



# Electric Storage Participation in the RTO and ISO Markets

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**Federal Energy Regulatory Commission**

*Views expressed do not necessarily represent the views of the Commission or any Commissioner.*

# Topics for Discussion

- FERC Overview
- Electric Storage Policy Background
- Data Requests and Request for Comment on Electric Storage Participation
- Notice of Proposed Rulemaking (NOPR) on Electric Storage Participation
- Final Rule (Order No. 841) on Electric Storage Participation in the RTO and ISO Markets
- Questions/Discussion



# FERC Overview

# What is FERC?

- FERC is an Independent Government Regulatory Agency in the Executive Branch of the U.S. Government
- Created by Department of Energy Organization Act (1977)
- Predecessor: Federal Power Commission

# How FERC is Organized

- There are 5 commissioners
  - Nominated by the President, confirmed by the Senate
  - President designates Chairman
  - Each commissioner has a 5-year fixed term, with one term expiring each year
- The Chairman sets the monthly Commission agenda
  - Orders voted out by majority rule

# What Does FERC Regulate?

## *Electric Power Industry*

- Interstate transmission rates and services
- Wholesale energy rates and services
- Corporate transactions, mergers, securities issued by public utilities
- Mandatory electric reliability standards

## *Natural Gas Industry*

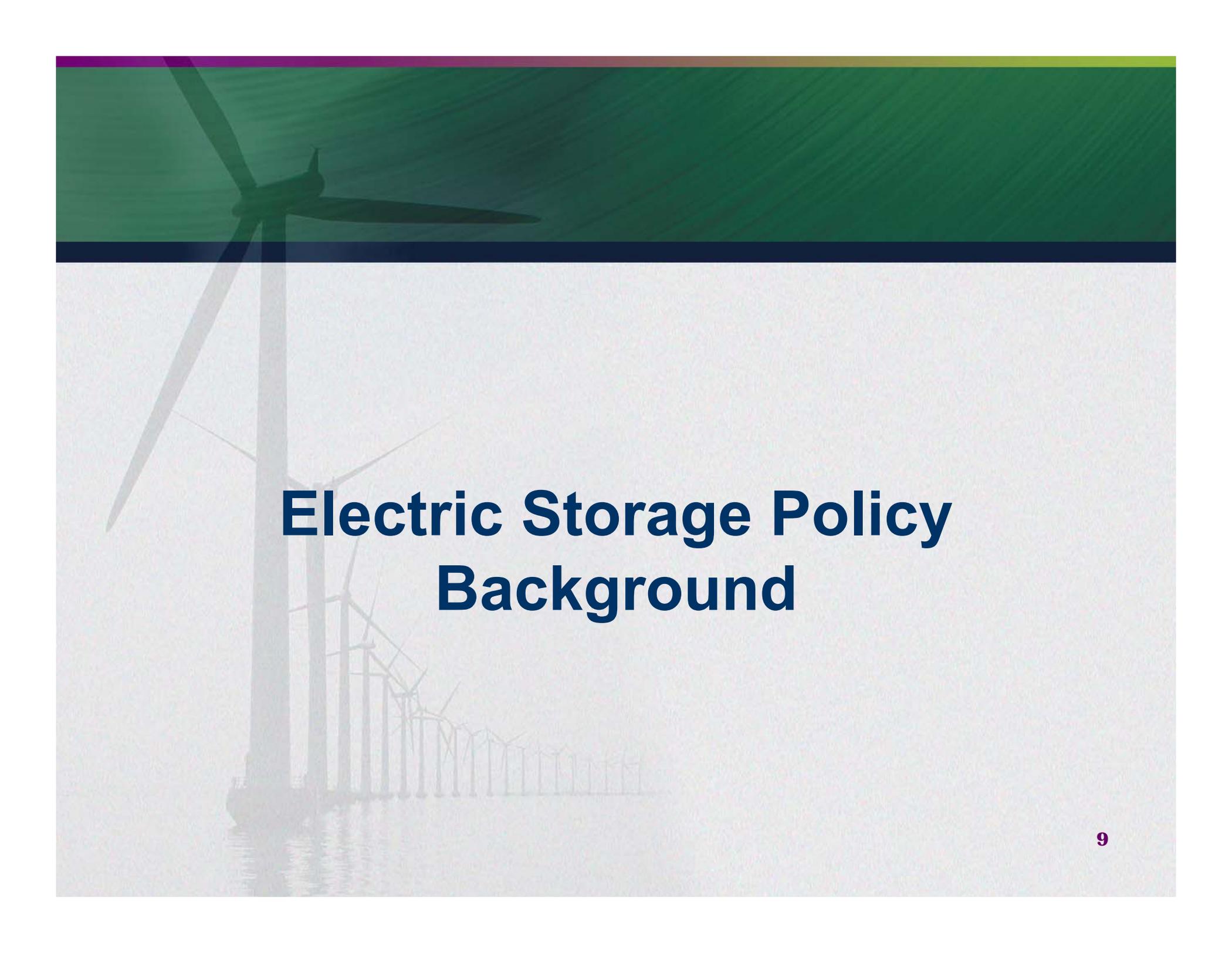
- Interstate transportation rates and services
- Interstate gas pipeline construction and oversee related environmental matters
- Ensures the safe operation and reliability of proposed and operating LNG terminals

