

California Energy Commission Meeting - Docket No. 12-EPIC-01 Proposed Amendments to S19 Strategic Objective

Submitted by the MESA Standards Alliance and SunSpec Alliance

Modify text in S19 Barriers and Challenges section

New text is underlined.

"Large procurers, such as utilities, military bases, government facilities, ports, hospitals, Department of General Services, University of California and building developers, capable of widely deploying clean energy technologies can help create the early market pull needed for companies to ramp up production and build economies of scale."

Add bullet: Lack of communications standards (i) for connecting energy storage control systems to utilities' grid control and power scheduling systems (e.g. SCADA), and (ii) between energy storage components (battery, PCS, and control system), which makes deployments more costly, more time consuming, harder to maintain, less reliable, and less safe.

New section

S19.3 Proposed Funding Initiative: Standards for communication and interoperability of grid-connected energy storage devices.

Technology Pipeline Stage				Electricity System Value Chain			
Applied R&D and Pilot-scale Testing	Full-scale Demo	Early Deployment	Market Facilitation	Grid Operations/ Market Design	Generation	Transmission/ Distribution	Demand – side Management
			X	X	X	X	X

Purpose: This initiative would advance the development of two types of open, non-proprietary standards for communication and interoperability: (i) communication standards for integrating energy storage control systems with utilities' operational technology / information technology (OT/IT) systems (e.g. SCADA systems and power scheduling systems), and (ii) communication standards for the components of energy storage systems, which include battery systems, power conversions systems, control systems, power meters and other devices. This initiative would fund industry groups of vendors, utilities, national labs and other stakeholders to develop and publish open standards for energy storage that would be suitable for inclusion in procurement documents for utility-owned energy storage systems. The standards would also support energy storage on the customer-side of the meter in the context of microgrids, large scale commercial and industrial energy storage deployments, and with integrated PV and energy storage systems.

Stakeholders: Utilities, energy storage system integrators, battery, power electronics, equipment, renewable energy developers, demand response aggregators, and SCADA vendors.

Background: The Commission has facilitated the development and adoption of open, non-proprietary standards by funding efforts like OpenADR that have lowered costs and accelerated deployment of demand response. The PIER 2012 Annual Report found that if the Commission had not invested in standards for demand response, “the lack of a standard communications protocol would have slowed development, raised customer costs, and limited customers’ ability to change vendors.”

The importance of standards is also recognized in Public Utilities Code Section 8360(i): “Develop standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid.” While the standards supporting demand response and solar PV systems have been developing, the lack of mature standards for energy storage is a significant gap for the scalability of this new asset for the electric grid.

There are some initial efforts to fill in the gap. Over 30 utilities have recognized the need to develop common approaches for distribution-level energy storage systems, and in response formed the Energy Storage Integration Council (ESIC)¹ which is being managed by Electric Power Research Institute (EPRI). That effort has convened over 200 key stakeholders including utilities, storage vendors, consultants, regulators, national labs, and other stakeholders to collaboratively work toward common approaches and industry clarity for application functional requirements, consistent performance metrics, technical specification, and utility best practices for installation, maintenance, and end-of-life.. However, the ESIC effort does not yet include a formal process for developing and promoting open, non-proprietary communication standards.

A number of industry trade groups have been organized by companies willing to adopt and comply with open, non-proprietary standards. While some companies seek competitive advantage by developing proprietary systems, members of trade groups like SunSpec and the MESA Standards Alliance² know that such an approach will ultimately raise costs and stymie broad market adoption. SunSpec is a trade alliance of distributed energy industry participants, pursuing information standards to enable “plug & play” system interoperability for PV power plants on the smart grid. MESA has begun similar efforts for energy storage and the two organizations have partnered to develop and publish standards for all the components in integrated PV and energy storage systems.

The standards work underway by the national labs, EPRI, and trade associations should be accelerated to enable California utilities to more cost-effectively and reliably procure the energy storage systems mandated by the CPUC.

¹ See <http://www.epri.com/esic>

² See <http://www.sunspec.org> and <http://mesastandards.org>