

## Battery Backup Capability for Critical Facility Loads

### SunWize Power Stations provide power during utility outages

SunWize recently completed the installation of a series of solar power (photovoltaic) systems at the company's headquarters in Kingston, NY. This project was supported by funding from the New York State Energy Research & Development Authority (NYSERDA).

One system is a SunWize® 1840-watt Power Station, located on the facility grounds just outside the company's R&D labs. This system includes an 1840-watt PV array comprised of sixteen SW115 solar modules, a 750Ah battery bank and a SunWize power panel providing array regulation, a DC/AC inverter, load control and tie-in to the building's utility grid.

The Power Station serves two primary functions; it feeds utility-grade power into the building on a daily basis and provides backup power for critical infrastructure loads in the event of an extended grid outage. The backup power feature distinguishes the system from the typical commercial or residential PV grid-tie system. The typical system offsets grid consumption but does not provide backup power since there are no batteries. Also, grid-tie only systems



shut down immediately upon sensing a disruption in grid power.

For personnel safety, UL mandates that grid-tied PV systems shut down so no electricity is fed into the grid, known as “anti-islanding” protection.

The Power Station at SunWize uses a multi-mode DC/AC inverter to allow the system to remain active during a grid outage without sending power into the utility grid. This multi-mode inverter changes the DC output of the PV array and battery bank into AC power and synchronizes it to the building's grid.

The inverter also acts as a battery charger and as a safety isolator. Battery charging allows the 750Ah battery bank to receive charge from the PV array and/or utility grid. The safety isolation function prevents power from feeding into the utility grid for the safety of utility line workers.

The Power Station contributes daily to the energy consumption of the SunWize headquarters facility and provides backup capability for two critical infrastructure loads within the building, the telephone system and the computer server. Both loads have UPS backup systems meant only for short-term protection against utility brownouts. The Power Station provides days of backup for the two loads, thereby keeping the building “on-line” during utility outages.

The recent hurricane activity in Florida and along the Gulf Coast has stressed the importance of long-term or infinite backup power autonomy for critical building loads. A SunWize Power Station, acting as a backup power supply as well as an energy contributor to the building, serves to keep critical loads up and running indefinitely for extended grid black-outs caused by major events such as hurricanes.



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