# What Does FERC Regulate? (cont.)

- *Hydroelectric Industry*
  - Licensing of nonfederal hydroelectric projects
  - Oversee related environmental matters
  - Inspect nonfederal hydropower projects for safety issues
- *Oil Pipeline Industry*
  - Interstate transportation rates and services of crude oil and petroleum products

# Office of Energy Policy and Innovation

- The **Office of Energy Policy and Innovation (OEPI)** issues, coordinates, and develops proposed policy reforms to address emerging issues affecting wholesale and interstate energy markets, including policies to ensure the efficient development and use of transmission, generation, alternative technologies, and wholesale and interstate markets generally. Undertakes policy and quantitative analysis and conducts outreach with a range of entities.



# **Electric Storage Policy Background**

# Commission Actions Related to Electric Storage Resources

- Request for Comments Regarding Rates, Accounting and Financial Reporting for New Electric Storage Technologies (2010)
- Order 755 (2011): Frequency Regulation Compensation
- Order 1000 (2011): Transmission Planning and Cost Allocation
- Order 784 (2013): Third Party Provision of Ancillary Services
- Order 792 (2013): Small Generator Interconnection
- Industry Panel on Electric Storage Resources (2015)
- **Data Requests and Request for Comment on Electric Storage Participation in the Organized Wholesale Electric Markets (2016)**
- Technical Conference on Generator Interconnection Agreements and Procedures (2016)

# Commission Actions Related to Electric Storage Resources (cont.)

- Technical Conference on Utilization of Electric Storage Resources as Transmission Assets (2016)
- **Notice of Proposed Rulemaking on Electric Storage Participation in the Organized Wholesale Electric Markets (2016)**
- Notice of Proposed Rulemaking on Generator Interconnection Procedures and Agreements (2016)
- Policy Statement on Cost Recovery by Electric Storage Resources (2017)
- **Order No. 841 (RTO/ISO market participation) (2018)**
- Order No. 842 (Primary Frequency Response) (2018)
- Order No. 845 (Interconnection) (2018)



# **Electric Storage Participation in the RTO and ISO Markets**

# Data Requests and Request for Comment on Electric Storage Participation in the Organized Wholesale Electric Markets

- In April 2016, the Commission issued identical data requests to each RTO/ISO, and a (separate) request for comments to the public, regarding the RTO/ISO market rules for electric storage resources.
- Issues included:
  - Eligibility of electric storage resources to participate in RTO/ISO markets
  - Qualification and performance requirements for market participants
  - Bid parameters for participating resources
  - Opportunities for distribution-connected and aggregated electric storage resources to participate in the RTO/ISO markets
  - Treatment of electric storage resources when they are receiving electricity for later injection to the grid

# Some Comments Received in Storage Proceeding

- Allow storage to provide all services in the organized wholesale markets
- Create new state of charge and other bid parameters that recognize storage's unique operational characteristics
- Allow storage to participate in the markets as dispatchable demand and compensate differently than traditional load resources
- Modify and/or make transparent how software models and dispatches storage
- Reduce minimum market participation thresholds to 100 kW in all markets
- Reduce minimum run time and commitment interval requirements to 30 minutes
- Include storage in the transmission planning process
- Allow storage to pay wholesale price for charging energy

# NOPR on Electric Storage Participation in the Organized Wholesale Electric Markets

The Commission issued a Notice of Proposed Rulemaking (NOPR) in November 2016 proposing to require each RTO and ISO to revise its tariff to:

(1) establish a participation model consisting of market rules that, recognizing the physical and operational characteristics of electric storage resources, accommodates their participation in the organized wholesale electric markets and

(2) allow distributed energy resource aggregators, including electric storage resources, to participate directly in the organized wholesale electric markets.

