

# Brief Comments from FERC Staff

## 2023 DOE Energy Storage Financing Summit

Federal Energy Regulatory Commission

Washington D.C.



**Chris Young**

**Director, Division of Policy Development  
Office of Energy Policy and Innovation  
Federal Energy Regulatory Commission**

January 26, 2023

My comments represent *only* my opinions and do not necessarily represent the opinions of any Commissioners or other Commission staff

# What Is the Federal Energy Regulatory Commission?

- Independent agency that regulates the interstate transmission of natural gas, oil, and electricity, as well as natural gas and hydropower projects
- Relevant here, the Commission regulates the transmission and wholesale sales of electricity in interstate commerce
  - Includes regulation of the Regional Transmission Organizations and Independent System Operators (RTOs/ISOs) such as NYISO, PJM, and CAISO.
- Under the Federal Power Act (FPA) FERC has jurisdiction over:
  - The transmission of electric energy in interstate commerce
  - The sale of electric energy at wholesale in interstate commerce
  - Rates, terms and conditions of FERC-jurisdictional services and charges must be filed for approval and be deemed “just and reasonable” (FPA § 205)
  - FERC may initiate a proceeding to address any rate related to the transmission or sale of electricity that is “unjust, unreasonable, unduly discriminatory or preferential” (FPA § 205)
- Technology and fuel neutral regulation
- Two basic ways to make policy: responding to filed cases, or rulemaking proceedings that the Commission initiates



# “Early” Rulemakings Affecting Storage

- Regulation / Frequency Response markets compensation:  
Order No. 755 (2011)
  - Requires equitable compensation for competitive resources
- Third Party Provision of Ancillary Services:  
Order No. 784 (2013)
  - 3<sup>rd</sup> party producers including storage may sell ancillary services in non-RTO areas, including to transmission providers required to provide those services
  - Changes to the Commission’s accounting rules tailored to storage resources



# Major Rulemakings Affecting Storage

- Storage Participation in Wholesale Markets: Order No. 841 (2018)
  - Requires RTOs/ISOs to establish participation models with market rules:
    - Account for physical and operational characteristics of electric storage resources.
    - Electric storage resources eligible to provide all capacity, energy, and ancillary services they are technically capable of providing.
    - Electric storage resources able to be dispatched and set the wholesale market clearing price as both a wholesale seller and wholesale buyer.
    - Minimum size requirement for electric storage resources not to exceed 100 kW.
    - Electric storage resources be able to pay the wholesale price for charging energy that they resell to the wholesale markets.
  - The Commission has processed most RTO/ISO compliance filings; many have components with approved implementation dates in 2023 and 2024.
- Distributed Energy Resource Aggregations: Order No. 2222 (2020)
  - Evolved from the same NOPR that led to Order No. 841
    - DER Aggregations can include storage resources
  - Declined to exercise jurisdiction over the interconnection of a DER to a distribution facility when that resource interconnects for the purpose of participating in RTO/ISO markets exclusively through a DER aggregation
    - State or local law govern distribution-level interconnections for those DERs



# What's Else Is FERC Doing That Affects Storage?

- Order 841 Compliance
- Storage as Transmission (SATO)A)
  - Policy Statement (2017)
  - MISO SATOA Approved (2020)
  - Combined Storage and Market Resources?
- Effective Load Carrying Capacity (ELCC), which affects capacity accreditation
- Hybrid and co-located resources
  - Initially included separate activity, has been largely rolled into other processes
  - January 2021 order directing RTOs and ISOs to submit reports on their policies and ongoing efforts
- Interconnection
  - Order No. 2003 & 2006 (2003, 2005): Standard interconnection procedures and agreements for large and small (< 20 MW), part of the long-term effort to ensure open access
  - Order No. 845 (2018): Revised the *pro forma* documents to provide more certainty
  - “Track 2” NOPR (issued June 2022): Addressing interconnection queue backlogs
- Also:
  - Order No. 828 (2016): Requirements for Frequency and Voltage Ride Through Capability of Small Generating Facilities
  - Order No. 842 (2018): new interconnections capable of providing primary frequency response
  - Proposed accounting changes (RM21-11)



# What's Else Could FERC Do That Affects Storage?

- Continue implementation and let the markets flourish?
- Long Term Energy Storage?
  - What's actually feasible, or coming to market?
- Modify or “tweak” existing rules?
  - Capacity accreditation
  - Capacity performance
  - Expand special programs (i.e., ISO-NE and ERCOT)
- Define a new product?
  - Has inequitable treatment been demonstrated?
  - Is technology available that can provide a service or meet an identified need?
  - Does a service exist to provide?



