Discussion of Increased HQ Import Capability

Market Issues Working Group
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Draft Material for Discussion Purposes Only

Outline

- Overview
- Reliability Rules
- Software Modifications
- Review of Latent Reserves
- Next Steps

Overview

As discussed at the May 24, 2007 MIWG, the NYISO was asked to consider the feasibility of allowing more than 1200 MW of HQ imports to sink in New York.

Current Situation (Recap)

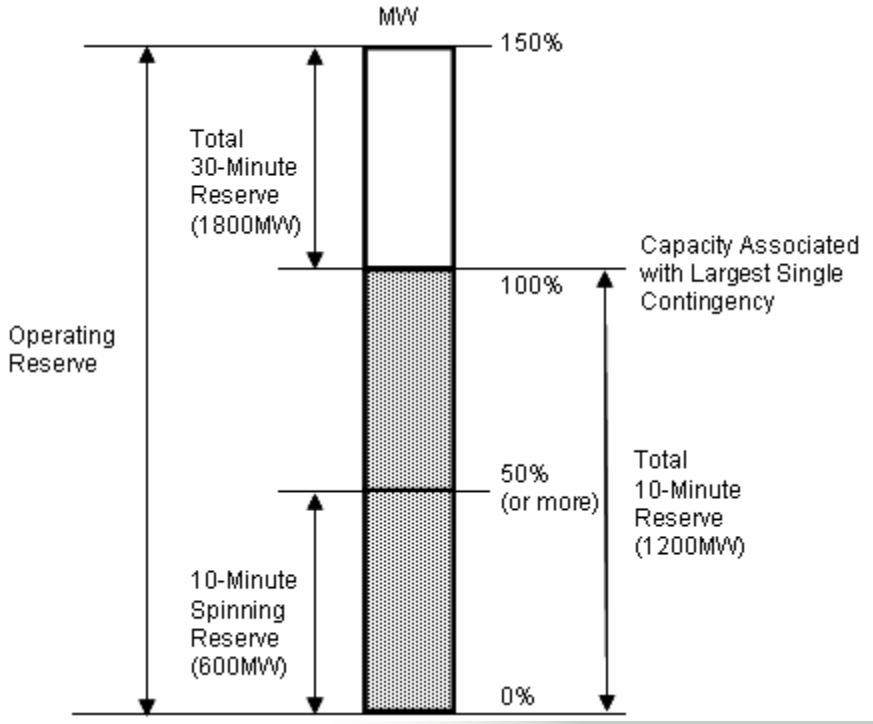
- HQ import/wheel limited to 1500 MW under normal conditions
  - ✓ 1200 MW can sink in the NYCA
  - ✓ 300 MW can be wheeled to other control areas*
- HQ import/wheel can reach 1800 MW under certain conditions
  - ✓ 1200 MW can sink in the NYCA
  - ✓ 600 MW can be wheeled to other control areas*

*Assuming 1200 MW import level

Reserve Requirements
NYSRC Reliability Rules

- **10 Minute Reserve**
  - ✓ Sufficient to replace the operating capacity loss caused by the most severe contingency under normal transfer criteria
    - At least 50% must be synchronized
    - Balance may be non-synchronized

- **30 Minute Reserve**
  - ✓ Sufficient to cover one half of the operating capacity loss caused by the most severe contingency under normal transfer criteria



**See Appendix for sections D-R2 and D-R3 of the Reliability Rules*

Reserve Requirements - Continued

- Sufficient reserves will be required to reflect the potential loss of the HQ-NY 7040 transmission facility when imports to the NYCA are scheduled at levels in excess of the greatest internal contingency.
  - ✓ *Increased HQ to NY imports may actually decrease the amount of day-ahead market reserves available (if internal NYCA generation is de-committed as a result of the increased imports from HQ)*

Reserve Requirements - Modifications

- In order to secure sufficient reserves to reflect the potential loss of HQ-NY 7040 if the scheduled imports to the NYCA exceed 1200MW, there are two possible approaches:

