy Curtailment Specialist).....

1. Assumptions Matrix

Gregory Drake (NYISO) presented the draft version of the matrix, and suggested that we only talk about changes to the matrix as new information for updates becomes available, to avoid repetitiveness.

Mr. Drake said that the NYISO is putting together the load shapes and would like to report that at the next ICS meeting.

Al Adamson (NYSRC – Consultant) asked that the NYISO should put in an actual date of the white paper for load shape, instead of “previous”.

Mr. Drake asked that people who have knowledge of new non-wind projects please provide any information to the group to be added into the assumption matrix, along with retirement information.

Mark Younger (Hudson Energy Economics) said that if the NYISO could forward the result of the reliability need study on the units with intent to retire/mothball when they become available, that would be very helpful. Mr. Younger said that the NYISO can even just let people know the results without providing too much confidential detail. Former Chair Bob Boyle (NYPA) stated that it would be important to let NYISO legal weigh in, and this may not be the right forum to enact this proposed change. Mr. Boyle said that there are already guidelines for retirement in Policy 5 that deals with this. Chair Erin Hogan (NYSERDA) stressed the importance of this because without a notification of the reliability need, we could end up modeling more capacity than we have on the system unnecessarily. Howard Tarler (NYISO) agreed with Mr. Boyle that this is not the right forum for this discussion, and he would bring this back to their legal department. He said that DPS is part of the process so there needs to be some consideration about this request. Mr. Younger said that even DPS doesn't notify people about the decision. Dana Walters (NYISO) stated that DPS also reaches out to the

transmission owners on local reliability issues and NYISO determination may not be final as there may be additional perspectives that need to be considered.

Mr. Younger said last year NYSERDA RPS RFP process changed, delaying the awards for the RFP, and caused some uncertainties on what if any new renewable projects should be included in the study. Chair Hogan would check if an RPS RFP would be issued this year.

Mr. Adamson asked if the review of Non-NYPA hydro resources has begun. Mr. Drake said no. Chair Hogan asked if the study of hydrological condition of the previous year is an appropriate indicator of next, future year's condition for the model. Mr. Younger suggested that we can stay with the derate concept, and not rely on review of the past year hydrological condition. Mr. Walters asked if we are looking at the process itself. He said that if the concern is the process, then we need to discuss this in more detail. Chair Hogan asked if this is the same process from previous year, and Mr. Drake said yes. Mr. Younger would like to see the NYISO present some aggregated results of the past data at a future ICS meeting for discussion. Chair Hogan agreed that the NYISO should look at past years' data to determine the proper date.

2. Voltage Reduction Duration Limitation

Wes Yeomans (NYISO) said that the NYISO asks the transmission owners to perform an annual test, simultaneously for one-hour. He said that the TO then determine the VR benefits, not the NYISO. He mentioned that on a resistive load like a light bulb, lowering the voltage lowers the power consumption and can last for long durations. On an inductive load, we would expect more losses due to an increase in inductive current system. He said that TO would have seen the losses captured in the test, however. There's no reason to believe that there would be decay in performance.

Yuri Fishman (LIPA) did not have any experience of VR performance decay. He confirmed the result of the yearly test (January) was 83 MW. Mr. Yeomans said such a test may be needed for a specific service area, but normally the test used

for the NYISO voltage reduction EOP was done in June. Mr. Fishman will double check if there is some of the limitation on performance.

Vice Chair Gregory Chu (Con Edison) said that around May 2013, Con Edison enacted voltage reduction in Staten Island area for 2 days. Con Edison does not anticipate any limitation on the duration of voltage reduction. Jim Scheiderich's (ECS) main concern was he suspects that the VR benefit decay over time. He questioned why VR isn't used all the time if it was so effective. VR isn't implemented all the time because lower voltage can lead to possible customer motor damage for an extreme extended period of time, and thus the TOs typically prioritize other measures if possible.

Mr. Adamson commented that NYISO, more than anyone else, would have been very concerned if the VR benefit would decay, especially it is a vital component of their emergency operating procedure, and they would have implemented some derates if there are evidence that such a phenomenon has occurred. Mr. Yeomans agreed with this.