# Thank You

**Questions?**

*Christopher.Young@ferc.gov*



# Extra Slides



# Hybrid and Co-Located Resources

## Technical Conference and White Paper

- July 2020: the Commission hosted a technical conference to discuss issues related to hybrid resources, defined as resources consisting of a generation resource and an electric storage resource paired together.
- January 2021: the Commission issued an order directing the RTOs and ISOs to submit reports on their policies, ongoing efforts, and specific requests for information on hybrid resources. The reports were submitted by July 2021.
- May 2021: the Commission issued a staff white paper on hybrid resources, which discussed what was learned from the technical conference and relevant comments.
- September 2021: reply comments on the RTO/ISO reports and comments on the white paper.



# Distributed Energy Resources (DER) Order No. 2222

- In February 2018, the Commission finalized the storage rule but found that it needed additional information on the participation of DER aggregations in the organized wholesale markets and commenced a new rulemaking proceeding (RM18-9).
- In April 2018, the Commission convened a technical conference on DER aggregation. This technical conference also reviewed DER impacts on the bulk power system as part of a new proceeding (AD18-10).
- On September 17, 2020, the Commission issued Order No. 2222, Participation of Distributed Energy Resource (DER) Aggregations in Markets Operated by RTOs/ISOs.
  - By removing barriers to DER aggregation participation in RTO/ISO markets, enhances competition and, in turn, helps ensure that the RTO/ISO markets produce just and reasonable rates.
  - Finds that existing RTO/ISO market rules are unjust and unreasonable in light of barriers that they present to the participation of DER aggregations in the RTO/ISO markets.
  - Such barriers can emerge when the rules governing participation in those markets are designed for traditional resources and in effect limit the services that emerging technologies can provide.
  - DERs tend to be too small to meet the minimum size requirements to participate in the RTO/ISO markets on a stand-alone basis, and existing participation models for aggregated resources, including DERs, often require those resources to participate in the RTO/ISO markets as demand response.

# Required RTO/ISO Tariff Provisions

For each RTO/ISO, Order No. 2222 requires that tariff provisions addressing distributed energy resource aggregations must:

- Allow **DER aggregations to participate directly** in RTO/ISO markets and establish DER aggregators as a type of market participant;
- Allow DER aggregators to register DER aggregations under one or more **participation models** that accommodate the physical and operational characteristics of the DER aggregations;
- Establish a **minimum size requirement** for DER aggregations that does not exceed 100 kW;
- Address:
  - Distribution factors and bidding parameters
  - Information and data requirements
  - Metering and telemetry requirements
  - Coordination (i.e., with distribution utilities, state regulatory authorities)
  - Modifications to the list of resources in a DER aggregation
  - Market participation agreements

# Order No. 2222 Definition of DERs

- Defines a DER as “any resource located on the distribution system, any subsystem thereof or behind a customer meter.”
- Definition is technology-neutral, thereby ensuring that any resource that is technically capable of providing wholesale services through aggregation is eligible to do so.
- Defines a DER aggregator as “the entity that aggregates one or more DERs for purposes of participation in the capacity, energy and/or ancillary service markets of the RTOs and/or ISOs.”
  - The DER aggregator is the RTO/ISO market participant, not the DER

# Order No. 2222 Commission Jurisdiction

- General
  - Commission exercises jurisdiction over the sales by DER aggregators into the RTO/ISO markets.
  - The Final Rule declined to include a mechanism for all state and local regulators to prohibit all DERs from participating in the RTO/ISO markets through DER aggregations, otherwise known as an opt-out.
    - Further consideration is pending.
  - Nothing in the final rule preempts the right of states and local authorities to regulate the safety and reliability of the distribution system.
  - Establishes an opt-in mechanism for small utilities (4 million MWh or less).
- Interconnection
  - Commission declines to exercise jurisdiction over the interconnection of a DER to a distribution facility when that resource interconnects for the purpose of participating in RTO/ISO markets exclusively through a DER aggregation.
  - This should reduce the potential for a patchwork of Commission and state interconnection jurisdiction over distribution lines.
  - Therefore, state or local law will govern distribution-level interconnections for DERs participating in RTO/ISO markets exclusively through an aggregation.

# Order No. 2222 Compliance Filings

Order No. 2222 required each RTO/ISO to file the tariff changes needed to implement the requirements of the Final Rule within 270 days of publication in the Federal Register (i.e., by July 19, 2021).

The Commission granted various extensions of time.

**CAISO & NYISO:** submitted filings on the original deadline, July 19, 2021.

**PJM & ISO-NE:** submitted filings in February 2022, comments due April 1.

**MISO & SPP:** will submit filings in April 2022.

Staff and the Commission are considering the complex proposals.