  - ✓ *Option 1 – Secure for the maximum HQ-NY 7040 import limit at all times (for example, if the import limit is set at 1600MW then secure 1600MW of Total 10-Minute Reserve)*
    - **Will increase the reserve requirements at all times regardless of scheduled import level and may unnecessarily increase the cost of reserves**

  - ✓ *Option 2 – Dynamically determine the optimal level imports and associated reserve requirements to produce the least-cost solution.*

Required Software Modifications (Option 2)

- Changes required for the Day-Ahead and Real-Time Markets
  - ✓ *SCUC and RTS software modifications to economically determine, with the objective of minimizing Total Bid Production Cost as a function of the largest contingency.*
  - ✓ *The dynamic determination of reserve requirements may allow for increased imports from HQ to NY if Total Bid Production Cost is decreased.*
    - **Complex software modifications are required**
    - **May not be feasible within performance limitations**

Latent Reserves

- In order to guarantee sufficient reserves will be available when required, the reserves need to be scheduled. Latent reserves (reserves that have not been secured but are theoretically available) cannot be relied on to meet operational requirements.
- Committing the reserves is important from an operations as well as from a market design perspective.

Analysis of Latent Reserves

- As part of the feasibility analysis, it is informative to determine if there are sufficient reserves available to support an increased HQ import capability.

- A high level review from June 2006 through June 2007 was completed that correlates available latent reserves with intervals in which the HQ import/wheel schedules exceeded 1175MW.

Analysis of Latent Reserves – Results

Hours w/ sufficient latent reserves to support a 1600MW import & import/wheel > 1175MW

Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	% of Hours Quantities Available
71	191	210	4	28	67	144	84	94	142	162	339	259	18.9%

- The analysis indicates that approximately 19% of the time, sufficient latent reserves were available from June 2006 through June 2007 (absent any ramp rate considerations) and there were economic schedules near the 1200MW level for the HQ import/wheel.

Next Steps

- Please provide feedback via Committee Support on this proposal by August 17, 2007 to help the NYISO gauge the level of interest in pursuing the concept.

Appendix

NYSRC Reliability Rules – Version 18

D-R2. Minimum Operating Reserve Requirement

The minimum *operating reserve* requirement of the *NYISO* shall be the sum of:

a. Sufficient *ten (10) minute operating reserve* to replace the operating capacity loss caused by the most severe *contingency* observed under *normal transfer criteria* multiplied by the *Contingency Reserve Adjustment Factor*.

b. Sufficient *thirty (30) minute operating reserve* equal to one half of the *ten (10) minute operating reserve* necessary to replace the operating capacity loss caused by the most severe c*ontingency* observed under *normal transfer criteria*.

At all times sufficient *ten (10) minute operating reserve* shall be maintained to cover the energy loss due to the most severe *normal transfer criteria contingency* within the *NYCA* or the energy loss caused by the cancellation of an interruptible energy purchase from another system, whichever is greater multiplied by the *Contingency Reserve Adjustment Factor*.

NYSRC Reliability Rules – Version 18

D-R3. Availability and Category

a. The *ten (10) minute operating reserve* portion of the *NYISO's* minimum *operating reserve* requirement shall be fully available within ten (10) minutes and shall be in the following categories:

***1. Synchronized Operating Reserve* - At least one-half of the *ten (10) minute operating reserve* will consist of unused generating *capacity* which is synchronized and ready to pick up *load*, or generating *capacity* which can be made available by curtailing pumping hydro units, or canceling energy sales to other systems.**

2. *Non-Synchronized Ten Minute (10) Operating Reserve* – The remainder of the *ten (10) minute operating reserve* may be composed of non- synchronized *capacity* such as hydro, pumped storage hydro, and quick start combustion *generation,* which can be synchronized and loaded to claimed *capacity* in ten (10) minutes or less, and *interruptible load* that can be activated in ten (10) minutes or less.

b. The *thirty (30) minute operating reserve* portion of the *NYISO's operating reserve* requirement is that portion of unused generating *capacity* or *interruptible load* which can and will be made fully available as promptly as possible, but in no more than thirty (30) minutes.

c. Generating *capacity* associated with the delivery of interruptible sales to adjacent *control areas* may be included as *operating reserve* in the category agreed upon by the purchaser.