

## 2017 IRM Study Comments

*Al Adamson and John Adams – January 26, 2016*

### Proposed Modeling Enhancements for the 2017 IRM Study

At the January 8, 2016 Executive Committee meeting Bob Boyle reported that ICS had identified at its January 7 meeting five proposed modeling enhancements for the 2017 IRM Study that may be addressed using the “white paper” process: They are:

1. Outside World Model
2. Multiple Year Wind Shape Model
3. SCR Modeling
4. Load Shape Selection Process
5. Forward Capacity Modeling (special TF)

Although we agree that all of the above modeling issues should be considered for the 2016 IRM Study, we suggest that valuable NYISO staff and ICS member time could be saved if it is decided that white papers are not needed for certain of these issues. On page 11, Policy 5-9 states: “Before any proposed major enhancement of a model is accepted for use in the base case, it is given a thorough review. The review includes testing of the proposed enhancements and may (emphasis added) include the preparation of a white paper.”

Therefore, the ICS needs to determine which of these modeling issues constitute major modeling enhancements which need to be addressed using a white paper, versus which issues should be addressed through the normal processes in place to review and update assumptions. We will offer our opinions as we discuss each of the modeling issues listed above. Below are general comments, followed by our comments related for each of the proposed modeling enhancements, and then finally we comment on proposed Policy 5 changes related to Special Sensitivity Cases.

### General Comments

- A matrix should be prepared listing each modeling issue, including: (1) white paper completion date, (2) date an ICS decision will be made whether model will be included in 2017 base case, as a sensitivity case, or not included in the 2017 IRM Study at all, (3) priority, (4) party or parties responsible for conducting the white paper analysis and preparing the white paper, and (5) brief summary of white paper scope. The matrix should be completed for the March 2 ICS meeting.
- Study scopes should be prepared for approval at the March 2 meeting.

- Because of limited time to complete the studies, work should immediately begin on the required analysis even before approval of scopes.
- White papers and studies should be scheduled to be completed for the March 29, May 4, or June 1 ICS meetings, with ICS approval to include model changes for the 2017 base case by the June 29 ICS meeting.
- NYISO resources for preparing the various modeling enhancement studies should be discussed at the Feb. 3 ICS meeting, possibly eliminating some at that time if it is determined that adequate resources will be unavailable to conduct all studies.

## Comments on Proposed Modeling Enhancements

- **External Control Area Model**

The first question we address here is the term “outside world area.” In Policy 5-9 the term “outside world area” was dropped because it is not a defined term in the NY Glossary or the NPCC Glossary. It was replaced with “External Control Area” where Control Area is a defined term. We note that this change was not made in the IRM Technical Report. Therefore, it is recommended renaming this analysis to “External Control Area Model.”

Over the years there have been many changes made to our External Control Area models, including expanding PJM from the PJM Classic footprint to the full PJM RTO footprint, as well as expanding some Areas from single area to multiple areas. The External Control Area modeling enhancements proposed for the 2017 IRM Study should be considered high priority and be addressed using a white paper.

The scope of the white paper should cover the following factors:

- An assessment of new PJM multi-bubble model to replace the 4-bubble model used for the 2016 IRM Study.
- Consideration of the increasing MWs of renewable generation in neighboring Control Areas.
- Recognition of the significant changes in year-to-year reserve margins and LOLEs for some of the External Control Areas.
- Review of the minimum PJM LOLE of 0.14 used in the 2016 IRM Study.
- Whether there should be a cap on reliance on the External Control Areas in terms of a maximum % IRM reduction.<sup>1</sup>

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<sup>1</sup> Emergency Assistance (EA) has a major impact on the NY Installed Capacity Requirements. Since 2010, the reduction in installed reserve margin (IRM) as measured as a percent of the forecasted study peak based on the isolated case has averaged 8.5% and ranged between a high of 10.1% in

- The fact that both PJM and ISO-NE codify through agreements or market rules the level of tie benefits for use in IRM studies.