Chair Hogan pointed out that based on system conditions, one can even expect more MWs due to percentage of load reduction. She said we might be already underestimating the amount of VR MWs if the VR MWs are not adjusted for expected peak. She wondered if we are actually more concerned about the testing method and time period, than the actual decay. Mr. Yeomans said that he does not recall the NYISO calling VR since 2009. He will check back with his group to confirm. The other question he will bring back is possible decay. **(AI 157-1)** He also does not recall, with his experience with Niagara Mohawk operation in the '90s, any noticeable deviation of actual VR result versus VR testing results. Mr. Adamson further commented that it is perhaps SCRs were then coming into picture to support the system, that VR is not used as frequently.

Mr. Boyle asked Vice Chair Chu if the decay cannot be accurately measured due to system condition changes. Vice Chair Chu said that it is correct. Furthermore, he said that since VR can be implemented at more than 5% (Con Edison does 8% testing as well), the benefit can increase due to system need at the time.

Chair Hogan also wanted to confirm that VR benefit is greater with a higher system load. Mr. Yeomans will investigate whether or not the TOs adjust the reported VR MW for anticipated peak. Frank Vitale (NYSRC – Consultant) reminded that VR is being modeled as a percentage of the load. Chair Hogan then reiterated that we could be underestimating the amount of VR if the MW derived during testing was obtained at lower system loads. At the actual high system peak load, we would expect more VR benefits in real life. Thus there may be a built-in derate that we already model.

Chair Hogan stated her findings from NYSERDA's T&D group about the response rate of VR. She said that load reduction is typically realized within cycles. Thus, the amount of MW reduction shown in the tests would be realized that whole hour.

3. Assumptions Matrix Revisited

Mr. Boyle said that due to security changes on the Moses-Willis line, he wanted to make sure that the NYISO will model that change in the interface limits. Mr. Drake agreed.

Mr. Adamson asked about the question in “new transmission” section. Mr. Drake said that there is a new transmission line that will be added to the matrix. Mr. Walters said that only new transmission line that would affect the interface limits would be modeled.

Mr. Drake recalled if the changes, transmission or generation, is declared/known before June 1st, it would be included in the model. Chair Hogan also believed that if the new project would come into service before then it would be included. Mr. Boyle recalled otherwise, however. Vice Chair Chu also asked in an example case where a major unit can come online ahead of schedule, but just after June 1st, and it would still be excluded from the FINAL base case. His recollection was that the final base case should include any known system additions/retirements, along with new load forecasts. Chair Hogan said that RPS projects have always been selected for inclusion using the June 1st in service date deadline. Mr. Boyle

recalled that there were a bunch of changes in dates within the milestone schedule to include changes to the system. Mr. Boyle did not recall the June 1st deadline.

Chair Hogan will review policy 5, and if clarification is necessary, the group can discuss what is necessary, and bring the changes to the Executive Council. **(AI 157-2)**

Mr. Adamson asked for the meaning of “Initial review performed by the NPCC CP-8 WG prior to policy 5 changes”. Frank Ciani (NYISO) said that since CP-8 has a model that changes throughout the year (summer, winter, 5 yr. study), this is to reflect the changes that may need to be included in policy 5.

Mr. Boyle asked the NYISO to highlight the model enhancements from the new version of MARS. Mr. Drake agreed.

Mr. Younger asked the NYISO, or Peter Carney (NYISO), if they can look at environmental initiatives that would affect units to operate at lower capacities and for specific time durations. Chair Hogan would like to invite Mr. Carney to appear at an ICS meeting earlier than usual, possibly by April meeting, to provide some environmental impact feedback earlier. **(AI 157-3)**

Mr. Adamson suggested that we should include the typical presentation on the action item list preemptively. We recommended that Arthur Maniaci provide the load shape results by the May ICS meeting load shape **(AI 157-4)**, and Bill Lamanna provide transmission topology by June ICS meeting **(AI 157-5)**.

4. Emergency Assistance from PJM DR

Mr. Drake said that they are still looking at how to model PJM DR, and there are some questions they are still working on. He wanted to make sure that people agreed with the idea of modeling DR resources since leaving that much resource out of the model doesn't make much sense. However, he stated that PJM LOLE

with DR applied would be lower than 0.1. As per Policy 5, the NYISO has to then go back and make adjustments to bring PJM back to higher or equal to 0.1.

