

***IPERC Adds Capabilities for SPIDERS Phase II Microgrid Control System
with GridMaster® System***

OVERVIEW

The SPIDERS program focuses on the use of Smart Grid technologies, integration of renewable power generation, and energy storage, demand-side management, redundant power back-up, and protection from cyber threats to sustain mission-critical loads. The design for Phase II also included an interface to an Electric Vehicle Supply Equipment (EVSE) solution.

The objective of the SPIDERS JCTD were to demonstrate:

- To protect task critical assets from loss of power due to cyber attack
- Integrate renewable and other distributed generation electricity to power task critical assets in times of emergency
- Sustain critical operations during prolonged utility power outages
- Manage DOD installation electrical power and consumption efficiently, to reduce petroleum demand, carbon "footprint," and cost

IPERC was selected to participate in each Phase of the effort which has increased in volume and complexity. Phase II serves as the "walk" step in the crawl, walk, run approach for SPIDERS.

SOLUTION

Phase II is located at Fort Carson, Colorado. The control network will utilize the IPERC cyber secure GridMaster® technology while incorporating 2.4 MW of generation capacity, up to 2 MW of PV, five

bi-directional electric vehicles, and prioritized demand shedding for mission critical loads.

IPERC's control solution included:

- Intelligent Power Controllers (IPCs)
- Human Machine Interface systems
- Graphical User Interface tailored to the facility microgrid
- Customized enclosures to protect against the environment
- System interface with EVSE and communication compliant with the Society of Automotive Engineers (SAE) published J1772 standard for Electric Vehicle and Plug in Hybrid Electric Vehicles

RESULTS

IPERC provided the power control management system that successfully completed a 72-hour Operational Demonstration. Although official results have not been released, we are projecting that PV integration provided 7.3% of the total load and PV penetration was up to 39% of the total load.

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