

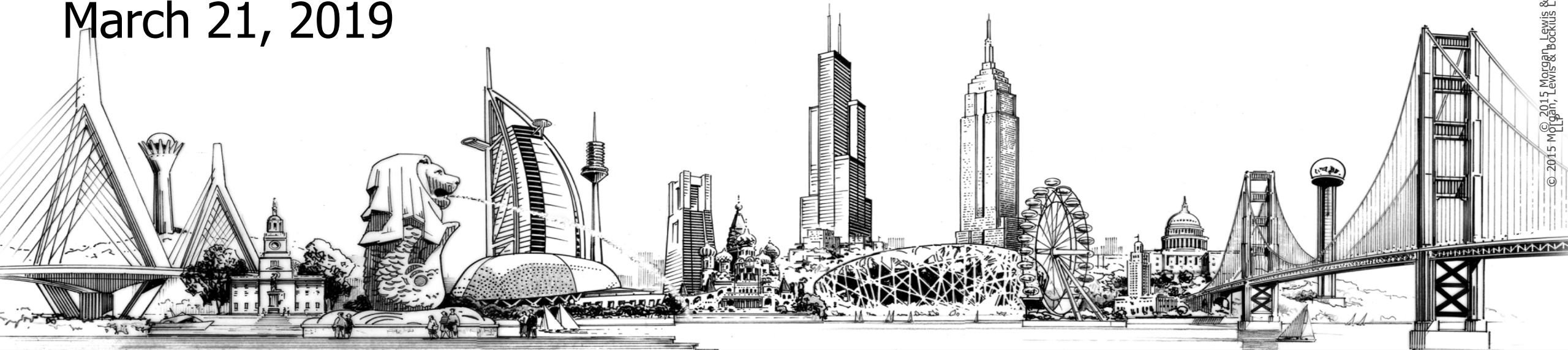
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ENERGY STORAGE FEDERAL REGULATORY DEVELOPMENTS

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Introduction to Federal Regulation

- The Federal Energy Regulatory Commission is an independent government agency, officially organized as part of the Department of Energy.
- FERC is responsible for regulating, among other things, the interstate transmission of electric power and wholesale sales of electricity.
 - States regulate retail electric power
- Five-member Commission
 - Presidential appointees (confirmed by Senate)
 - No more than three from same political party



FERC Jurisdiction

- FERC has authority under the Federal Power Act to ensure that the rates, terms, and conditions of jurisdictional service are **just and reasonable and not unduly discriminatory or preferential**.
- FERC has authority over “public utilities”
 - Includes traditional investor-owned utilities, power marketers, regional transmission organizations, independent system operators
- RTO/ISO market activities are conducted pursuant to FERC-jurisdictional tariffs and market rules.

