



Metering & Telemetry

PJM Staff

DIRS EDC Coordination Workshop

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From FO2222

- Each RTO/ ISO should explain, whether the proposed requirements are similar to requirements already in existence for other resources and steps contemplated to avoid imposing unnecessarily burdensome costs on the DER aggregators and individual resources in DER aggregations that may create an undue barrier to their participation in RTO/ ISO markets.

- What is telemetry: Telemetry requirements are defining what data is being provided to PJM in real-time operations
 - After the fact meter data used for settlements discussed later in the proposal
- What DERAs have to provide telemetry to PJM?
 - Capacity – All Capacity resources, 1minute scan rate
 - Energy – Energy only resources $\geq 10\text{MW}$, 1 minute scan rate
 - Ancillary Service – All Regulation resources, 2/10 second scan rate; All Reserve resources, 1 minute scan rate.

- Aggregator will send telemetry values for the aggregation to PJM
 - MW telemetry values sent in all cases
 - No MVAR data required to be sent to PJM
 - State of charge information needed for DERA using ESR Model
 - Meteorological (radiance and back panel temp) data and MW for Solar >3MW (in aggregate) at 5 min intervals
 - Transmit through Internet-based SCADA (Jetstream) or ICCP
 - Aggregators may be expected to have individual DER telemetry data available (for EDC requests and/or audit purposes)

Market		Telemetry	Accuracy
Capacity		1 minute data	+/- 2%
Energy Only	<10 MW	no real-time telemetry required	+/- 2%
	>=10 MW	1minute data	+/- 2%
Regulation		2/10 second data	+/- 2%
Reserves		1 minute data	+/- 2%

Justification:

- SE runs every minute
- SCED runs every 5 minutes
- Need to get up-to-date data into dispatch
- Tool for settlements, 5minute settlements, PAIs and reserve event performance

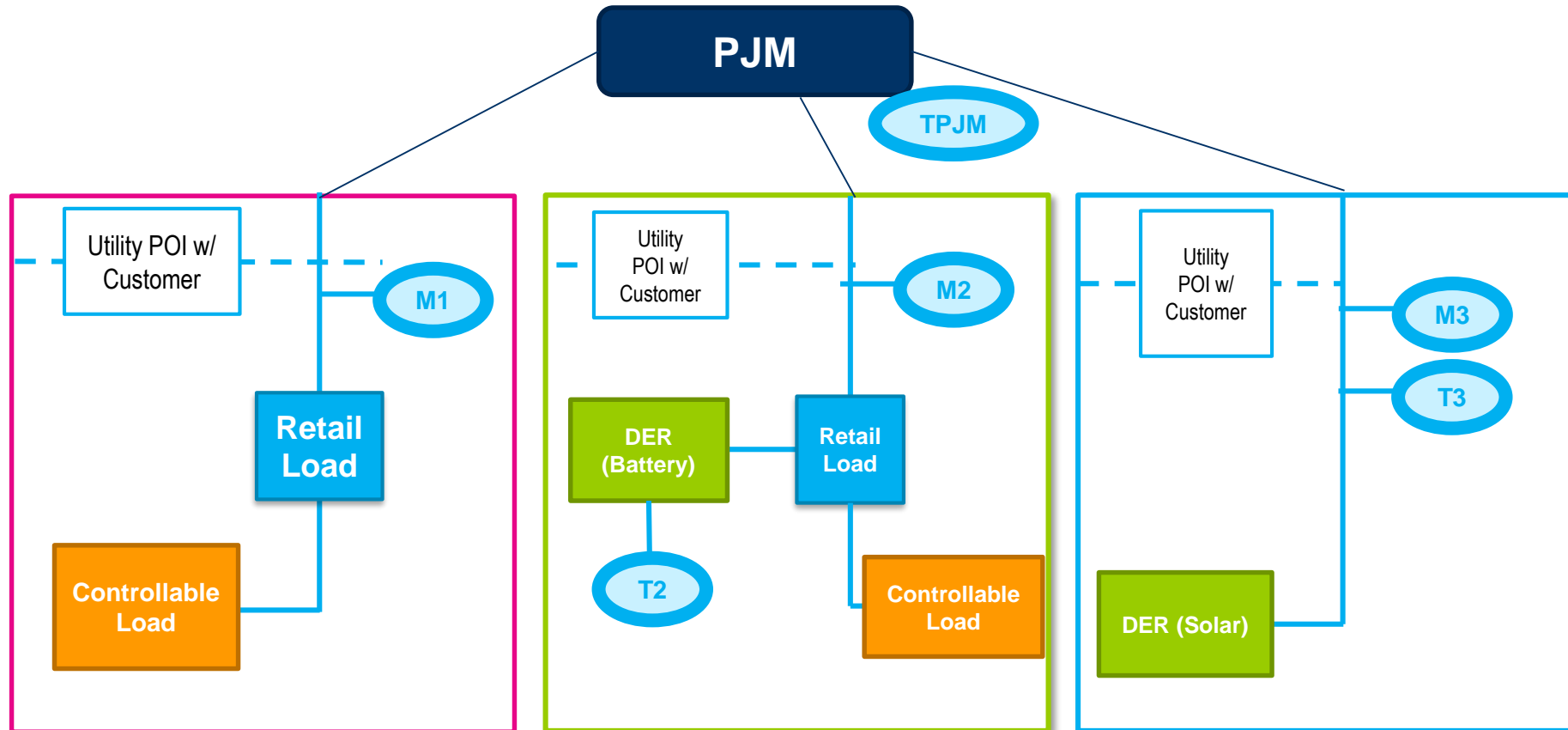
- Telemetry at aggregation level can be an accumulation of DER telemetry or an accurate representation of DER MWs
 - Demand Response resources will not need direct metering for telemetry
 - Mass Market aggregation can use sampling analysis to provide telemetry to PJM
 - Method needs to align with accuracy of settlement meters

- Existing Metering Requirements located in Manual 14D
 - Section 4.2.2: Metering Plan
 - Section 4.2.3: Metering for Individual Generators
 - *“...a Generation Owner can negotiate data transmission to and from PJM through the local utility or transmission facilities owner. This allows the Generation Owner the flexibility to use already proven and acceptable methods of data transfer to **minimize initial startup costs and procedures, while meeting all of the current requirements** for providing data to PJM.”*
 - *“...can be supplemented with the use of the Internet-based PJM Tools such as inSchedule and Data Viewer, further expanding the data transfer capabilities between the customer and PJM without a direct connection to PJM.”*

- Real-time (RT) revenue data is required to be submitted into PowerMeter either on a 5 minute or hourly basis in accordance with Manual 28, sections 1A and 3
 - [Current PowerMeter and InSchedule deadlines](#) – PowerMeter is next business day
- MW data true up
 - Generator RT MWh use the One-Month-Lag Meter Correction process via PowerMeter
 - LSE RT load MWh use the Two-Month-Lag Load Reconciliation process via InSchedule (needed because generator metering updated)

- DERA will be settled at the aggregation level in PJM Markets; however meter data will need to be submitted at the individual DER level
 - Meters will be at the EDC point of interconnection in majority of cases
 - In very few cases, sub-metering of DER may be allowed or needed (example; regulation only DR or DER behind customer load)
- This will allow PJM the ability to properly settle MWh for different types of DERs and accurate wholesale/retail settlements need to occur

- Telemetry data back to PJM @TPJM = (DR response) + (DER + DR response) + T3
- Meter data back to PJM – M1 data and M2 data and M3 data



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Metering & Telemetry



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