



Interactions Between Co-Sited Curtailment and W-DER

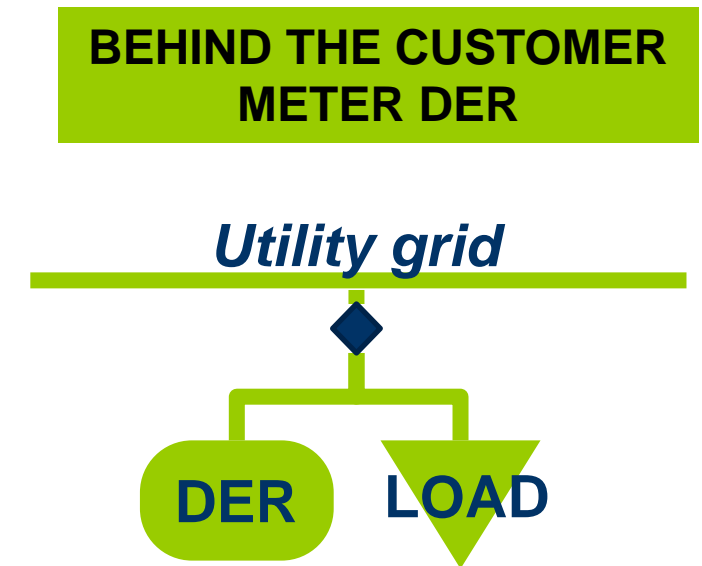
Andrew Levitt

Senior Market Strategist, Emerging
Markets

DERS

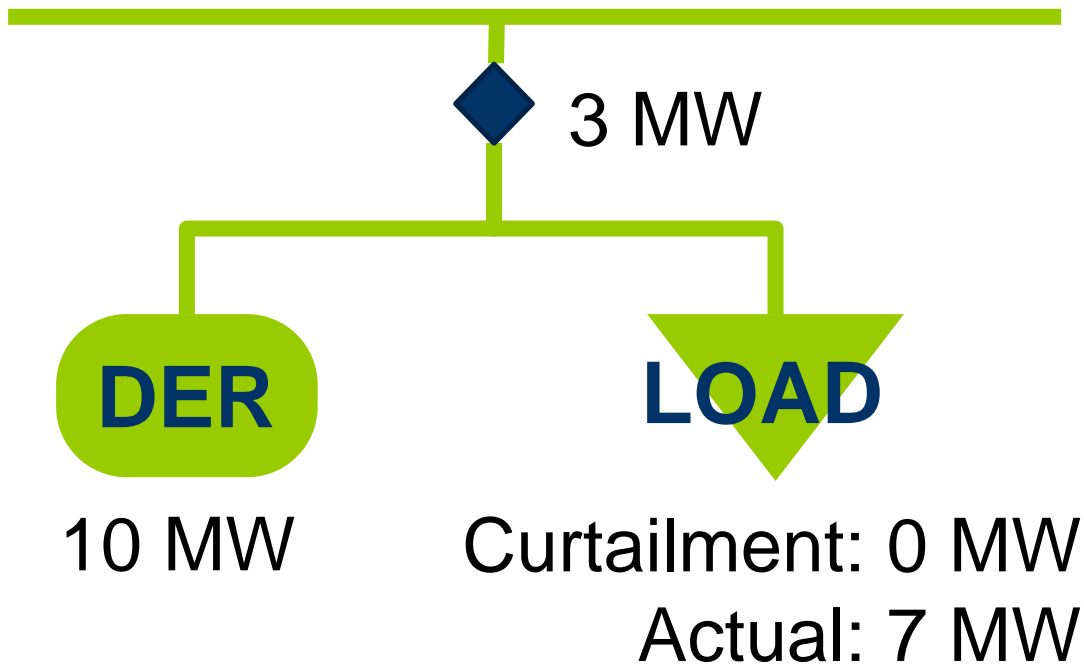
Jan 31, 2017

- For W-DER behind a customer meter:
 - “W-DER Load Offsets” means end-use load that is fed from the W-DER and not from the grid.
 - “Curtailment” means a direct reduction in end-use load, by turning it off or down, etc.
- W-DER output and curtailment will both impact power flow through the POI and the meter there. They interact by virtue of sharing a single meter.