# Order No. 841 – Electric Storage Participation in the Organized Wholesale Electric Markets

The Commission required that RTOs/ISOs establish a participation model consisting of market rules that ensure:

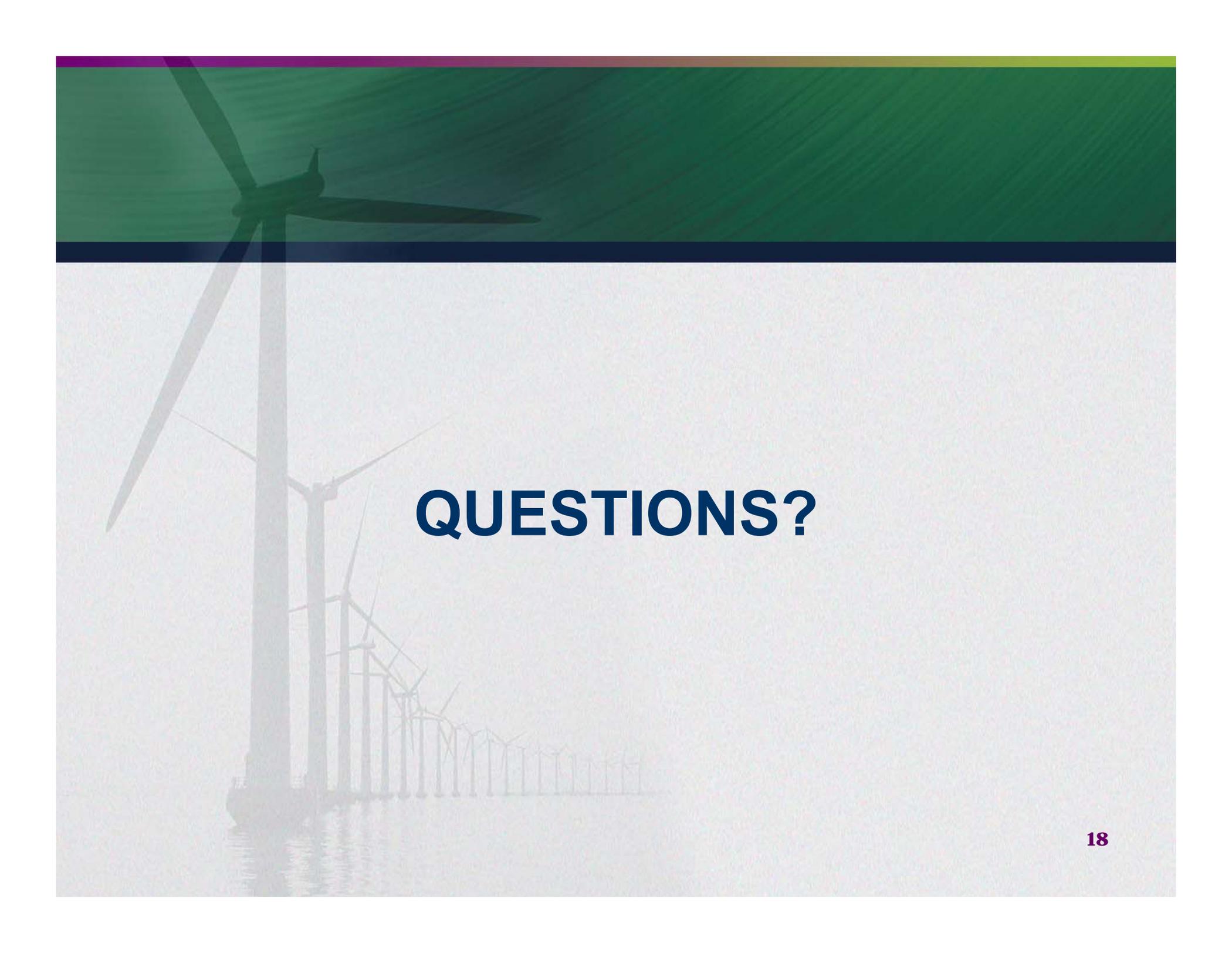
- Electric storage resources are eligible to provide all capacity, energy, and ancillary services they are technically capable of providing.
- RTO/ISO tariffs account for physical and operational characteristics of electric storage resources.
- Electric storage resources are able to be dispatched and set the wholesale market clearing price as both a wholesale seller and wholesale buyer.
- RTO/ISO tariffs establish a minimum size requirement for electric storage resources not to exceed 100 kW.

The Commission also required that electric storage resources be able to pay the wholesale price for charging energy that they resell back into the wholesale markets.

Compliance filings are due December 1<sup>st</sup> 2018 and the RTOs/ISOs will have another 365 days to implement the changes.

# Distributed Energy Resources (DERs) Technical Conference

- To collect additional information on DER aggregation, FERC conducted a technical conference on April 10 and 11, 2018
- The technical conference also reviewed DER impacts on the bulk power system as part of a new proceeding
- Seven panels and over 50 panelists covered:
  - DER aggregation locational requirements
  - State and local regulators' concerns
  - Double compensation for same services
  - DER data
  - DER modeling
  - Coordination
- The Commission received over 50 post-technical conference comments and is reviewing this information to determine next steps



**QUESTIONS?**