

Self-Supply of Reserves

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Self Supply of Reserves

- ✓ *Background – How we got here*
- ✓ *Reserve Optimization Concept*
- ✓ *Cost /Benefit Analysis*
- ✓ *Conclusion*

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◆ Physical Self-Supply

- FERC ordered the NYISO to produce a schedule for providing Market Participants an opportunity to physically procure their own non-synchronous reserves (physical self-supply)
- In October, 2005, the Management Committee voted to move forward by advising the FERC that physical self supply was not suited to the NY financial market model and that the NYISO should, instead, analyze a financial self supply option
 - *FERC accepted the response and directed the NYISO to provide a schedule for developing a financial solution*
- Because prices in the non-synchronous market do not diverge, or if they do, they do so only minimally, the analysis of the need for a hedging mechanism was carried out for ten minute spinning reserves market which tends to diverge more

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- The NYISO buys all its reserves in the Day-Ahead market
- Half of the ten-minute spinning reserves it procures Day-Ahead needs to be procured from Eastern resources
- The current tariff provides two mechanisms which provide LSEs the ability to hedge against high reserve prices
 - *Bidding (or contracting for a generator to bid) into the reserve market.*
 - *Entering into a contract for reserve price differences with a third party*
- Another option would be to settle reserves at locational settlement prices
- The NYISO included an evaluation of the feasibility, costs and benefits of optimizing transmission capacity for reserves
- Around other priority projects, the NYISO has been designing and carrying out an evaluation of the feasibility, costs and benefits of optimizing transmission capacity for reserves

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- ◆ *Analyzing the feasibility, benefits and costs of optimizing transmission capacity for reserves:*
 - Studies of East/west price differentials and west-to-east transmission availability in both the DAM and the RT markets were performed
 - The remainder of this discussion presents estimates of the **actual benefits** likely to be realized by further transmission optimization

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Utilize unused DAM west to east transfer capacity to shift additional eastern reserve to more economic western resources

- ◆ **Would require an additional dispatch step to move Eastern Reserve requirements to Western resources when:**
 - The SCUC dispatch solution results in unused west to east transfer capacity **and** the eastern 10 minute reserve price exceeds the western price (hereinafter referred to as “active hours”)

- ◆ **The NYISO has limited its optimization analysis to the DAM, at present:**
 - NYISO purchases all reserves in the DAM
 - Most RT reserve prices are very low (often \$0) yielding very limited benefit.
 - RT optimization would at minimum add substantial complexity with its attendant performance impact and financial cost

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Benefit Estimating Method

- ◆ *All days in May, June and July 2009 were examined for active hours*
- ◆ *50 of the 93 days contained active hours*
- ◆ *23 of the 50 identified days were selected as a representative profile*
 - *The 23 selected days include all hours with total reserve price differentials summed over the active hours of \$20 or more and multiple days in each month were represented*
- ◆ *The 23 evaluated days include a total of 184 active hours*
- ◆ *All active hours in these candidate days were modified to reflect new reserve and transfer limits. SCUC was re-run for each candidate day and results compared with the initial schedule to determine production cost benefits*

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Benefit Estimating Method (Continued)

- ◆ Benefits Estimates

The analysis utilized the direct process model discussed above plus two additional means by which to estimate annual benefits of developing further optimization for the allocation of reserve between East and West as a reasonability check against the modeled process.

1. Direct production cost savings projection based on prototype model results
2. Ratio of these benefit calculations to the upper bound benefit calculation
3. Application of average economic transfer observed to the upper bound benefit calculation's **assumed maximum transfer**

Note: For purposes of these estimates we assume the summer quarter 2009 results to be representative enough of the other 3 quarters of a year to be the basis for an annual benefit estimate.

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- ◆ The potential economic benefits of pursuing an additional optimization for reserves:
 - *Range from \$120,000 to \$350,000 annually*
 - *Would require an additional dispatch step in SCUC*
 - *Appear to be limited in two ways:*
 1. Much of the time when east to west capacity is available to support such a transfer, West-east price differentials are minimal obviating the benefit to a transfer. Out of 93 analyzed days only 50 had 1 or more active hours
 2. When the active hours are then re-dispatched with reduced eastern reserve minimums the average actual reserve transfer (east-to-west reserve transfer found to be economic) is only about 23% of the total available to be transferred in that hour

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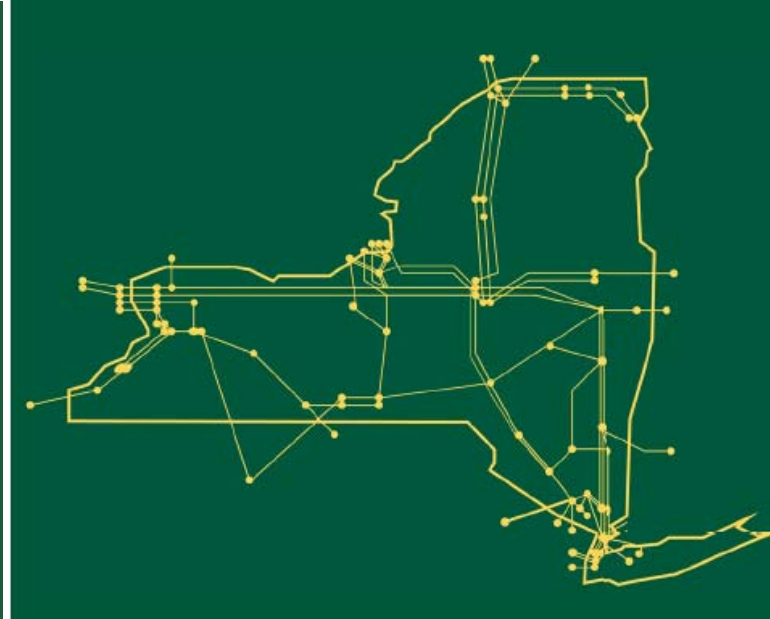
- ◆ **While detailed cost estimates have not been compiled, it would be safe to categorize this as a MAJOR initiative**
 - A thumbnail view of potential costs suggests fairly costly impacts of:
 - *SCUC processing and structural changes (data and process)*
 - *Settlements processing and structural changes (data and process)*
 - *General effort to avoid creating additional structural causes for DAM/RT and RTC/RTD price differentials*
 - *Development of rules and processes to govern re-shifting western reserves to eastern resources when this is desirable in real-time operation*
 - In addition to financial costs these efforts will occupy many resources which are already in high demand for other important projects.
 - This initiative would compete with the same resources that are needed for: Interregional Transaction Coordination (all phases), Congestion Management, Buy Through of Congestion, Disaggregated Virtual Trading, Rest of State Reliability Mitigation, and many others

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- ◆ **Financial Self Supply (Analysis Results Review)**
 - The difference between Eastern and Western Non-Synchronous Reserves Prices is *de minimus*. That, combined with a more liquid non-synch market now than in 2001, makes it appear that a hedging mechanism is unnecessary for non-synchronous reserves
 - The NYISO has completed the analysis of the ten minute market and makes the following observations and recommendations as directed by the Management Committee
 1. *It appears **technically feasible** to adjust the current reserve allocation from East to West based upon unused west to east transfer capacity in the DAM*
 2. *Pursuing ten minute reserve optimization appears to yield minimal actual economic benefit and the probability of high implementation cost*
 3. *Given the lack of substantive benefit demonstrated by testing the most likely optimization method against recent actual DAM historical results it can be concluded that **no actual need exists for additional hedging mechanisms** beyond the two currently provided by the NYISO tariff*
- ◆ *The NYISO recommends that the BIC send the following recommendation to the Management Committee*

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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.



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