Alternative Methods for Determining LCRs

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Outline

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Recap of 2016 Effort

- Defined market guiding principles for the design of a new methodology to determine LCRs
- GE developed a tool utilizing optimization techniques and MARS software
- Project updates presented to NYSRC-ICS on Oct. 5 and Nov. 2
- NYSRC-ICS submitted questions Dec. 13, to which the NYISO will be responding as the project progresses
- Preliminary results affirmed the tool functions as designed

Least Cost Optimization

- **Minimize total cost of capacity at the reliability criterion (LOLE ≤ 0.1)**
- **Cost defined by Unit Net CONE used to develop each ICAP Demand Curve**
- **Uses Linear Approximation as computational method**
  - ***Iterative process between Linear Program wrapper and MARS that approximates the objective function and constraint to find least cost***
- **See ICAPWG Presentation for more information on methodology:**
  http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2016-11-09/LCR%20presentation%2011%2009%2016%20_ICAP.pdf

Guiding Principles

Design Statement:

Develop a robust, transparent, and intuitive (predictive) process for developing proper capacity requirements that maintain reliability while producing a lower cost solution

Efficient allocation of capacity

- **Maintains reliability**
- **Cost effective**
- **Proper investment incentives**

Transparent and predictable

- **Simple, stable, robust**
- **Predictable**

2017 Commitment

- **Market design will evaluate and propose an alternative methodology for determining LCRs based on economic optimization**
  - ***The proposed LCR methodology will utilize the final approved IRM from the NYSRC***
  - ***Although the 2017 project presentation will include results based on an alternative methodology for developing the IRM, those results will be presented for informational purposes only***

2017 Project Development

Stage	Objective	Specific Topics:
Proof of Concept	Demonstrate alternative methodology in relation to guiding principles (*i.e.*, least cost, stability, robust, predictability)	Generation +/- Unit net CONE +/- Load +/- EFORd +/-
Refine Methodology	Modify the alternative method to ensure that all aspects have a purpose and are being performed as a result of sound market and engineering principles	Unit net CONE curves Potential Bounds Emergency assistance assumptions Modeling methodology
Market Simulations	Simulate realistic market situations to demonstrate performance of methodology	Changes in resources Topological changes Locality configurations
Defining Process	Develop a process for the methodology that ensures guiding principles are being achieved over time	Develop process of method Process timeline Transition methods
Demonstrating Market Benefits	Demonstrate the methodology results in market benefits and resolve any issues that arise from its implementation	LOLE Criterion Consumer impact Multiyear simulation Cost allocation
Final Market Design	Summarize all findings and develop a final market design for implementation	Develop final market design

Next Steps

- Complete Phase 1 by presenting simple sensitivities
- Begin Phase 2 analysis
- Continue presenting progress to and obtaining input from NYSRC-ICS and ICAPWG

Next Steps

- The NYISO will consider input received during today's NYSRC-ICS meeting
- Any additional comments sent to zstines@nyiso.com will be considered
- The NYISO will return to a future NYSRC-ICS meetings to discuss its progress and adjustments to the plan based on comments or results

The mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- ***Maintaining and enhancing regional reliability***
- ***Operating open, fair and competitive wholesale electricity markets***
- ***Planning the power system for the future***
- ***Providing factual information to policy makers, stakeholders and investors in the power system***

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