Webinar Recap: Unlocking Grid Flexibility – Updates on Flexible Service Connection & 2030.5 CSIP Test Procedures

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As grid-edge technology and policy converge to support a more flexible, decentralized energy system, SunSpec Alliance convened key leaders from utilities, technology providers, standards bodies, and policy advocacy groups to discuss one of the most pressing topics in the DER space: flexible service connections and the evolution of the IEEE 2030.5 CSIP Test Procedures.

The webinar featured insights from:

- **Dylan Tansy**, Executive Director, SunSpec Alliance (Host)
- **Thomas Tansy**, CEO, DER Security Corp
- **Vish Ganti**, President & COO, DER Security Corp
- **Adarsh Madhavan**, Flex Connect Program Manager, PG&E
- **Pradeep Mishra**, Founder, Aurion Systems
- **Ben Schwartz**, Policy Director, Clean Coalition

Session Highlights & Speaker Insights

Opening Remarks & Context Setting

Dylan Tansy opened the session with an overview of the increasing demand for grid flexibility driven by DER proliferation. He introduced the core focus: leveraging flexible service connections to address interconnection bottlenecks and optimize existing infrastructure, and SunSpec's continuing work on CSIP test procedures to ensure interoperability and security in this emerging model.

The Flexible Service Connection Model Explained

Vish Ganti offered a clear breakdown of flexible service connections as a mechanism for expanding DER hosting capacity without traditional grid upgrades. Analogous to “carpool lanes” for DERs, this approach relies on dynamic operating envelopes (DOEs) and advanced forecasting to allow real-time adjustments in grid capacity.

Key takeaways:

- Hosting capacity isn't static; dynamic models can unlock unused capacity.
- AMI data, network topology, and real-time system constraints are critical to implementation.
- A strong data architecture supports this new model of conditional interconnection.

PG&E's Flex Connect Program – A Real-World Pilot

Adarsh Madhavan presented a detailed walkthrough of PG&E's **Flex Connect** program, designed to provide temporary interconnection options for customers waiting on infrastructure upgrades. By leveraging controllable loads, aggregators, and PG&E's DERMS platform, the program is already operational with multiple projects in flight.

Highlights:

- The program allows DERs to connect earlier by agreeing to operational constraints.
- Aggregators serve as key intermediaries, managing telemetry and dispatch signals.
- A typical project moves through phases: identification, evaluation, agreement, buildout, commissioning, testing, and operation.
- PG&E is targeting **18 live sites** by the end of the year, focusing on customers with longer upgrade timelines.

PG&E also shared its decision to implement **IEEE 2030.5** instead of OpenADR, citing its superior ability to manage **primacy**—the logic that governs which signals take precedence, especially during constrained events or emergencies.

Australia's Flexible Export Trials

Pradeep Mishra provided an international perspective with lessons from **Australia's dynamic export initiatives**, where flexible service connections have been tested at scale using:

- 5-minute settlement markets
- 24-hour-ahead and hourly operating envelopes
- Middleware for protocol translation between market operators, utilities, aggregators, and DER devices

Australia's efforts illustrate how dynamic control and transparency can make DERs grid-supportive rather than disruptive.

Policy Landscape & Value Stacking

Ben Schwartz examined the broader **policy and economic framework**, noting:

- The staggering cost of grid upgrades in California makes flexible service models attractive.
- There are two key value streams: resource interconnection and grid services.
- Policy changes are needed to allow value stacking, signal prioritization, and equitable program access—especially for disadvantaged communities.

He emphasized the need for consistent terminology, dispute resolution processes, and compensation structures that reflect the grid value DERs provide.

Cybersecurity, Interoperability, and the Role of 2030.5

Thomas Tansy zeroed in on **interoperability and cybersecurity**, emphasizing that:

- Many systems now in use were not originally tested under real-world interoperability conditions.
- There is a growing need for ongoing, field-based testing and certification expansion.
- With multiple communication protocols (e.g., Modbus, OpenADR, 2030.5) in play, standard alignment is critical.
- The **CSIP test procedures** must evolve alongside this market to ensure scalable, secure, and privacy-conscious deployments.

Tansy also stressed the importance of privacy in DER control, particularly as communication nodes multiply across homes, fleets, and microgrids.

Discussion Themes and Q&A Insights

- **Project Mercury Comparison**: Questions arose about similarities between PG&E's approach and Project Mercury. While direct comparisons weren't made, panelists agreed on the importance of industry-led interoperability testing.

- **Telemetry and Control Resolution**: PG&E's current system collects data in sub-minute intervals and sends control commands every 15 minutes, with aggregators managing the data funnel.

- **Customer Communication and Forecasting**: Customers receive 72- and 24-hour forecasts. The 24-hour forecast is considered more reliable and is used for dispatch. Emergency controls remain manual for now, though automation is being developed.

- **Smart Panels for Residential**: PG&E is launching pilots using smart panels to extend flexible connection models into residential applications.

- **Business Model Challenges**: As panelists noted, long-term viability will require utilities to assume more risk or develop monetization schemes that incentivize participation without overburdening customers.

Coming May 1st: Join the SunSpec 2030.5 Profiles / CSIP Test Procedures Workgroup

We're launching a new CSIP Workgroup to drive the next phase of 2030.5 implementation and interoperability testing. The first three meetings are open to everyone — no agreement or membership required. After that, Membership in the SunSpec Alliance is required for commercial entities to participate, click here to join before May 17 to receive 10% off your first year of Membership. Members of the Alliance can sign up for the Workgroup here in the Member Portal.

Government employees, non-profits, researchers, academics, and students are free to participate under the Limited Participation Agreement. Special exceptions for reasons of hardship may also be made for companies to participate under the LPA. Contact membership@sunspec.org to enquire.