

Dynamic Reserve

Presenter

John Hickey

Energy Markets Products

New York Independent System Operator

Market Issues Working Group

KCC

12/06/2010



Agenda

- ◆ Review Dynamic Reserves study objective
- ◆ Review Study Process
- ◆ Review NYISO Results
- ◆ Next Steps

Dynamic Reserve Design

- ◆ Modify scheduling optimization to economically schedule a resource in excess of 1200 MWs when the total cost of doing so in Energy and Ancillary Services is less than the cost of not doing so.
 - *This evaluation would take place in the DAM and RTM and modify the hourly reserve requirements.*
 - *Would create a new “largest contingency” in NY.*

Study Objective

- ◆ NYISO performed an analysis of the cost impacts to the Energy market of increasing the reserve constraints as fixed constraints. This is the process used in the current scheduling software.
 - *The objective of the analysis is to determine if enhanced scheduling software is cost justified*

Dynamic Reserves Study Process

- ◆ Several historical days were analyzed covering a variety of situations from 2009 and 2010.
- ◆ Increase the HQ-NY import capability from 1200 MWs to 1500 MWs for selected hours of the day
 - *Inject additional import offers from HQ*
- ◆ Increase the NYCA reserve requirements based on the criteria that 1500 MWs represents the largest single contingency
 - *Locational requirements east of C/E and LI were not modified*

Dynamic Reserves Study Process

- ◆ The reserve constraints used in the study were defined per NYSRC criteria:
 - *NYCA 10M Spin = 750* (1/2 * Largest contingency)
 - *NYCA 10M Total = 1500* (1 * largest contingency)
 - *NYCA 30M Total = 2250* (1.5 * largest contingency)

Dynamic Reserves Study Process

- ◆ Scenarios were run evaluating the offer of additional megawatts at two economic points:
 - *bid\$ for the additional MWs were set based on the offers submitted at HQ for the study days (primarily economically competitive offers)*
 - *bid\$ for the additional MWs were set based on price taker offers*

Evaluation Process

- ◆ Compare the overall impact on the NYCA Energy Market for each of the simulations, compared to a base case simulation, all as measured by the “all-in” cost.
 - *All-in cost is defined as the LBMP cost paid by physical load, plus ancillary services costs, plus bid production cost guarantee (BPCG) payments.*

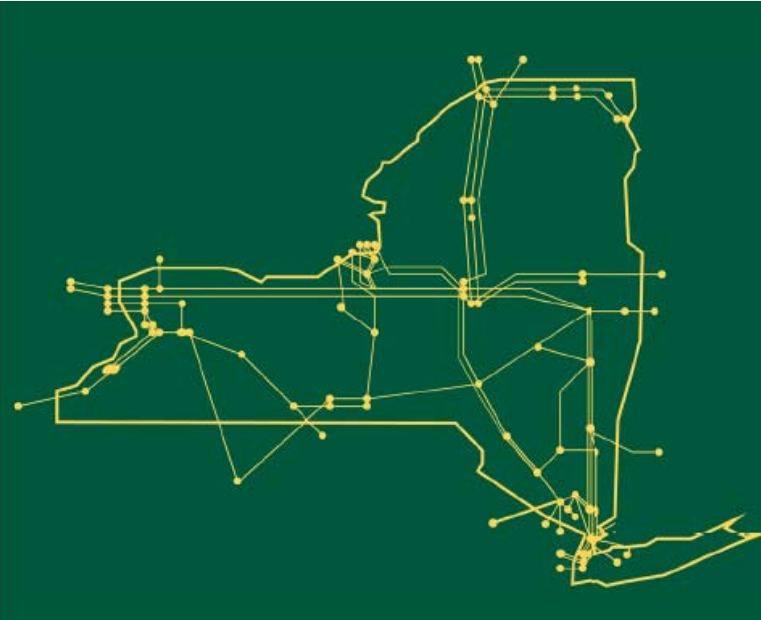
Results

- ◆ When the bids are price takers, there is a clear and significant benefit from increasing the reserves requirements.
 - *Statically increasing the NYCA reserve constraints in response to increased capacity that is being bid as a price taker will result in an overall savings to NYISO consumers*
- ◆ Additional MWs offered at an economically competitive level may result in higher or lower costs to consumers. This seems to be dependent on load levels. This indicates that dynamically increasing the NYCA reserve requirements in response to increased capacity being bid into the Energy market may result in an overall savings to NYISO consumers.
- ◆ It appears, as a general matter, that a fixed increase in the reserve constraint is not the most efficient approach and optimization opportunities should be explored before moving forward.
 - *However, this study reaffirms the fact that the fixed reserve constraint can be increased with an expansion of capacity if that capacity is offered as a price taker, without increasing the costs to NYISO consumers.*

Next Steps

- ◆ A project to dynamically optimize the reserve constraints is not included in the 2011 project schedule.
- ◆ There are development cost efficiencies to be gained if this effort is coupled with the MIPS solution technology initiatives.
 - *In fact, optimization may not be possible under the current solution technology (LR)*

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 conducts comprehensive planning for the state's bulk electricity system.



www.nyiso.com