

Discussion: DER Locational Data for Market Model

DIRS – EDC Workshop
December 9, 2021

Category	Data Requirements	Aggregator	EDC	PJM	LSE
Resource Set up	PJM Telemetry setup: Reference to telemetry code for SCADA link	Submits	review	approve/deny	
Resource Set up	Primary Location (pnode or PSS/E bus ID)	Submits, using information obtained from EDC	Reviews; updates, as necessary	Used for resource mapping	
Resource Set up	Locational Factor (pnode or PSS/E bus ID) – DER may be mapped to more than 1 pnode. Provide breakdown, as necessary	review	submits/updates - approve/deny	Used for resource mapping	
Resource Set up	Max Load (kW) (Max hourly load over prior 12 months)	Submits	Views Data	Used for market participation capability	
Resource Set up	Max Injection (kW) (Max injection amount based on interconnection process)	Submits	Views Data	Used for market participation capability	
Resource Set up	Max Market Eligibility (Maximum amount that will be offered in the market)	Submits	Views Data	Used for market participation capability	
Resource Set up	Load Reduction Method (Indicate load reduction capability (kw) for each load reduction capability (HVAC, Refrigeration, Generation, Lighting, Industrial Process, etc.))		Views Data	Used for market participation capability	
Resource Set up	Generator Details (nameplate capacity, inverter type, installation date)	Submits	Views Data	Used for market participation capability	
Resource Set up	Peak Load Contribution (PLC) (Used to determine capacity nomination for DR related DER)	Submits	Views Data	Used for market participation capability	
Resource Set up	Loss Factor (if applicable)	Submits	Views Data	Used for market participation capability	

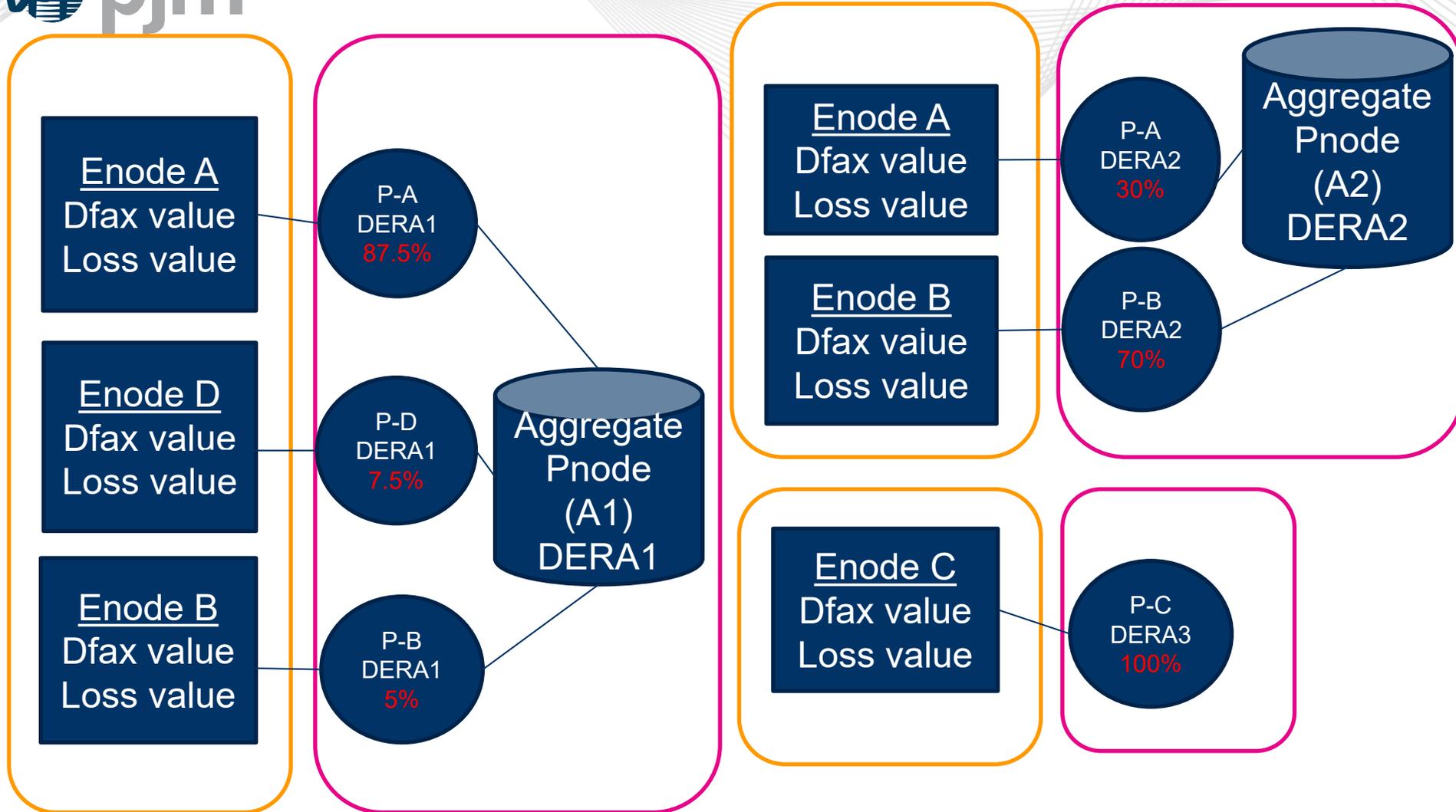
Expect to leverage functionality similar to DR registrations (DR Hub)

