Webinar Summary

This technical webinar, hosted by **SunSpec Alliance** and **QualityLogic**, was designed to walk DER manufacturers, utilities, labs, and regulators through the tools, standards, and certification pathways currently shaping the distributed energy landscape. With a spotlight on protocols like **IEEE 2030.5**, **IEEE 1547**, and **SunSpec Modbus**, the session revealed how automation, training, and specification leadership are removing barriers to compliance and market entry.

Who Presented

- **Dylan Tansy**, Executive Director of SunSpec Alliance
- **James Mater**, Director of Strategy of QualityLogic
- **Steve Kang**, General Manager of Smart Energy Products at QualityLogic
- **Will Martins**, Lead Compliance Engineer at QualityLogic

Key Themes and Topics

1. The SunSpec + QualityLogic Partnership

- QualityLogic has worked closely with SunSpec since before 2018, jointly developing **CSIP (Common Smart Inverter Profile)** testing programs and tools.
- QualityLogic is the **official test software provider for SunSpec CSIP**, supplying tools used by OEMs and NRTLs (Nationally Recognized Testing Laboratories) for DER certification.
- Their work includes contributions to multiple SunSpec technical working groups, such as:
    - IEEE 2030.5
    - J3072 (EV Integration)
    - SunSpec Modbus
    - Metering profiles

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2. What QualityLogic Offers

Steve Kang gave an overview of QualityLogic's offerings and approach:

Certification Tools

- **IEEE 2030.5 Test Suites**: For client/server certification including California Rule 21 and Australia-specific test procedures.
- **SunSpec Modbus Conformance Suite**: Recently launched, this implements SunSpec's MABA conformance procedures.
- **UL 1741 SB and IEEE 1547 Test Tool**: Widely used by inverter manufacturers and test labs to validate grid interoperability features.
- **OpenADR Certification Tool**: For demand response systems, used in grid-responsive EV charging and DER coordination.
- **CCS Analyzer**: Used to diagnose EV charging interoperability issues.

Education & Workshops

- **Technical Workshops**: Multi-day sessions covering IEEE 2030.5, IEEE 1547, OpenADR, and V2G protocols. Delivered globally to thousands of professionals.
- **Executive Workshops**: Half-day sessions designed to give decision-makers a high-level understanding of technical standards and their implications.

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3. In-Depth: IEEE 2030.5 / CSIP

- QualityLogic's test tools implement **SunSpec CSIP test procedures** and are used to:
  - Simulate DERMS interactions
  - Validate communication conformance
  - Generate formal reports for certification
- The company authored over **50% of the current CSIP test cases** and remains a leading contributor to test procedure development.
- Three test suites are available:
  - **California Rule 21 Conformance Suite**
  - **Australia DER API Test Suite**
  - **Advanced Test Suite** for edge cases and error-handling validation
- An **ad hoc test tool** is also available for exploratory testing beyond formal certification.

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4. In-Depth: IEEE 1547 and UL 1741 SB

- **IEEE 1547** defines functional requirements for DERs under grid conditions, such as voltage fluctuations and abnormal frequency events.
- **UL 1741 SB** serves as the certification layer for 1547 compliance.
- The current standard version is IEEE 1547-2018; the testing procedures are laid out in **1547.1-2020**.

- QualityLogic's tool allows manufacturers to validate support for frequency ride-through, voltage regulation, and interoperability features prior to lab testing.

Upcoming Developments

- A new version of IEEE 1547 is already in development (2025–2026), driven by changes in grid conditions and DER penetration.
- QualityLogic is participating in those working groups and will update tools accordingly.

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5. Future-Focused Work: V2G & MABA

- QualityLogic is at the forefront of **Vehicle-to-Grid (V2G)** standardization and testing, co-founding the V2G Forum to harmonize U.S., European, and Asian standards.
- The company supports SunSpec's development of **MABA (Multi-Application Bus Architecture)**, which enables multiple communication protocols (e.g., 2030.5, Modbus) to run concurrently on the same platform.
- Their test suites are being built to validate MABA conformance across real-world devices.

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6. Industry Use Cases & Engagement

- QualityLogic's tools are in use by:
  - Major inverter OEMs
  - Test labs (NRTLs)
  - Utilities and research centers
  - International DER vendors seeking access to U.S. markets
- Training and technical workshops are helping to bridge the knowledge gap as regulations and standards evolve globally.

Live Demonstrations (Described in the Webinar)

- **1547 Certification Tool**: Used live in the lab with an inverter to show compliance validation.
- **SunSpec Modbus Tool**: Live demonstration planned to show conformance test suite running against a device.

- **Ad Hoc Testing GUI**: Illustrated how testers can simulate corner cases and verify DER responses in real time.

Key Takeaways

1. **Certification is accelerating** thanks to well-supported, automated testing tools developed in collaboration with SunSpec.
2. **Interoperability is no longer optional**: Regulatory and utility demands require DERs to prove grid-friendly behavior under real-world conditions.
3. **The landscape is expanding** beyond solar inverters to include:
    - EV charging infrastructure
    - Battery storage
    - Aggregated DERMS systems
4. **QualityLogic's support** spans from tooling to training, equipping vendors and labs to meet current and future compliance standards with confidence.