Mr. Adamson is still concerned with modeling external EOP. He felt that we need to make sure the inter-ISO operating agreement allows PJM to use their DR to assist us in NY.

Mr. Walters said that PJM has previously stated that they would be in step with NYCA EOPs. He said this past winter there was some mutual assistance in time of need.

Henry Chao (NYISO) said that there are mutual agreements for resource sharing between the ISOs. He stated that it is dependent on the system conditions.

Mr. Boyle would rather be conservative, and not model the entire amount of PJM DR. He would like a discount and not implement all of PJM DR when needed.

Chair Hogan reiterated that the original idea was to call a portion of the PJM DR to avoid calling all 8000+ MW. The problem is that the model may not have the ability to do so at this point. She also asked if the members would agree that this change would not be implemented in this year's study due to its complexity. Members concurred.

Mr. Boyle recommended that the NYISO should check the amount of short notice DR MW in PJM, since those are more likely to respond.

Mr. Walters asked if the members would be open to the idea of adjusting PJM LOLE back to a cap of 0.15. He is also suggesting a revision to Policy 5 with this cap and uses this in this year's study. Mr. Boyle cautioned that the ICS should perform some runs BEFORE we bring this in front of EC with Policy 5 changes.

Chair Hogan suggested perhaps the group should study this cap in a sensitivity case.

Vice Chair Chu asked the reason for 0.15 as a cap. Mr. Walters and Mr. Drake said that gives them comfortable range to work with, between 0.1 and 0.15. Also, this cap is the same as the one used in the RNA. Vice Chair Chu asked further in terms of what adjustment is needed to bring LOLE back in range. Mr. Drake said only peak load adjustments are being considered at this stage.

Chair Hogan said that 0.15 may be too large; perhaps the NYISO and the group would consider 0.13 or something that's not 50% more than 0.1.

Chair Hogan asked the NYISO to provide NYCA+PJM LOLE effects with short notice PJM DR amount. **(AI 157-6)**

Mr. Younger would also like to know how often the proposed PJM DR gets called upon in the model.

5. Confidence Interval Evaluation

Mr. Drake said that the NYISO distributed the paper for confidence interval to the ICS members. The summary is that once the iteration limits has been reached, the confidence interval would then be bounded by the result of this run.

Mr. Boyle is under the impression that once the minimum iteration has been reached, and if the standard error hasn't been reached, then more iterations will be performed until the standard error has been reached, perhaps by a step of 500 iterations. The NYISO agreed.

Dr. Kai Jiang said that standard error has to be met first, before we can even consider the minimum number of iterations. He said that because the NYISO felt that we should achieve more accurate result at 0.025 instead of 0.05 as suggested by Policy 5.

Vice Chair Chu asked that since the paper supported the 1000 minimum number of iteration using the fact that 5000 iteration would have fallen within the same distribution, the justification seems weak since we know that that distribution of

5000 iteration would have narrowed anyway to have fallen inside the 1000 iteration NATURALLY. Mr. Drake said one of the concerns is the machine calculation speed to avoid schedule delay. Along the concept of keeping the runs short enough to avoid schedule delays, Vice Chair Chu asked if the minimum number of iterations is even needed, since 800+ iterations would have gotten the require standard error. In this case, the NYISO can save even more time. Mr. Ciani responded that due to HPC, they needed to come up with total amount of iterations first since they are splitting up the runs per processor. Vice Chair Chu then understood why a minimum amount of iterations is needed, as Con Edison does not run MARS in the HPC environment, and thus CE MARS can and does stop at the iteration when 0.025 is achieved. (That's 800+ iterations, as the NYISO previously stated)

6. Transmission System Outage Study Scope

Mr. Adamson wanted to see if there are additional comments to the scope that was circulated to the members.

He said phase 1 is to figure out if we have actual outage data for transmission study. He said there are 5 interfaces currently identified as ideal candidates for study.

The next phase is to identify the components that make up the interface. Then we need to determine component outage data.

If the outage data is not available, then a decision is need to collect outage data, which could be an intensive effort.

Chair Hogan said that if we can get data for one interface, and the interface does display some impact, then we can justify the massive effort of collecting outage data.