In Order No. 2222 The Commission did not mandate a specific effective date for the compliance proposals but allowed each RTO/ISO to propose a reasonable effective date based on specific regional considerations and market structures.

# Order No. 2222 Implementation Proposals

In Order No. 2222 The Commission did not mandate a specific effective date for the compliance proposals but allowed each RTO/ISO to propose a reasonable effective date based on specific regional considerations and market structures.

The various RTOs/ISOs have varying needs for software and hardware development and to make other changes, and for host utilities to develop coordination procedures to ensure safety and reliability and other implications of DERs on their distribution systems.

- **CAISO** requests effective date no later than November 2022.
- **NYISO** requests a flexible effective date, recently updated request to 2026.
- **PJM** requests an effective date in February 2026.
- **ISO-NE** request two effective dates: for DER Capacity Resource in November 2022; and for the remainder in November 2026 (linked to capacity auction).
- **MISO** requests 2029.
- **SPP** proposes implementation in Q3 2025.

These dates are subject to and sensitive to Commission action, including whether the Commission accepts, rejects, or accepts in part each proposal.

# Interconnection Background

- In 2003, the Commission created the large generator interconnection procedures (LGIP) and large generator interconnection agreement (LGIA) in Order No. 2003 as part of its effort to ensure open access
- In 2005, the Commission created the small generator interconnection procedures (SGIP) and small generator interconnection agreement (SGIA) in Order No. 2006
- In 2018, the Commission issued Order No. 845 to reform the LGIP and LGIA



# Other Interconnection Rulemakings

- Order No. 661 (2005): Interconnection for Wind Generation
  - Established unique interconnection procedures for wind generation.
- Order No. 764 (2012): Integration of Variable Energy Resources (VERs)
  - Required new VERs to provide meteorological and forced outage data to transmission providers for forecasting.
- Order No. 792 (2013): Small Generator Interconnection Agreements and Procedures
  - Provided for interconnection customers to receive point of interconnection info in advance of application; increased the threshold for Fast-Track participation to 5 MW; revised SGIP/ SGIA to specifically include energy storage devices.

# Other Interconnection Rulemakings (cont.)

- Order No. 807 (2015): Open Access and Priority Rights on Interconnection Customer's Interconnection Facilities (ICIF)
- Order No. 827 (2016): Reactive Power Requirements for Non-Synchronous Generation
  - Removed wind generators exemption from providing reactive power established in Order No. 661 and created new requirements for non-synchronous generation distinct from traditional synchronous generation.
- Order No. 828 (2016): Requirements for Frequency and Voltage Ride Through Capability of Small Generating Facilities
  - Created requirements for small generators to ride-through under- and over- voltage and frequency disturbances.

# Current Interconnection Challenges and Concerns

- Issues mentioned by industry:
  - Continuing Queue Backlogs and Delays (both inside and outside RTO/ISO areas)
  - Restudy Loops (withdrawals, modifications, etc. can cause cascading restudies)
  - Cost & Schedule Variance (not related to backlogs or restudies)
  - Incorporation of New Types of Technology/ Management of speculative projects\*
  - Affected Systems Coordination\*\*
  - Transparency (Models, Restudy Triggers, Contingent Facilities)\*
  - Coordination of Interconnection with Transmission Planning

\* The Commission enacted reforms in Order No. 845 addressing these issues.

\*\* The Commission established Docket No. AD18-8 Reform of Affected System Coordination in the Generator Interconnection Process to explore these issues.

# Transmission & Interconnection ANOPR

- July 2021 Advance Notice of Proposed Rulemaking on *Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection* issued in Docket No. RM21-17.
- Potential need for reform:
  - Rapidly changing generation mix and renewables coming online at an unprecedented rate.
  - Existing processes may be siloed and not sufficiently forward-looking, which may be unlikely to produce transmission solutions that could more efficiently and cost-effectively meet needs.
  - Current approach is failing to adequately identify the benefits and allocate the costs of new transmission infrastructure.
  - Transmission infrastructure is increasingly being developed through the generator interconnection process.
  - Current approach to overseeing transmission investment may not adequately protect consumers.

# Transmission & Interconnection NOPR

- NOPR Issued April 2022
- Follows the ANOPR
  - ANOPR Comments, approximately 5,000+ pages
  - Technical Conference on Regional Transmission Planning Reforms
    - November 2021
- Major Proposed Reforms
  - Regional Transmission Planning Reforms
  - Long-Term Regional Cost Allocation
  - Federal ROFRs and Enhanced Transparency
  - Interregional Coordination
- Joint Federal-State Task Force on Electric Transmission Meetings (five meetings so far)