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GridLAB

***DER Integration into Wholesale
Markets: Reflections from eLab
Accelerator 2020***

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- **Team Members**

- Priya Sreedharan (co-lead) and Ric O'Connell, GridLab
- Jeff Dennis, AEE (co-lead)
- RTO members:
 - Doug Smith, ISO-NE
 - Kristin Swenson, MISO
 - Scott Baker, PJM
- DER providers:
 - Greg Geller, Enel X
 - Betty Watson, Modern Energy



Image: tesla.com Powerwall installation, school in Hawaii

- Independent Experts:
 - Jennifer Chen, ReGrid
 - Miles Farmer, Miles Farmer PLLC
 - Chris Villarreal, Plugged-In Strategies
- RMI Facilitators
 - Katerina Stephan
 - Anthony Teixeira

Focus of our efforts

- Team formed in January; meetings July – October
- Draft set of principles on the “how”
- Draft recommendations for critical stakeholders
- (Ongoing) Documenting insights
- (Ongoing) Exploring follow-on platforms/venues

“e-Lab is very Buddhist in nature, it is more about the process than the outcomes.”

Veteran eLab
team member

Why integrate DERs into wholesale markets?



- Relatively quick consensus on the “why”
- Top reasons:
 - Market efficiency and lowering costs, maintaining reliability, increasing grid flexibility
- Means towards an end = decarbonized modern power system

Criteria for good principles

- Broadly applicable
 - True across multiple tests — but not so broad to be meaningless
- Digestible
- Unambiguous
- Help achieve the goals
- Be feasible

The “Goldilocks” test



Draft Principles 1

- Beginning with a blue sky, after much iteration and consolidation
 - 7 draft principles ... language still evolving
 - Truth tested against different use cases
 - Does not reflect consensus
 - Identified questions / disagreement

- Mapped well to FERC 2222 compliance requirements

Please remember what I am presenting is a work in progress!

- 3 focused on eligibility, dual participation etc.
 - One of these is shown below:

*Allow DERs to participate in **both wholesale markets and retail programs** while **preventing double-counting** of service. Enable dual participation through **clear and flexible bidding parameters, wholesale market financial incentives and penalties**, and **operational coordination** among the RTO, distribution utility, and DER provider.*

- 3 focused on communications, metering, data, and performance

Metering and telemetry requirements should focus on the amount and quality of data necessary to ensure that a DER aggregation is providing comparable service, without creating unnecessary barriers.

*The performance of DERs will be supported by direct measurements of DER power consumption/injection. Both individual DER data and aggregated data will be shared with the ISO/RTO.
(Assumption that this is feasible in all cases.)*

- Last but definitely not least:
1 focused exclusively on process

There need to be forums and processes for coordination between ISOs/RTOs, distribution utilities, state regulators, and DER providers that is resource-efficient and connects to all relevant proceedings at both levels

Unique challenges from an RTO perspective

- Speed of the entire process
- Technology/software limitations
- Contrasting DR from other DERs
- Tweaking vs. transformation
- Frameworks to support conversations



- Draft recommendations developed on:
 - Eligibility to participate in wholesale markets
 - Information and data requirements
 - Coordination among RTOs, utilities/states, providers
 - Working towards a universal participation model

Information and data requirements

- 14 draft recommendations
 - Tailor requirements for different products/DERs
 - Pooling ideas among ISO/RTO's and standardizing definitions/ methodologies
 - RTOs define the criteria but allow flexibility in how to provide the information
 - Focus requirements at the aggregate level
 - Preference for direct measurements

Resolving complex issues

- These topics will require lots of detailed discussion:
 - Double counting
 - Dual participation and coordination
 - Metering/measurement/data
- Double counting definition
 - Wording is evolving; incorporates compensation and planning aspects
 - FERC: “DER performance should not be compensated both as increased supply and reduced load...”

Develop effective stakeholder processes, including at the state and utility level. Work closely with states to resolve double counting. Learn from past examples (e.g., CAISO DERP)

➤ Broad insights

- Simplicity disappears quickly
- Exercise multiple use cases
- Line between FERC 2222 and DR programs is unclear
- Learn from existing programs
- Leverage EPRI, DOE, NERC initiatives

➤ Next steps

- Synthesize into a report
- ESIG DER WG session in Dec
- Exploring a US open networks platform

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TECHNICAL ASSISTANCE

CONNECTIVITY PLATFORM

TRAINING

THANK YOU!

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