Energy Storage - Need for Federal Reform

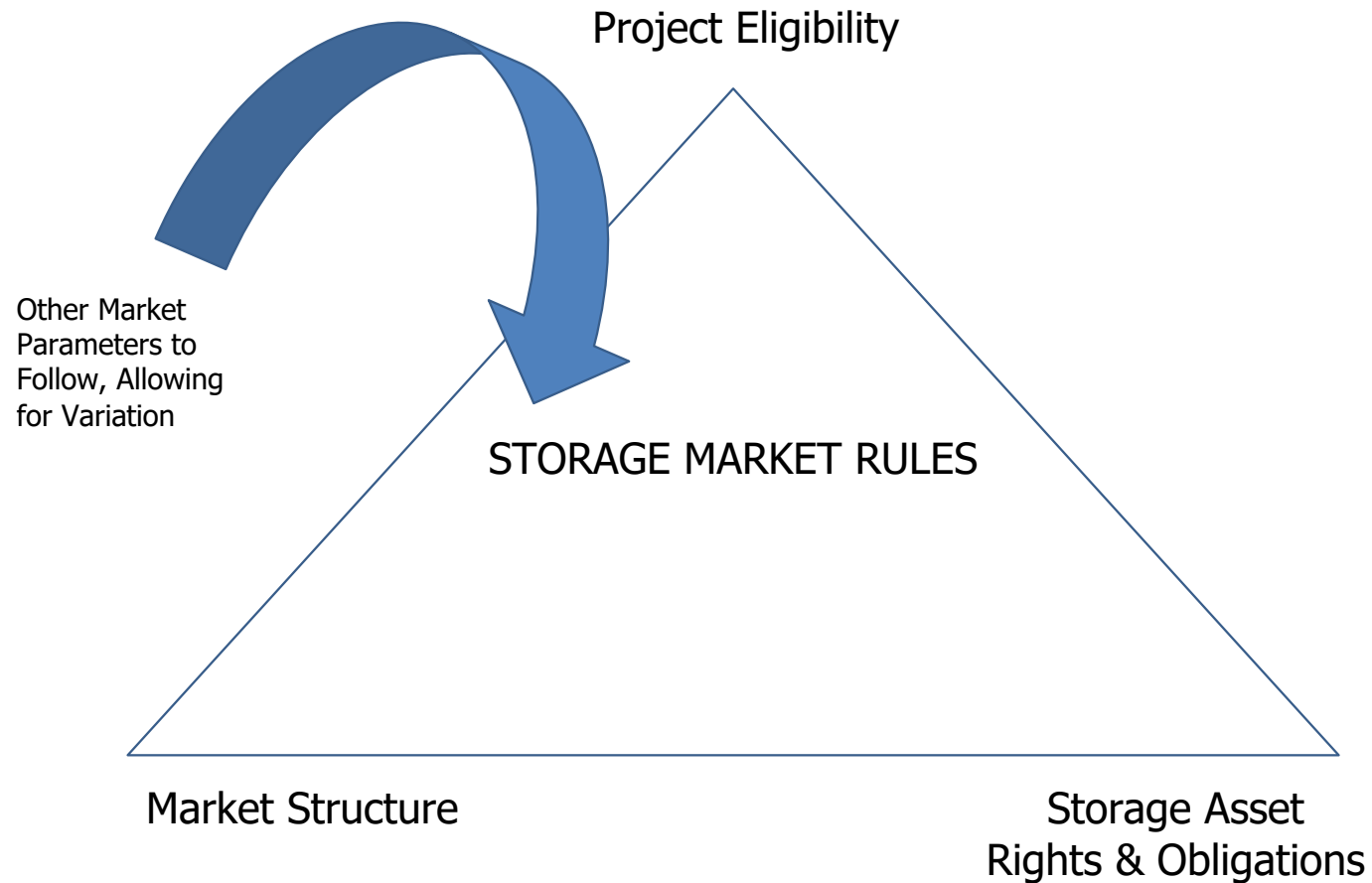
- FERC has long recognized the potential for storage to bring economic and reliability benefits to consumers.
 - Various FERC rulemakings and administrative issuances have focused on issues relevant to storage since at least 2011.
- Over the past several years, FERC had been evaluating the need for reforms to better accommodate storage participation in wholesale markets.
- Significant focus on ensuring efficiency and competition in RTO/ISO markets.



Order No. 841

- On February 28, 2018, FERC issued its long-awaited final rule:
 - *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, 162 FERC ¶ 61,127 (2018)
 - Followed a lengthy stakeholder process that attracted significant industry attention.
- Objective = “Level the Playing Field”
 - Mandates that RTOs/ISOs create market rules that facilitate the participation of electric storage resources.
 - Rules must recognize physical and operational characteristics of electric storage resources.
 - Resource Neutral: Any storage participation model modified to comply with Order No. 841 must be made available for all types of electric storage resources.

Storage Market Rules



Resource Eligibility

What is an Electric Storage Resource?

A resource that:

- Is capable of receiving electric energy from the grid and
- Is capable of storing electric energy for later injection back to the grid

The resource can be located on:

- the interstate transmission system
- a distribution system
- Behind the meter

But once the resource injects electric energy back to the grid, that is interstate commerce and subject to FPA and FERC regulation.



Pending Regulatory Issues

- Jurisdictional concerns
 - Impact to the distribution grid; associated costs
 - State opt-out
- Transmission access charges
 - Charging energy
 - Provision of ancillary services
- Ability to provide all services
 - Sufficiency of registration options
- Metering and accounting challenges
- Distributed Energy Resources (“DERs”)