BEHIND THE CUSTOMER METER DER

Utility grid



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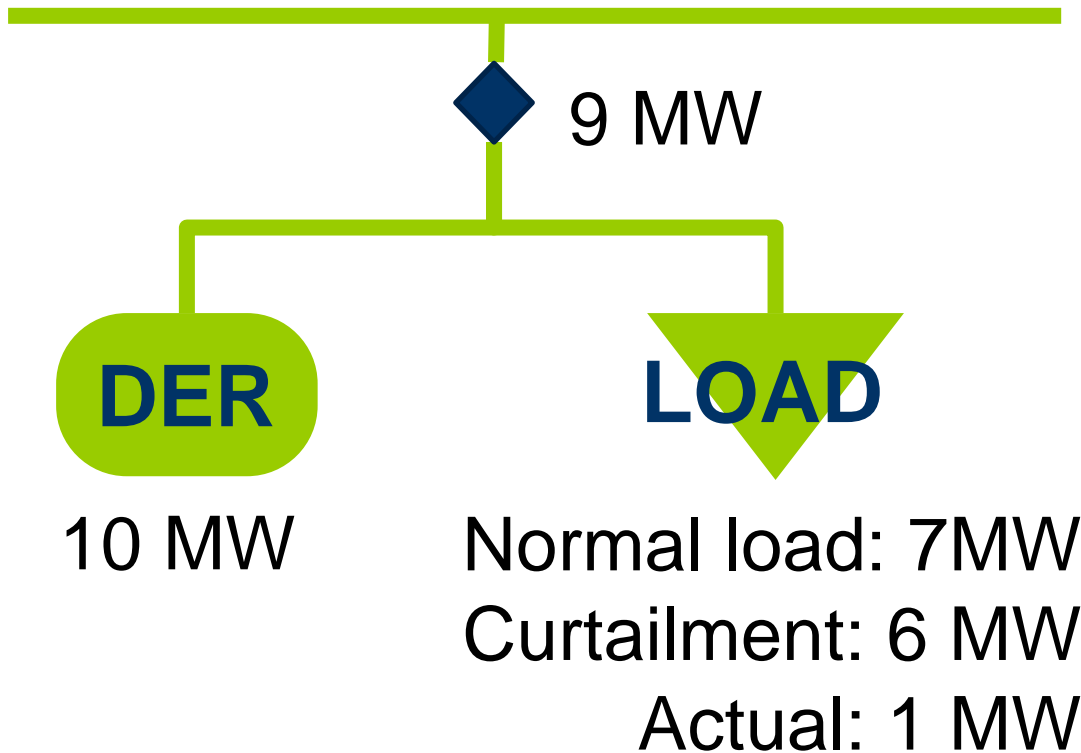
“**Curtailment**” means a direct reduction in end-use load, by turning it off or down, etc.

At left:

- Gross load is 7 MW
- Load offset is 7 MW
- Curtailment is 0 MW

BEHIND THE CUSTOMER METER DER

Utility grid



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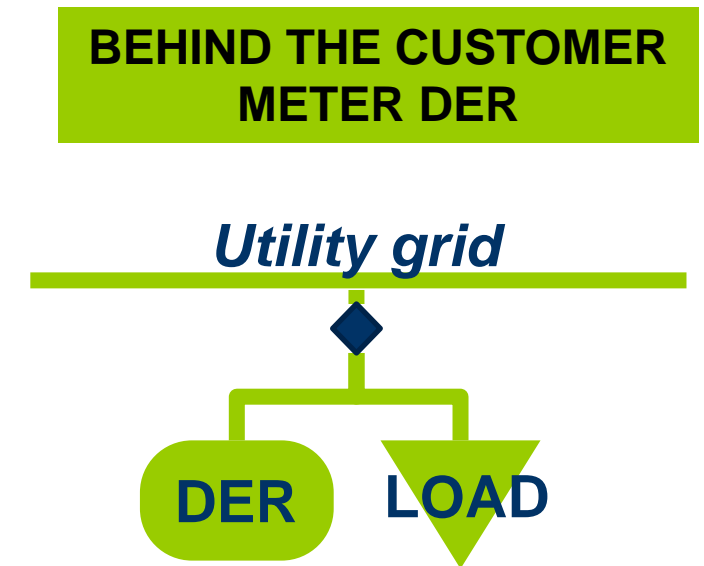
“**Curtailment**” means a direct reduction in end-use load, by turning it off or down, etc.

At left:

- Gross load is 1 MW
- Load offset is 1 MW
- Curtailment is 6 MW

1. Separate W-DER market resource and curtailment (DR) market resource:
 - DR resource is measured via “gross load”, comparing the gross load baseline to gross load actual. Gross load is reconstituted using the W-DER submeter and the POI meter.
 - W-DER resource is based solely on the output at the POI meter.
2. Integrated market resource:
 - Resource schedules, offers, and is settled on total of $\langle \text{delta vs. baseline} \rangle + \langle \text{net injections} \rangle$

- When load physically curtails, POI output will increase.
 - If separate: would dispatched Economic Demand Response be creating double value?
- When W-DER injects, it will necessarily be offsetting load
 - If the load wasn't otherwise going to be offset, probably should represent the load offset vs. the baseline in SCED whenever the injection is scheduled.
- In cases of higher load than W-DER capability, an injection is not possible without a curtailment.



Separate vs. Integrated: Pros and Cons

	Separate	Integrated
Modeling distinct parameters (startup time and cost, etc.)	Easy	Hard
Accommodation of interaction	Hard	Easy
Distinct settlement methods	Easy	Moderate
Distinct implementation (zonal/nodal, operating add-backs, commitment procedures, etc)	Easy	Hard

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- PJM looking at options for an integrated approach for offering and scheduling W-DER that are behind a customer meter and co-sited with physical curtailments that wish to provide Demand Response.