*Finalized list of data needs will continue to be worked though implementation, large list of data items provided in proposal for understanding of general data requests.

- (inputs/registration) **Capability Factors** (At DER level)
 - PJM will determine a capability factor, based on nameplate of DERs in a DERA. These will not be updated unless the aggregation changes and it is reviewed and approved by PJM/EDC.
- (inputs/registration) **Locational Factors** (At the DER level)
 - This is the mapping that the EDC/Aggregator provides for transmission location(s) (all DERs in aggregation sharing primary node), during registration process. This will not be updated unless reviewed and approved by PJM/EDC.
- (operations/markets) **Modeling Impact Factor** (At the DERA level)
 - The factor to be used in pricing/dispatch. It will be calculated from the capability factor and locational factor. There will not be a dynamic update of this value (hourly/daily) but can change over time if DERA changes occur (via registration process).
- (operations/markets) **Weighting Factors** (AKA “distribution factors” from Order 2222)
 - Defined as the breakdown of which DERs are responding to the dispatch signal – would be a RT update from the aggregator. Order ties this to multi-nodal aggregations.
 - Given we are using a “single location” approach, we will not require weighting factors for initial implementation.

DER	(Utility Review) Primary tranx. location	Size (MW)	Aggregation Definition	(Capability Factor) PJM calculated based on Size & DERA	(Locational Factor) Additional data from EDCs for modeling
DER1	Location 1	1	DERA 1	0.25	100% Node A
DER2	Location 1	1	DERA 1	0.25	100% Node A
DER3	Location 1	1	DERA 1	0.25	80% Node A, 20% Node B
DER4	Location 1	1	DERA 1	0.25	70% Node A, 30% Node D
DER5	Location 2	1	DERA 2	1	70% Node B, 30% Node A
DER6	Location 3	1	DERA 3	1	100% Node C

DER	Capability Factor	Aggregation Definition	Locational Factors	Modeling Impact Factors	
DER1	0.25	DERA 1	100% Node A	0.25 – node A	
DER2	0.25	DERA 1	100% Node A	0.25 – node A	
DER3	0.25	DERA 1	80% Node A 20% Node B	0.20 – node A 0.05 – node B	<u>DERA 1</u> 0.875 – Node A 0.050 – Node B 0.075 – Node D
DER4	0.25	DERA 1	70% Node A 30% Node D	0.175 – node A 0.075 – node D	<u>DERA 2</u> 0.70 – Node B 0.30 – Node A
DER5	1	DERA 2	70% Node B 30% Node A	0.70 – node B 0.30 – node A	
DER6	1	DERA 3	100% Node C	1.0 – node C	<u>DERA 3</u> 1.0 – Node C



- DERA locational requirements are single location or nodal
 - All DERs must map to 1 primary location
- Dispatch engine model is multi-nodal pricing (similar to combined cycles) when DERA is mapped to more than 1 node for proper operational modeling

Data	Provided By?	Verified By?	When?
Capability/ Size (MW)	Aggregator	Utility	Registration
Capability Factor	PJM	PJM	Registration
Primary Location	Aggregator	Utility	Registration
Locational Factors	Utility	PJM/Utility	Registration
Modeling Impact Factors	PJM	PJM	After Registration
Weighting Factors	N/A	N/A	N/A

Proposal : No use of **weighting factors** provided in RT by aggregator to represent the operations/dispatch of underlying DERs in a DERA.

Facilitator:
Scott Baker, scott.baker@pjm.com

Secretary:
Hamad Ahmed, hamad.ahmed@pjm.com

Presenter:
Danielle Croop,
Danielle.croop@pjm.com

Locational Data for DER



Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com