

FERC Order on Electric Storage



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Special MIC on ESR #1
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5 Key Takeaways from FERC's Recent Energy Storage Order

DEEP DIVE

FERC order opens 'floodgates' for energy storage in wholesale markets

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The Power Market Fix We've Been Waiting For

Federal regulators have a chance to create a universal data model for all grid resources

A barrier to innovation nobody's talking about

A Rush of Cautious Optimism Reigns in Energy Storage Circles

United States: FERC Amends Regulations To Remedy Barriers To Energy Storage Participation In Wholesale Electricity Markets; Saves Distributed Energy Reform For A Later Date

- The purpose of the special sessions of the MIC is to educate and receive stakeholder feedback for the FERC Order 841 Compliance Filing due in December.



- November 17, 2016: [FERC Notice of Proposed Rulemaking on Electric Storage and Distributed Electric Resources.](#)
- February 15, 2018 Final rule: [Electric Storage Participation in Markets Operated by RTOs and ISOs](#)
- March 16, 2018: [Motion for clarification of PJM Interconnection, L.L.C..](#)
- **December 3, 2018: PJM Compliance Due**
- December 3, 2019: Implementation



Establish a participation model for Electric Storage Resources	Discussion Forum
1. Can sell* energy, <u>Capacity</u> , and A/S (incl. Black Start etc.) the resource is technically capable of providing	MIC on ESR
2. <u>Dispatched</u> and <u>sets price</u> as seller and buyer	MIC on ESR
3. Bid parameters that account for ESR characteristics	MIC on ESR
4. Min market threshold no larger than 100 kW	N/A
5. Stored MWh are billed at LMP as wholesale	Distributed Energy Resources Subcommittee (DERS)

* “Eligible to provide...”

- April 4, 2018 Education Presentation at MIC
- April 16, 2018 Education Presentation at MC Webinar

Special MIC Sessions:

May 10, 2018 1-4
June 14, 2018 9-12
June 27, 2018 1-4
August 3, 2018 1-4
September 14, 2018 1-4

Report out:

OC: October 9, 2018
PC: October 11, 2018
MIC: October 14, 2018
MRC: October 25, 2018



- Electric Storage Resource (**ESR**)= “a resource capable of receiving electric energy from the grid and storing it for later injection of electric energy back to the grid.”
- Connected at: transmission, distribution, or behind a customer meter.
 - PJM has ESR at both T and D today, none behind a meter **that inject**.
- Excludes demand response.
- Includes pumped hydro



1. Establish an ESR Participation Model
2. Sale for Resale to ISO at LMP (discussion at DERS)
3. If ISO's want to do more: fine, do through 205
4. Define criteria for participation model
5. Propose changes to say
 - a. ESRs qualify under existing or new market rules and
 - b. which rules apply to ESRs in participation model



6. Establish rules for ESRs participation in capacity, energy, and ancillary services that it is technically capable of providing (including non-market services)
7. Allow ESRs to de-rate their capacity to meet capacity market requirements
8. Consider the fast ESRs and whether they need an energy schedule (moot for PJM)
9. Allow ESRs to be dispatched and set price as supply and demand/ wholesale seller/buyer
10. No conflicting simultaneous supply offers and demand bids



11. Manual dispatch eligible for make-whole payments
12. Account for physical and operational characteristics through bidding parameters or other
13. Account for specific Commission-defined ESR operational characteristics
14. Allow ESRs to self-manage state of charge
15. Min size no greater than 100 kw (moot for PJM)



Questions or concerns can be sent to ESR@PJM.com