

PRELIMINARY STUDY TO CALCULATE NYCA IRM REQUIREMENTS FOR A NYISO FORWARD CAPACITY MARKET PROGRAM

INTRODUCTION

The NYISO is evaluating the implementation of a Forward Capacity Market (FCM). Final details of the FCM have not yet been fully defined, and eventual FERC approval will be required. If implemented, the FCM will help address the need for adequate power supply to meet future consumer needs. Under the FCM, annual auctions would be held to purchase the resources necessary to meet multi-year capacity needs¹. Implementation of a FCM would require projections of future IRM requirements.

The NYISO has requested the NYSRC to assist in its implementation the FCM program by calculating IRM requirements for the 2013 capability year. It is intended that determination of future FCM IRMs by the NYSRC would be in addition to, and not replace NYSRC's present responsibility of preparing IRMs for the next capability period. Although it is unlikely that the NYISO will not implement a FCM before 2010, the NYSRC has determined that it would be prudent to conduct this preliminary study now in order to:

- Test study procedures and time requirements, and gain experience in conducting this type of study.
- Determine whether new models will be necessary.
- Prepare a procedure to be used for future FCM IRM studies after completion of this preliminary study. This procedure is intended to augment NYSRC Policy 5.
- Although the calculated base case IRM for this FCM IRM study will likely not be utilized for the initial FCM program, it will provide useful information as to a preliminary indication of the magnitude of future changes to the 2009 IRM base case value of 16.2%, as impacted by future environmental regulations, wind facilities, and other FCM IRM study assumption changes.

Accordingly, this report describes an IRM technical study conducted by the NYSRC Installed Capacity Subcommittee (ICS), covering the period of May 1, 2013 through April 30, 2013 (2013 capability year).

SUMMARY OF RESULTS

Results of this NYSRC study show that the required NYCA IRM for the 2013 capability year is ___% under base case conditions.

For this base case, the study also determined Minimum Locational Capacity Requirements (MLCRs) of ___% and ___% for New York City (NYC) and Long Island (LI), respectively.

¹ As described in NYISO *Power Trends 2009*.

The above 2013 base case IRM Study value of ___% is ___ percentage points more than the base case 16.2% IRM requirement determined by the 2009 IRM Study². The principle drivers for this increase in the IRM requirement are:

[TO BE PROVIDED LATER]

It should be noted that environmental restrictions due to implementation of regulations to control NO_x and CO₂ emissions do not impact base case 2013 IRM requirements. This is because the NYSRC has elected to be consistent in its FCM base case with the NYISO 2009 CRP³ base case with respect to environmental impacts, in which the NYISO does not project reliability impacts from these regulations through at least 2013.

It must be recognized that the above base case IRM value for 2013 is highly uncertain. In particular, the impacts on future IRM requirements for the implementation of NO_x and CO₂ regulations, although not assumed in the FCM base case, are significantly uncertain at this time. For this reason, this study evaluated the IRM impacts of series of sensitivity cases to test IRM requirements for different environmental regulation outcome scenarios (See 2013 FCM Assumptions section). Results of these studies are as follows:

[TO BE PROVIDED LATER]

RESOURCE ADEQUACY RELIABILITY CRITERION AND IRM PROCEDURES USED FOR THE FCM IRM STUDY

This study utilized the NYSRC resource adequacy reliability criteria and procedures described in the 2009 IRM Report. Specifically, the study incorporated the General Electric Multi-Area Reliability Simulation (GE-MARS) computer program for the probability analysis and NYSRC Policy 5 procedures. These procedures included use of the Unified and IRM Anchoring Methodologies.

CALCULATION OF THE 2013 FCM IRM

Results of this FCM IRM study show that the required NYCA IRM is ___% for the 2013 capability year under base case conditions. Figure 2 depicts the relationship between NYCA IRM requirements and resource capacity in NYC and LI. The points on the NYC and LI curves were calculated using the above methodologies.

The inflection points on these curves, from which the above base case study results are based, were evaluated using the Tan 45 analysis. Accordingly, maintaining a NYCA installed reserve of ___% for the 2013 capability year, together with MLCRs of ___% and ___% for NYC and LI, respectively, will achieve applicable NYSRC and NPCC reliability criteria for the base case study assumptions shown in Appendix A.

