

# Wholesale Market Actions

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**Mike DeSocio**

Senior Manager, Market Design

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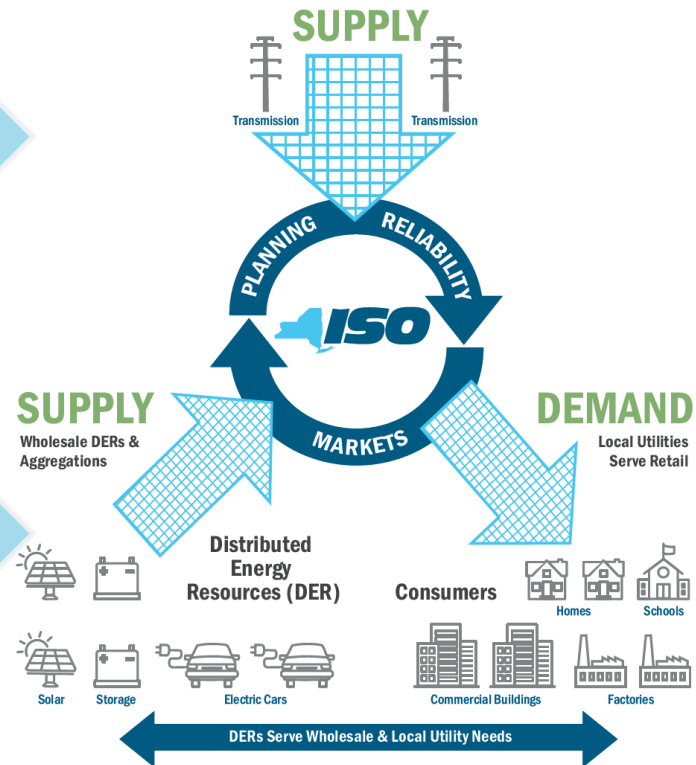
# Markets for a Grid in Transition

## Resource Flexibility

- Today, markets incent flexibility through Products, Pricing, and Settlements.
- Focusing on the integration DERs and **Energy Storage**, More Frequent Interchange Scheduling, and Price Formation.

## Grid Resilience

- Includes: (1) the ability to withstand and reduce the magnitude and/or duration of disruptive events, and (2) the capability to anticipate, absorb, adapt to, and/or recover from the impacts of disruptive events.
- Focusing on ways that markets can incent investments that will support grid resilience.



# The NYISO's Approach

- The NYISO is committed to supporting New York State's Energy Storage target.
- The NYISO is currently developing a comprehensive set of market rules to fully enable Energy Storage & DERs to participate in the wholesale electricity markets.
  - [Energy Storage Integration project](#)
  - [DER Roadmap](#)
- The NYISO is working with stakeholders to develop a wholesale market design that will allow Energy Storage Resources (ESRs) to offer their full capabilities into the NYISO's wholesale Energy, Capacity, and Ancillary Services markets.



# NYS Energy Storage Roadmap

## ■ Recommendations

- Improve Energy Storage Participation Rules within the Ancillary Service, Capacity and Energy Markets
- Buyer Side Mitigation
- Dual Participation
- Valuing Limited Duration Resources within the Capacity Market
- Co-locating Energy Storage and Renewables
- Limited Energy Storage Participation Rules for providing Ancillary Services
- Improve wholesale market signals for flexible resources
- Seek more cost-effective dispatch and telemetry solutions
- Energy Storage as Bulk Transmission Resource in NYISO Planning

# NYISO Key Efforts

## ■ Energy Storage Integration

- Phase 1 – (2016-2019)
  - Improve Energy Storage Participation Rules within the Ancillary Service, Capacity and Energy Markets
- Phase 2 – (2020-2023)
  - Co-locating Energy Storage and Renewables
- Future Phase
  - Limited Energy Storage Participation Rules for providing Ancillary Services

## ■ DER Roadmap (2017-2021)

- Aggregation Rules
- Coordination and Dual Participation Rules
- Valuing Limited Duration Resources within the Capacity Market
- Seek more cost-effective dispatch and telemetry solutions



# NYISO Key Efforts (Cont.)

## ■ Evolution of Ancillary Services

- Improve wholesale market signals for flexible resources
  - More Granular Operating Reserves (2018-2022)
  - Ancillary Service Shortage Pricing (2018-2023)
  - Flexible Ramping Product (Starting in 2021)
  - Review Regulation Service Product (2021)

## ■ Buyer Side Mitigation

- BSM Repowering (Starting 2018)

## ■ Energy Storage as Bulk Transmission Resource in NYISO Planning

- ESRs can be considered as temporary RMRs that would receive cost recovery through the NYISO's tariff or as market-based solutions (allowing any benefits of storage to be recognized in NYISO planning studies).
- There are no plans at this time to expand rules associated with cost recovery

All Topics are discussed at the NYISO Market Issues (MIWG), Installed Capacity (ICAPWG), and/or Price Responsive Load Working Groups (PRLWG).

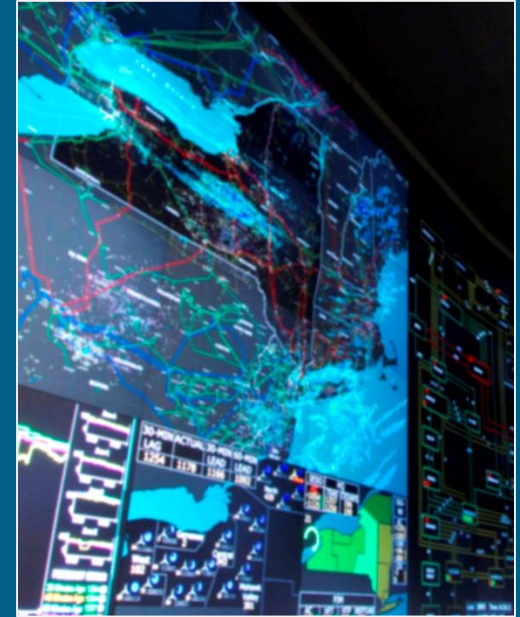


# Great Expectations

“New York is on the cutting edge of this new energy future. Together, we are transforming the power grid as it strives to achieve the goals of cleaner energy, improved efficiency, and robust economic growth.

The NYISO is working to accommodate change while ensuring continuity.

**We have great expectations that we can integrate the emerging power trends in a manner that benefits consumers and supports public policy goals.”**



*Power Trends 2018*



# 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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