New York ISO
Independent System Operator

Dynamic Reserves: Project Kick-off

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ICAPWG/MIWG
March 3, 2022

Agenda

- Background
- Project Plan
- Next Steps

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Background

Background

- **In 2021, the NYISO published a report discussing the feasibility of dynamically scheduling reserves in the SCUC, RTC and RTD intervals, which included:**
  - Studying the impact with current reserve products (10-minute spin, 10-minute total, 30-minute total)
  - Studying the ability to apply to all current reserve regions and potential future reserve regions (e.g., certain NYC load pockets)
  - The study comprised of two primary phases:
    - Formulation phase
    - Prototyping phase
  - The study outlined specific recommendations and considerations for a Market Design Concept Proposal

[1] The study report was updated on February 23, 2022 and can be found at:
https://www.nyiso.com/documents/20142/26734185/RECA(Dynamic%20Reserves)%20Study%20Report.pdf/27990919-e81b-76a4-12e1-57b9458b553d

Report Recommendations

- Recommendation 1: Consider revising the approach for the determination of the single largest contingency from the current static requirement to a more dynamic methodology as demonstrated in the study formulation and prototype.
- Recommendation 2: Consider applying the dynamic reserves approach that is developed in the prototype to all reserve areas.
- Recommendation 3: The methodology to determine reserve requirements should be consistent between the Day-Ahead and Real-Time Markets to the extent practical.

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Report Recommendations (con't)

- Recommendation 4: Consider pursuing the Long Island Reserve Constraint Pricing project in future years. This project will evaluate whether revisions to current compensation rules are warranted to provide additional availability incentives for Long Island suppliers. This modeling enhancement is intended to better reflect the value of reserve capability on LI.
- Recommendation 5: Consider pursuing the More Granular Operating Reserves project by extending the dynamic reserves concept to load pockets in NYC.
- Recommendation 6: Consider expanding the methodology definition of source contingency to ensure it includes correlated source contingencies, such as simultaneous reduction of offshore wind, as the largest source contingency.

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Additional Study Considerations

- Interaction of the dynamic reserve requirements with the operating reserve demand curves (ORDCs) and transmission demand curves
- Consideration of the implications of pricing outcomes on the market incentives and market power concerns
- Impacts of the dynamic reserves prototype on the RTM (RTC and RTD) solution
- Interaction of dynamic reserves model with new resource models such as CSR and ESR
- Assessing interplay between dynamic reserves scheduling and additional reserve requirements (e.g., supplemental reserves)
- Disabling of the dynamic reserves requirements during Thunder Storm Alerts (TSAs)
- Interaction of dynamic reserve modeling with the intermittent resource contingencies, whether loss of single resource or the correlated loss of energy across multiple resources

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Report Conclusion

- Dynamically setting operating reserves requirements based on the single largest contingency system wide and using available transmission headroom is a feasible concept.
- Dynamic scheduling of reserve requirements has the potential to support the Climate Leadership and Community Protection Act (CLCPA) by allowing more economic clean energy to be imported into the New York control area from external control areas (such as HQ).
- This effort sets the stage for effectively accounting and securing the potential increased offshore wind generation on LI by improving the modeling of LI transmission interface.

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Project Plan

Project Plan

- **The Dynamic Reserves project for 2022 will culminate in a Market Design Concept Proposed by Q4**
- **This effort will leverage the recommendations from the 2021 study to develop potential changes to the NYISO's market software and market rules with the following goals:**
  - Facilitate more efficient scheduling of operating reserves based on system conditions
  - Enable reserves to be scheduled in more cost-effective regions if sufficient transmission capability is available to deliver the reserves to another location/reserve region, post-contingency
- **Topics identified in the report need to be discussed to inform development of the Market Design Concept Proposal, including:**
  - Impacts to reserve and transmission demand curve modeling, impacts on scarcity pricing logic, impacts on real-time market solutions, correlated contingencies that might impact reserve requirements, and which reserve areas should implement dynamic reserves
  - Continue assessing the feasibility of the mathematical solution through prototyping on the Day-Ahead and Real-Time Markets

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Next Steps

Next Steps

- **The NYISO will begin discussions on the recommendations and considerations at ICAP/MIWG in the coming months, targeting the following schedule:**
  - Q2 (April, May) –
    - Long Island Reserve Constraint Pricing
    - Correlated contingencies that might impact reserve requirements
    - Use of forecast load in mathematical formulation
    - Interaction of dynamic modeling with intermittent resource contingencies
  - Q3 (July, August) -
    - Interplay between dynamic reserves scheduling and additional reserve requirements
    - Impacts to reserve and transmission demand curve modeling
    - Impacts on scarcity pricing logic
    - Which reserve areas should implement dynamic reserves
    - Interplay between Thunderstorm Alerts (TSAs) and dynamic reserves
    - Impacts on real-time market solutions
    - Discussion of prototyping

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Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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Questions?