² Refer to the NYSRC report, *New York Control Area Installed Capacity Requirements for the Period May 2009 through April 2010*, dated December 4, 2008.

³ NYISO 2009 *Comprehensive Reliability Plan*, dated May 19, 2009.

Figure 1: NYCA Statewide ICAP Requirements vs. Locational ICAP Requirements

[FIGURE TO BE PROVIDED LATER]

[SENSITIVITY CASE DISCUSSION TO COME LATER]

2013 FCM STUDY ASSUMPTIONS

Table 1 lists types of assumptions used in the 2013 FCM Study base case. The table lists those assumptions whose values are the same as used in the 2009 IRM Study, and those that were changed to reflect projected 2013 system conditions. Refer to Appendix A for details of these assumptions.

Table 1 – 2013 FCM Study Base Case Assumptions

Same Assumptions as Used in 2009 IRM Study	Assumption Changes from 2009 IRM Study and Basis for these Changes
<ul style="list-style-type: none"> • Load Shape Model • Load Uncertainty Model • Planned Outages • Summer Maintenance • Gas Turbine Ambient Derates • Non-NYPA Hydro Capacity Modeling • EOPs, including Special Case and EDRP Resources • Transmission Cable Outage Rates • Reserve Sharing between Areas • Environmental Restrictions (see below) 	<ul style="list-style-type: none"> • Peak Load – 2009 NYISO RNA forecast • Existing Generating Unit Capacities – units that have been materialized since 2009 ITM Study • Proposed Units through 2013 – 2009 RNA or Gold Book • Wind Resource Capacity and Modeling – 2009 RNA • Retirements through 2013- 2009 RNA of Gold Book • Forced & Partial Outage Rates – Most recent historical 5-yr. period • External Capacity Purchases – New NYISO forecast • Internal Limits – 2009 RNA • Internal Limits – 2009 RNA • New Transmission Capability – 2009 RNA + Linden VFT project • Unforced Capacity Deliverability Rights – 2009 RNA • Outside World Models – 2009 RNA

Potential IRM Impacts of Environmental Restrictions

Implementation of environmental regulations to control NO_x from the HEDD and RACT programs, and CO₂ emissions from the RGGI program, have the potential of increasing future IRM requirements.

The HEDD program could render some generating units unavailable, while other units could be limited to reduced capacity at the time of peak load conditions. This could amount to as high as 1,739 MW of load following boilers and 1,231 MW of high emitting combustion turbines. Under the NO_x RACT program, up to 3,125 MW of capacity may no longer be available to meet peak load conditions, depending on final NYS DEC regulations. With respect to RGGI, resulting

carbon allowance prices have the potential of reducing the availability of coal-fired capacity. Further, the RGGI market may be impacted by future national cap and trade legislation.

The NYISO 2009 CRP covers these programs and their possible NYCA resource adequacy reliability impacts in more detail. Although, as discussed in the “Summary of Results” section, the 2013 FCM base case IRM is not impacted by these programs, sensitivity cases were conducted to examine realistic scenarios in which HEDD, NO_x RACT, and RGGI are implemented such that generating capacity availability and IRM requirements would be impacted. Discussion of these sensitivities is previously covered in this report.

COMPARISON OF 2013 FCM IRM RESULTS WITH 2009 IRM STUDY RESULTS

The results of the 2013 FCM IRM Study show that the base case IRM represents an increase of ___ percentage points above the 2009 IRM Study IRM base case value. Table 2 compares the estimated IRM impacts of changing several key study assumptions from the 2008 Study. The estimated percent IRM change for each parameter was calculated from the results of a parametric analysis.

[TO BE EXPANDED FOLLOWING STUDY RESULTS]

Table 2: Parametric IRM Impacts Comparison with 2009 Study

[TABLE TO COME LATER]

CONCLUSIONS

1. ICS and the NYISO staff have gained experience in the conduct of FCM IRM studies during the course of this study.
2. ICS will prepare a procedure for the conduct of future FCM IRM studies, to be completed by ___.
3. It appears that the types of models used for the present annual NYSRC IRM studies will be adequate for use in future FCM IRM studies.
4. ICS will monitor the NYISO’s evaluation of the FCM program and development of a FCM plan, anticipated for later in 2009.

