

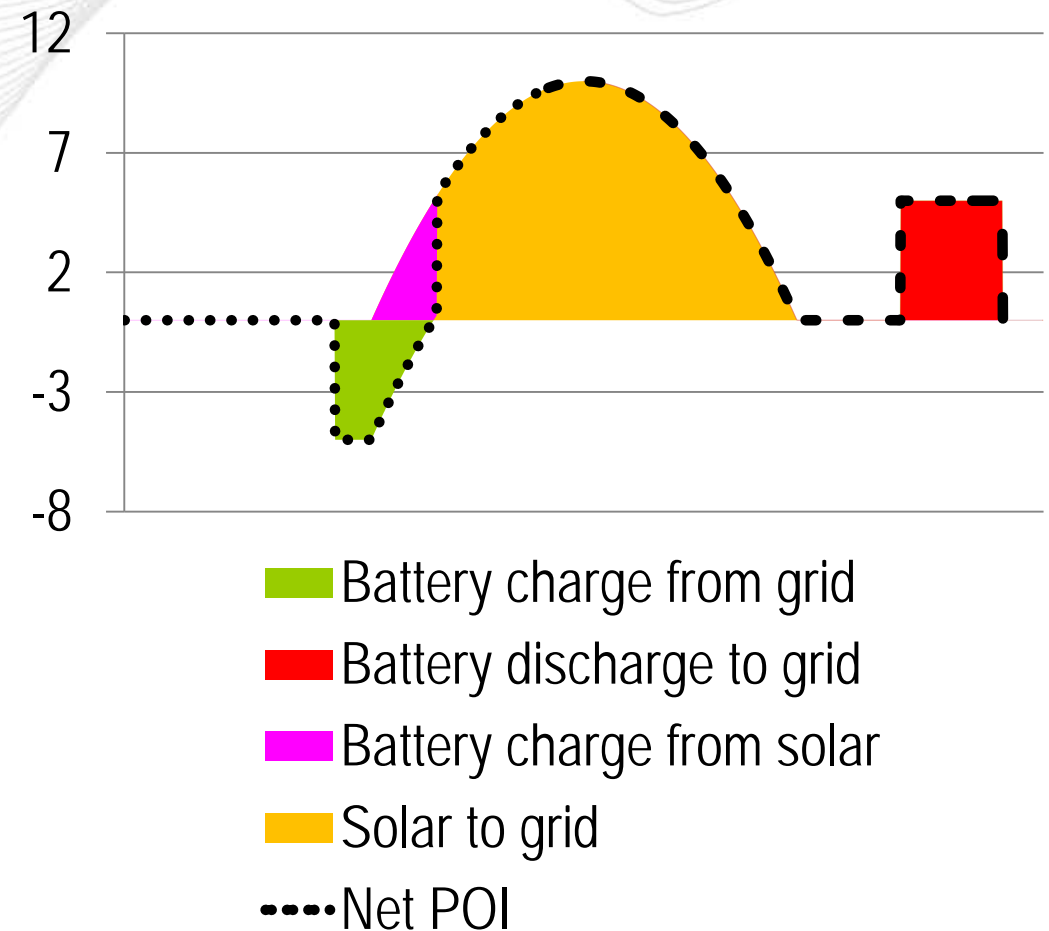
Distributed Energy Resources Subcommittee: Update

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Operating Committee
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- Recent polling on wide-area aggregation, registration and approval processes, hardware and telemetry, ‘integrated resource’ concept.
 - Lack of support from this poll indicates a lot more work to be done in these areas
 - Guidance from FERC Tech Conference on DER may be instructive in some areas
- New, more narrow focus: Nodal accounting for energy storage
 - FERC Order 841
 - Requires a method to account for charging energy that is returned to the grid for providing wholesale service to be settled at LMP.

Method To Determine Wholesale Stored Energy

- General principle: Energy that the battery takes off the grid and later returns to the grid is “Wholesale Stored Energy”.
- The remaining energy is “Not Wholesale Stored Energy” and should be accounted for accordingly.
- Monthly net of (battery charge from grid) and (battery discharge to grid) = “Not Wholesale Stored Energy” = (battery station power withdrawals + other).
- The remaining withdrawals are “Wholesale Stored Energy”.





Wholesale Stored Energy: Additional Examples/Proposals

<http://www.pjm.com/-/media/committees-groups/subcommittees/ders/20180326/20180326-item-06-icetec-accounting-proposal-for-wholesale-energy-storage.ashx>

