



Federal Regulation of Electric Storage

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•Any opinions expressed in this presentation are the presenters' own, and do not necessarily represent the views of the Federal Energy Regulatory Commission or any Commissioner



What is the Federal Energy Regulatory Commission?

- FERC is an Independent agency that regulates the interstate transmission of natural gas, oil, and electricity, as well as natural gas and hydropower projects.
- **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.
- **Technology and fuel neutral regulation**
 - 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).
 - Two basic ways to make policy: responding to filed cases, or rulemaking proceedings that the Commission initiates.



Initial FERC Rulemakings that affected 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) 3rd 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: Order No. 841 (2018)

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

- Electric storage resources must be 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 a wholesale buyer.
- RTO/ISO tariffs establish a minimum size requirement for electric storage resources not to exceed 100 kW.
- The Commission also required that the sale of energy from the organized wholesale electric markets to an electric storage resource that the resource then resells back to those markets be at the wholesale Locational Marginal Price (LMP).



Major Rulemakings Affecting Storage: Order No. 2222 (2020)

- Focuses on aggregations of small resources. Defines a DER as: “any resource located on the distribution system, any subsystem thereof or behind a customer meter.” May include storage resources.
- Finds existing RTO/ISO market rules are unjust and unreasonable in light of barriers to the participation of DER aggregations in the RTO/ISO markets.
- 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 may be unable to meet certain qualification and performance requirements.
- Existing participation models for aggregated resources, including DERs, often require those resources to participate in the RTO/ISO markets as demand response, which limits their operations and the services that they are eligible to provide.
- RTOs/ISOs must amend their tariffs to allow DER aggregators to participate in their markets. Compliance with Order 2222 is currently ongoing.



Major Rulemakings Affecting Storage: Order No. 845 (2018)

- FERC issued Order No. 845 to address issues in interconnection queues, revising the *pro forma* to increase certainty.
- Order 845 contained several reforms that affected electric storage in particular:
 - Requesting Interconnection Service Below Generating Facility Capacity
 - Provisional Interconnection Service
 - Utilization of Surplus Interconnection Service
 - Material Modification and Incorporation of Advanced Technologies



Major Rulemakings Affecting Storage: Order No. 2023 (2023)

- **Reforms to Implement a First-Ready, First-Served Cluster Study Process**
 - Public Interconnection Information
 - Cluster Study Process
 - Allocation of Network Upgrade Costs for Interconnection Customers in Clusters
 - Financial Commitments and Readiness Requirements
 - Transition Process
- **Reforms to Increase the Speed of Queue Processing**
 - Affected System Study Process
 - Study Delay Penalties
- **Reforms to Incorporate Technological Advancements**
 - **Increasing Flexibility in the Generator Interconnection Process**
 - Evaluating Alternative Transmission Technologies in the Generator Interconnection Process
 - Modeling and Performance Requirements for Non-Synchronous Generating Facilities



Order No. 2023: Increasing Flexibility in the Generator Interconnection Process

Order No. 2023 removes certain barriers to proposed generating facilities that use battery storage technology and hybrid configurations.

- More than one generating facility may co-locate on a shared site to share a single interconnection request.
- Interconnection customers may add a generating facility to an existing interconnection request if there is no change to the originally requested interconnection service level.
- Surplus interconnection service will be available after executing (or requiring the unexecuted filing of) an LGIA rather than only after a generating facility enters commercial operation.
- Interconnection customers may request that interconnection studies use more accurate operating assumptions for electric storage resources (whether standalone, co-located generating facilities, or part of a hybrid generating facility) when transmission providers study charging behavior.



Order No. 2023-A: Rehearing and Clarifications

- Order No. 2023-A was issued in March 2024 and largely upheld the original order. The clarifications of Generator Interconnection Flexibility included:
 - **Co-locating Generating Facilities behind a single point of interconnection:** The facilities sharing an interconnection request do not need to be owned by the same customer. The transmission provider will determine if withdrawal of one of the co-located projects could result in withdrawal of the entire request.
 - **Operating Assumptions for Electric Storage Resources:** Confirmed that at the request of Interconnection Customers, Transmission Providers need to study whether ESRs will or will not charge at peak load, noting that the benefits of this reform outweigh the administrative burden. Transmission providers that do not study charging in the interconnection process are not required to do so as part of this reform. FERC declined to extend operating assumptions beyond ESR charging.



Order No. 2023 Compliance

- Compliance is now underway for Order 2023. Transmission providers have submitted their compliance filings, and the Commission has begun to act on the filings.
- In March 2024, the Commission acted on several early filings including Duke Energy Carolinas, Arizona Public Service Company, and Idaho Power Company. All compliance filings were accepted in part.
- In September 2024, the Commission acted on Black Hills Colorado Electric, Golden Spread Electric Cooperative, Inc., Puget Sound Electric, Inc., and Idaho Power Company (second compliance filing). All compliance filings were accepted in part.



Hybrid Resources Initiatives (2021)

- In January 2021, the Commission issued an Order Directing Reports requiring the RTOs/ISOs to submit reports regarding hybrid resource definitions, interconnection, market participation, and capacity accreditation by July 2021.
- In May 2021, Commission staff released a white paper on hybrid resources, which included information learned from the technical conference and post-conference comments.
- Hybrid Initiatives are now largely rolled into other FERC processes, such as Order No. 2023.



Other FERC Issuances that Involve Storage

- Storage as Transmission (SATOA)
 - Policy Statement (2017)
 - MISO SATOA Approved (2020)
 - SPP SATOA Approved (2023)
 - ISO-NE SATOA Approved (2023)
- Effective Load Carrying Capacity (ELCC), which affects capacity accreditation.
- Review of various RTO/ISO rule changes related to storage & hybrids



Engaging with FERC

- Commission staff welcome engagement from stakeholders and industry in many forms.
- Formal engagement including comments on rulemaking proceedings are very useful in developing a robust record.
- Informal engagement such as meeting with or presenting to Commission staff is also welcome, especially to highlight new technology developments or policy concerns.



Questions?

- Please feel free to contact me with any follow up questions:
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