SUNSPEC ALLIANCE

SunSpec Alliance

Information Standards for Distributed Energy

Corporate Backgrounder
2016

A global federation of solar developers, manufacturers, service providers, and financiers, joined together to establish information standards for the distributed energy industry

Core Mission
The SunSpec Alliance was formed to accelerate the growth of the Distributed Energy industry and expand the market for renewable power by specifying de facto standards - information models, data formats, communication protocols, system interfaces, and other artifacts - that enable Distributed Energy power plants to interoperate transparently with system components, software applications, financial systems, and the Smart Grid.

Standards Enable Growth and Scale
When you examine widely adopted technologies, their success is often tied to standardization. From video formats, to electrical equipment, to the Internet itself, the establishment of standards has significantly reduced the cost and complexity of systems and enabled low-cost adoption at global scale.

With standards, the Distributed Energy industry—and the solar sector in particular—can build upon the competitiveness it has already attained, sustain the profitability and economies of scale needed for widespread deployment, and compete on even footing with all other forms of energy generation technology.

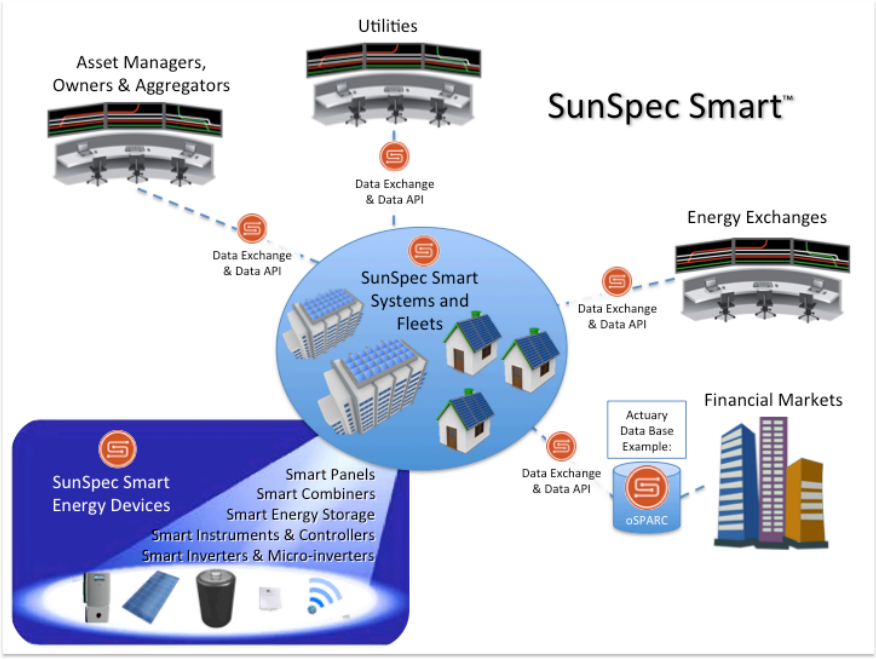
Keys To Success: Open and Free
The SunSpec Alliance takes an open, industry-driven approach to standards development. SunSpec specifications are available for most solar PV system elements and are being adopted around the globe.

The ultimate aim of any de facto standard is to become an “official” standard. Accordingly, SunSpec embraces international and national standards of all types and employs a strategy of maintaining compatibility and harmonization with relevant IEC and IEEE standards.

Target Audience and Value Proposition
SunSpec Alliance information standards enable scale efficiency, plug-and-play interoperability, cost and risk reduction, and long-term operational continuity for manufacturers, integrators, plant owners and operators, financiers, utilities, and consumers.

Members of the SunSpec Alliance are forming an ecosystem of products, services, and information systems that work well together, cost less to build and operate, and work well together wherever they are deployed.

SunSpec standards enable interoperability of components and systems, are compatible with diverse utility grids and microgrids around the globe, and support the establishment of Distributed Energy as financial asset class.



Free open source standards to establish Distributed Energy as a key element of the Smart Grid

SunSpec Energy Architecture: Distributed Energy Meets Distributed Computing
The SunSpec Alliance was founded in 2009 on the premise that the energy industry would evolve in a manner similar to that of the computing industry: power generation would be distributed across the grid to provide the efficiency, operational resiliency, and security required in 21st century society. This vision is now becoming a reality.

SunSpec has taken the core concepts of Internet technology development—de facto standards, open source licensing, cooperative development, application platforms, coordination with official standards bodies—and has applied them to Distributed Energy. The result is powerful force that is expanding and transforming the energy industry, bringing low-cost power to the world market.

Sparking Innovation: Royalty Free Specifications and Reference Software
The primary work product of the SunSpec Alliance is a logical architecture for Distributed Energy plants and a set of specifications that describe information models, interfaces, security mechanisms, and communication protocols of the component parts. SunSpec has now taken the next logical step and has encoded these specifications in reference software, also offered free of charge to members.

The SunSpec Alliance has published 14 specifications and 52 information models to date. These specifications cover all aspects of Distributed Energy systems including device models and field bus protocols; XML-based store-and-forward cloud data services; and application interfaces to enable a wide variety of utility and financial operations. SunSpec's most current work includes specifications for smart inverter control, cybersecurity, and storage integration.

For All System Sizes
SunSpec specifications and software solutions address Distributed Energy plants of all sizes - including residential, commercial, and utility-scale systems – and are deployed around the world.

Trust & Confidence Through Certification
A key requirement for establishing standards is a test and certification program to ensure interoperability of vendor-supplied products. SunSpec has established such a program for the solar industry.

Products bearing the SunSpec Certified™ mark have completed a process that includes a verified statement of protocol conformance, validation with the SunSpec conformance test suite, and interoperability testing with other SunSpec Certified products. Consumers can have confidence that products they purchase will work in harmony with each other.

Reducing Risk and Increasing Customer Choice
By establishing information standards for Distributed Energy, the SunSpec Alliance is reducing the cost of solar PV installation; decreasing supply chain risk; increasing affordability, transparency, and customer choice, and optimizing financial performance for all industry participants.

Key Technical Initiatives
SunSpec is pursuing key initiatives in the areas of smart grid integration and financial risk assessment. Please visit SunSpec.org to learn more about the SunSpec System Validation platform and the open Solar Performance and Reliability Clearinghouse (oSPARC).

Marketing Benefits
In addition to the prestige that comes from defining standards that move the market, SunSpec Alliance members also benefit by participating in marketing and networking events, taking advantage of high-profile speaking opportunities, receiving discounts to important conferences, and promoting their products and services in SunSpec Alliance publications and web sites.

> "Information about energy will become almost as important as energy itself."
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> *- Thomas Tansy, Chairman, SunSpec Alliance*

SunSpec Supporters
More than 80 leading Distributed Energy companies have embraced SunSpec standards, including the world's largest inverter companies, developers, software companies, engineering firms, and balance of system suppliers. These companies support the SunSpec mission with annual membership fees and targeted financial sponsorships.

Join The SunSpec Alliance
Help us grow the Distributed Energy industry. Membership is open to corporations, non-profits, and individuals, and we welcome your participation. For more information, or to download SunSpec specifications at no charge, please visit SunSpec.org.

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