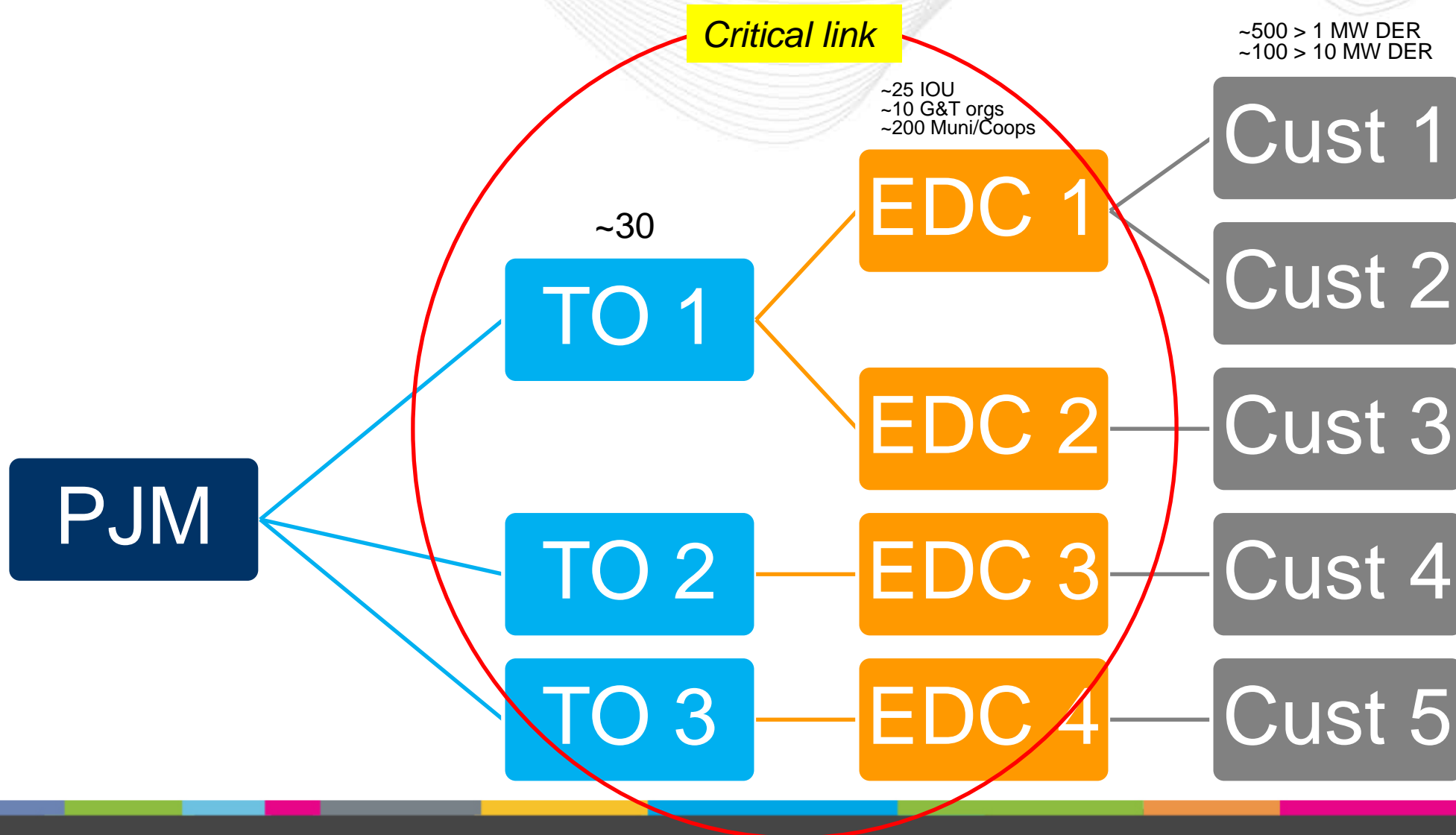
<http://www.pjm.com/-/media/committees-groups/subcommittees/ders/20180131/20180131-item-06-wholesale-energy-storage.ashx>

Non-Wholesale DER: Observability

[Solutions Matrix](#)

- System Operations
 - Address System issues/mitigate manual load dump (i.e.: Sturgis)
 - Coordinate post-contingency load shed plan
 - Operational awareness for communication process
 - Improve short term load forecast and/or better understand load forecast variance
- Planning
 - RTEP load flow studies (may model explicitly as gen or implicitly through load forecast)
 - Improve long term load forecast or better understand load forecast variance
- Manage existing NRBTMG and BTMG requirements (including telemetry & metering)

Discussion Point: Communication and Data Validation Channels





Discussion Point: Non-wholesale DER information (what data?)

Field	Definition	Required? (Y/N)			
		Large NRBtMG ≥ 10 MW	Small NRBtMG < 10 MW	Large Retail BtMG ≥ 10 MW	Small Retail BtMG < 10 MW
Category	NRBTMG, RBTMG(large), RBTMG(small), DR	Y	Y	Y	Y
EIA860# (Plant Code)	Unique ID to help reconcile information across systems/lists	Y	Y	Y	Y
GATS#	Unique ID to help reconcile information across systems/lists	Y or N/A	Y or N/A	Y or N/A	Y or N/A
DR LocationID	Unique ID to help reconcile information across systems/lists	Y if DR	Y if DR	Y if DR	Y if DR
PJM Gen ID	Unique ID to help reconcile information across systems/lists	Y if PJM Gen	Y if PJM Gen	Y if PJM Gen	Y if PJM Gen
Plant Name	Name of Plant	Y	Y	Y	Y
Address, City , State, Zip	Address of plant	Y	Y	Y	Y
County	County where plant is located	Y	Y	Y	Y
GIS coordinate	Latitude/Longitude	Y	Y	Y	Y
Start Date	Date unit went operational	Y	Y	Y	Y
Retire Date	Date unit was retired	Y	Y	Y	Y
GenType	Wind, Solar, Battery – CT, RICE (GADS?)	Y	Y	Y	Y
Fuel Type	GADS?	Y	Y	Y	Y
Nameplate MW		Y	Y	Y	Y
Total Summer Capacity at Plant (MW)	Summer Net Dependable Rating	Y	Y	Y	Y
OperationalMode	Emergency/Backup, Cogen/CHP, Peak shave, Economic	Y	Y	Y	Y
Notification + Time-to-Start	<1 hr, 1-4 hrs, 4-12 hrs, >12 hrs	N	N	N	N