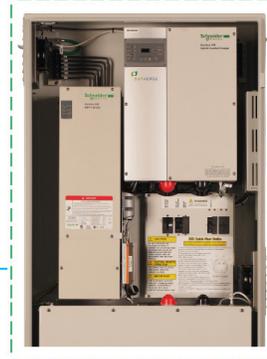




User Interface:
Grid Operator
Energy Consumer



Market Signals:
Demand Response
Frequency Regulation

Market Data:
Pricing
Demand
Load Forecasts
Weather Forecasts

Market Services:
Demand Management
Solar Firming
Reserved Capacity
Grid Support Services

VPP: Solution to Utility Concerns on Integrating Distributed Residential Solar and Storage

Challenges for Utilities

Utilities globally face many of the same challenges; as societies push towards more sustainable infrastructures, a high percentage of these efforts rely on renewables for energy generation. The drivers for this trend are varied and can be societal, regulatory, security or even economic. As more renewables are added to the grid, they further stress an electrical infrastructure which in many cases is near the end of its design life and unintended for the realities of today's needs for transmission and distribution resiliency and efficiency. Considering these challenges, utilities are under pressure to find cost-effective ways to mitigate the impacts of renewables and transform their business models to take advantage of distributed generation through better, faster, safer and more profitable management of the grid and its assets. To meet these challenges, progressive utilities are increasingly turning towards the concept of customer-sited integrated solar plus storage which can be aggregated and controlled by the utility.

One example is Sacramento Municipal Utility District (SMUD) who evaluated custom-sited storage for use cases such as aggregating storage for peak load reduction and demand response, PV firming and voltage/frequency regulation, and integration with other smart home energy management technologies in the context of TOU and Critical Peak Pricing scenarios. The results were impressive with 100% of stored capacity dispatched during DR events, net peak loads reduced to zero during peak reduction scenarios, and double-digit reductions in customer electricity bills demonstrating the potential benefits of storage.

CUSTOMER OVERVIEW

Sunverge Energy

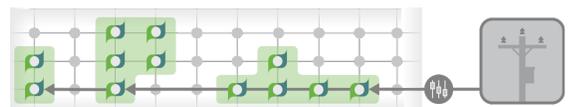
<http://www.sunverge.com/>

Sunverge Energy is a California-based early-stage start-up, founded in 2009, that provides innovative, distributed energy storage technology for use by utilities in solar plus storage applications.

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The Virtual Power Plant - SIS on the grid





Proven Utility-grade Performance

Sunverge's Virtual Power Plant Solution

The Solar Integration System (SIS), combines solar PV inputs, best-in-class power electronics, a field-hardened computer processor and proprietary controls integrated into a certified appliance for use as a grid asset in optimizing solar plus storage deployments. This hardware is then coupled with an unique, cloud-based SaaS analytics capability that enables individual customer-sited SIS units to be aggregated into a fleet and orchestrated, thus creating a Virtual Power Plant. This ability to “install intelligence at the edges of the grid” lends new, real-time insights into grid performance, distributed generation and customer demand, enabling new energy management services and revenue streams for utilities while allowing customers to maximize the value of their renewable energy investment and offering greater choice.

The cloud-based SaaS platform easily integrates with the utility's DRMS and provides rich data analytics to improve operational insight. It also enables smarter/better/faster decision-making, and enhances revenue streams through offering capabilities for new energy management related services. Through a parallel interface, home owners are able to engage with SIS through multiple market signals and market data, such as demand response and pricing.

Schneider Electric Solution

The **Conext XW inverter/charger** and **MPPT Charge Controller** proved to be the perfect choice for Sunverge's intelligent Solar Integration System. These challenges required a leading solution with the following key features:

1. Hybrid inverter/charger platform with industry leading efficiency, robustness and is certified for grid connection in both in UL/IEC markets
2. PV charge controllers with high voltage (600V) input that reduces BOS and wiring costs, as well as enables an efficient single stage conversion of energy
3. A CAN-based API for full control over the inverter/charger and PV charge controllers, enabling customizable use-cases for utility
4. Provide best-in-class engineering, commercial and service support that an OEM needs to develop a turn-key solution

“Working closely together, Schneider Electric and Sunverge have proven utility and customer use cases for Sunverge's SIS units operating autonomously and aggregated as a fleet, acting as a Virtual Power Plant to deliver demand reduction, peak shaving, voltage support and a host of other services.”

– Dean Sanders,
CTO and Chairman, Sunverge Energy

About Schneider Electric

As a global specialist in energy management with operations in more than 100 countries, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in energy and infrastructure, industrial processes, building automation, and data centers/networks, as well as a broad presence in residential applications. Focused on making energy safe, reliable, and efficient, the company's 150,000 plus employees achieved sales of 24 billion euros in 2013, through an active commitment to help individuals and organizations “Make the most of their energy”.

Contact us at <http://solar.schneider-electric.com/where-to-buy> to discuss your solar energy needs.