All these factors taken together suggest that this is the appropriate time to conduct a thorough review of the how the External Control Areas are modeled and how their MWhs are determined and reviewed in the IRM study.

Other External Control Area Issues:

Following are related issues:

1. Development of an updated PJM-SENY topology.

NYISO staff shall review planned 2017 transmission enhancements that would impact the PJM-SENY topology, including Northern New Jersey upgrades and the Phase II Staten Island Unbottling Project; and update the PJM-SENY topology for the 2017 IRM Study as required.

2. External Control Area to NYCA Emergency Transfers.

ICS should determine from NYISO staff analysis whether actual NYISO inter-Area operating conditions and limitations could constrain Outside World Area emergency transfers to NYCA as calculated by MARS. If it is found that such constraints do exist, reflect in MARS model as required. The need for this review was suggested by NYISO staff during preparation of the 2016 IRM Study.

We suggest that these issues be separately reviewed from that of the white paper.

- **Multiple Year Wind Shape**

Through the 2016 IRM study, renewable wind generation had been modeled using a wind shape from a specific year. The GE MARS model now has the ability to use multiple years of wind data selected randomly for simulating wind generation. This represents a major enhancement in how renewable wind generation is modeled in the MARS model.

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2011 and a low of 7.3% in 2010. The impact of EA on the IRM is an output or result of the study process, is given minimal review and its overall impact is usually not known until close to the end of the study process. In addition, the amount of emergency assistance/tie benefits that the NYSRC has captured in its IRM study is significantly higher than any of the external/neighborhood Control Areas as a percent of the peak.

It is therefore appropriate to conduct the evaluation of this modeling enhancement through the “white paper” process.

One of the outstanding questions is how many years of wind data to use for the 2017 Study. Ideally, the goal should be to use 5 years of historical data just as is used for modeling fossil generation. To the extent that only four years of history will be available, we recommend that only these years be used for the 2017 IRM Study.

- **SCR Modeling**

SCR modeling in our view is one of those issues that can be addressed through the normal processes in place to review and update assumptions, and therefore a white paper is not required.

- **Load Shape Selection Process**

The load shape modeling process in our view is another one of those issues that can be addressed through the normal processes in place to review and update assumptions, and does not need to be addressed through a white paper.

- **Forward Capacity Modeling (Special TF)**

We don’t see this TF as being any different from the recent special study groups such as the Transmission Outage Working Group which conducts their investigation and reports back to the ICS. The TF should prepare a report to ICS with its recommendations.

## **Policy 5 Change Comments**

- **Special Sensitivity Case**

Given that the Executive Committee (EC) adopted a Special Sensitivity as the base case at its December meeting, the ICS should have the procedural ability to anticipate such a possibility in advance of the EC meeting. Our recommended procedural change would allow the ICS to recommend converting a Special Sensitivity Case assumption to a base case assumption in advance by replacing the base case IRM that was earlier approved at the November ICS/EC meetings with the Special Sensitivity Case IRM.

For example, the ICS had a conference call on November 17, 2015 that approved the Special Sensitivity Case (Huntley retirement) Tan 45 curves and a 17.4% IRM. It was

agreed to include this Special Sensitivity Case in the IRM report. However, on December 4 the EC decided to include the Huntley retirement in the base case and change the base case IRM from 17.0% to 17.4%. The report then took over one week to revise.

As an option, it is recommended that instead of accepting the Special Sensitivity Case as was agreed by ICS on Nov. 17, ICS could recommend that it become the base case at that time. The EC chairman would be immediately contacted and arrange for EC approval via email or conference call to agree. Given approval by the EC, let's say by Nov 20, there would be time to prepare the necessary IRM report revisions for review at the Nov 30 ICS meeting. It is unnecessary to specify an exact date when such a decision has to be made, as long as there is agreement in principle that such a procedure may be followed as long as there is reasonable time to send a final draft IRM report to the EC for its December meeting.

If approved by ICS and the EC, Policy 5 would be revised to reflect the above proposed procedural change.