CARIS Lessons Learned

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Draft – for discussion only

CARIS Lessons Learned

- Purpose - to improve the CARIS model in the next CARIS cycle (Phase 1 beginning 2011)
- Identify areas for continued discussion and plan for additional discussions
- MPs are encouraged to send their inputs and actively participate in the process
- Commissioned review of other ISO/RTO experiences/methods

Potential areas for improvements

A. Base Case Model Setup

1. External Systems Representations
   - *Review most recent plans for NYCA and external areas and address any significant changes since the completion of the CRP.*
   - *Continue efforts in interregional planning for common model*

2. Interface Limits
   - *Explore the varying interface limits utilized in the day ahead and real time markets. Where appropriate, build nomograms to vary the interface limits such as varying generator availabilities and/or load levels.*

3. Hydro-Quebec Schedule
   - *Instead of using a fixed hourly schedule, investigate the use of a price sensitive schedule. Split schedule from Cedars and evaluate potential future changes(sink into NY limit)*

Potential areas for improvements

4. Historic vs. Projected Congestion analysis

- *Consider modeling transmission outages, virtuals and thunder storm alerts, bid adders, and other factors in the database*
- *Consider modifying the production cost models for system elements such as the Lake Erie loop flows, Jamaica PARS, Ramapo PARS, Neptune cable , Cross Sound cable, and Con-Ed wheel.*

5. Interchange Scheduling

- *Synchronize scheduling for all new fixed schedule models, including injections into study system from outside world*

6. Demand Response

- *Consider Modeling in the database*

Potential areas for improvements

7. Use of multiple power flows to represent significant system changes each year or during year
   - *Capture significant network changes and load impacts*
8. *Review Constraint List*
   - *Examine soft limits, nomograms, redundancy*
9. *Combined Cycle plant modeling*

Potential areas for improvements

B. Base Case Model Execution Assumptions

1. External Systems Representations
   - *Allowing more price sensitivity on NYISO imports/exports as well as injections from outside the study system*
   - *Evaluate control on border PARS and the Michigan/Ontario PARS*
   - *Better account for loop flow impacts*
2. Interface Limits
   - *Expanded variability of limits based on commitment and/or dispatch (detailed algorithm development beyond next cycle)*
3. Unplanned Generation Outages
   - *Considering randomness vs manual scheduling*

Potential areas for improvements

4. Capturing Market Operation Differences
   - *Ideal vs Real Dispatch (Multi dispatch pass)*
     - *Implement zero minimums on certain GTs*

5. Reference vs Settlement bus

Potential areas for improvements

C. Generic CARIS Solutions to Identified Congestion

1. Redefine Demand Resources and Model
   - *Energy efficiency and DR mix and size*
2. Grouping of constraints
   - *Relaxation method and expansion of grouping*
3. Allow more flexibility around the identified congestion
   - *Relax the requirement of the from/to bus on the element*

NEW YORK INDEPENDENT SYSTEM OPERATOR

The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and provides comprehensive reliability planning for state's bulk electricity system.

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