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DER Orchestration Research - Request for Information (RFI)

OpenEGrid's response to Docket# 23-ERDD-01 , TN# 261987 DER Orchestration Research

Dated: 2/26/2025

Use Cases that Require Validation through Demonstration:

1. As California transitions away from traditional centralized fossil-gas generation and approaches a high penetration of intermittent renewables and inverter-based resources, what are the most needed grid service functions that aggregated DERs should be able to dispatch and that require validation in the near-term? Some examples are below:

- Distribution-level voltage regulation (dispatched by a Distribution Service Operator or an electric utility provider)
- Wholesale frequency regulation (dispatched by California Independent System Operator)
- Ramping Support / Peak Power Injection (various markets)
- Balance responding to multiple grid signals (i.e., Multi-Use Applications)

- Voltage regulation
- Frequency response
- Energy dispatch and curtailment
- Ramping is important
- Prioritization of multiple grid signals and ability to coordinate access to resources based on such prioritization
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2. What performance metrics should a research demonstration achieve to assure confidence in resource dispatchability?

- Time based responsiveness
- The resources's participation and performance metrics could be gauged by the frequency of successful participation in events, where the performance guarantees were met Vs failure to participate or failure to meet the performance goals. Each of such resources could be ranked based on such metrics over time to establish reliability. Also, security, vulnerabilities of the resources and their reliability can also be ranked.
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3. What role would Investor-Owned Utilities (IOUs) play in potential field demonstrations?

- Would IOUs need to develop new programs for grant recipients to bid

into, or could projects use existing agreement structures?

- Yes, need new programs that are flexible and more accessible, easy to understand for the consumers to participate in. Reduce Complexity!! The incentivization must be easy to understand and realize from these programs.
- - What role could dynamic hosting capacity have in expanding the depth of services that inverter-based DERs could provide to the grid?
- Dynamic hosting capacity provides the needed flexibility in meeting changing demand and demand growth. Flexible demand management across sites and resources could help utilize the available capacity in a lot more efficient manner, including dynamic provisioning of capacity.
 - Should a Letter of Support from an IOU be a minimum requirement?
- Yes, IOUs should be mandated to fully participate and be forthcoming in participating in the DER research and demonstration projects. It is very difficult to get their attention and support, and in most cases the letter of support is not received on time and it is impossible to have utility's participate fully in demonstration projects etc.
- - Could utilities be potential technical reviewers during the application scoring phase as a means of providing insightful input to Evaluation Committee scorers?
 - Are there additional considerations for utility's role in project demonstrations?
- No, due to conflict of interest

Gateway Conformance Testing for Dispatchable DERs:

4. What is the industry need for dedicated testing and certification of DER gateway functionalities and conformance independent of the inverter or DER they are paired with? Would there be interest in a unified, open testing procedure that verifies DER gateways' functionality and adherence to utility-mandated communication requirements?

-While dedicated testing may be required, It would be useless piece of certification for the Gateways if enough programs, incentives and mandates to deploy them in real life deployments with DER resources is not appropriately addressed.

- Look at how the Gateways CSIP compliance was mandated, Inverter CSIP compliance was mandated too, but these are not out in the actual deployments as much even after 4 years of the mandates and a lot of resources were spent by manufacturers to meet the mandated compliance requirements, where are the programs, where are these Gateways being utilized beyond a few here and there. Please think through this, this is a major concern. Please address this first.

5. Which requirements should this testing tool cover in its scope? These requirements may include:

- IEEE 2030.5-2023 "Standard for Smart Energy Profile Application Protocol"
- IEEE 1547-2018 "Standard for Interconnection and Interoperability of DERs with Associated Electric Power Systems Interfaces"
- IEEE 1547.1-2020 "Standard Conformance Test Procedures for

Equipment Interconnecting DERs with Electric Power Systems and Associated Interfaces”

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- All of the above
 - IEEE 1547.3-2023 “Guide for Cybersecurity of DERs Interconnected with Electric Power Systems”
 - Common Smart Inverter Profile (CSIP)
- All of the above
 - Others that are not listed here
- OpenAdr2.0B and IEEE 2030.5 must co-exist and interoperate as much as possible.

6. What should be the baseline performance requirements of DER gateways for the following functions?

- Performance in DER communication
- Interoperability of communication between DER devices from various manufacturers
- Responsiveness in DER dispatch

7. Should this research scope (gateway conformance testing) be under a separate funding group to be conducted independent of the VPP demonstrations, or should this scope be incorporated as a phase of a larger VPP field deployment demonstration?

-Larger VPP deployments ,where The gateways with VPP field deployments demonstrate how VPPs come together with the emerging /above mandated standards to effectively provide Grid support.

Valuation of Aggregated DER Services:

8. How could technology demonstrations be designed to increase confidence in the efficacy of market signals?

9. Identify existing market mechanisms that enable DER aggregators and VPP platforms to provide each of the grid services identified in Question 3. How effective are these market mechanisms in facilitating that service, and what barriers must be overcome for these market mechanisms to be more effective than they are now?

10. Are there existing market mechanisms for dispatching inverter-based resources to provide voltage regulation and transformer overload prevention at the secondary distribution level?

- Which ancillary markets (e.g., fast frequency response, spinning/non-spinning reserves) would DER aggregations be best suited for? Note that these services may vary depending on a third-party aggregator’s particular composition of DERs (e.g., energy storage, solar and hybrid smart

inverters, Electric Vehicle chargers)

-Fast frequency response , depending on the compositions.

What consumer protections measures must be put in place for DER aggregation? This is especially important for projects to be designed with an equitable focus. For example, solicitation requirements could require including protections that ensure DER enrollees are fairly compensated by aggregators for the value they provide to the DER portfolio being dispatched.

What are some examples of best practices?