Mr. Younger said that Danskammer retirement scenario that caused an increase in zones J and K LCR, there must be a constraint upstate, like UPNY/SENY. He

proposed a different scope, using some reasonable estimate of transmission limit reduction, to see if the model shows some changes.

Mr. Adamson stated that the purpose of this study is to assess whether the outages should be model and the effects of these outages. He has proposed a reasonable way of selecting the candidate interfaces based on known MARS results of these interfaces hitting their limits. The key here is that data is still needed to perform the study.

Vice Chair Chu agreed with Mr. Adamson's suggestion of using MARS results for selection because modeling those interface with outages would provide the largest amount of change to system for study. By modeling other interfaces that may not have limiting hours to begin with, we would probably see very little to no effect at all on the model. The real problem, as always, is the apparent absent of outage data for these interfaces. Generic assumptions do not provide any useful results because assumptions may or may not be accurate. The worst case would be that using flawed assumptions for this study we concluded that there's a need to collect data, and after we've spent the enormous effort getting actual data from the entire system, we ended up with very little effect on the model, only because we assumed incorrectly in the original study that didn't apply in real life.

Chair Hogan suggested that the working group needs to reach out to the respective TOs to see if actual outage data is available. Vice Chair Chu said that is precisely the next step, once the group is ok with the scope and the selection of the lines/interfaces so we can reach out to the owners for data.

Mr. Boyle mentioned that this study would be a multi-year study. Vice Chair Chu agreed and suggested that perhaps the goal of the working group for this year is to get the outage data, and then compute the transition rate tables.

Mr. Vitale asked perhaps we can simplify the transition rate table computation. He suggested looking, as an initial test, at the worst line only within the interface. Vice Chair Chu agreed, but cautioned there's a drawback because while the table would much simpler to compute, some of the states that are due to combination outages could be omitted and those capacity states would be

unaccounted for in the model. A simpler interface would be easier to model for this study.

Chair Hogan asked which of the interface highlighted in the scope is the simpler to model. Chateaugay is the simplest. Mr. Younger said that there is a problem with just this line because we still haven't identified the binding interface that caused of increasing LCRs in the Danskammer scenario. Vice Chair Chu said that the focus of the study is not to identify a binding interface, but rather, should we start modeling outage rates for all of the interfaces due to their significance effect on the model.

Chair Hogan suggested that the working group should continue moving the process forward, and reach out to TO for available outage data. Mr. Boyle said that it would be wise to identify the type of data needed. The group will report back (to Mr. Boyle NYPA) and provide some information about the type of data needed for computation.

7. IRM Study Process Manual

John Adams (NYSRC- Consultant) stated that some of the changes will require Policy 5 revisions. He suggested that first they look at policy 5 items and make sure those are cleaned up. One example would be the standard error. The other would be load shape methodology is already obsolete. RPS material should be added as well. Table of contents will need to be corrected as well.

Chair Hogan said RPS process may change so it may not be suitable yet for Policy 5 inclusion. The plan, as she explained, to update policy 5 first, and then create the guideline document.

Chair Hogan is requesting that Mr. Adams, in a tabular format, high light the items that would be changing in Policy 5 and a description of what needs to be changed. **(AI 157-7)**

8. 10-minute Spinning Reserves

Mr. Drake said that the group should consider not including 10 minutes spinning reserves in the planning study. He said that PJM does not include that in the system design.

Members questioned this suggestion as most wondered why this amount of MWs would not be used in EOP, when in reality, the 10 minute spinning reserves would be used to prevent load disconnection.

The NYISO will come back at a future date with a presentation for discussion.

Secretary: Gregory Chu

(Con Edison)

Next meetings:

Meeting 158, Wednesday, April 2nd at NYISO HQ
Meeting 159, Tuesday, April 29th at NYISO HQ
Meeting 160, Wednesday, June 4th at NYISO HQ
Meeting 161, Friday, June 27th at NYISO HQ
Meeting 162, Tuesday, July 29th at NYISO HQ
Meeting 163, Wednesday, September 3rd at NYISO HQ
Meeting 164, Wednesday, October 1st at NYISO HQ
Meeting 165, Tuesday, October 28th at NYISO HQ
Meeting 166, Monday, December 1st at NYISO HQ
