

Intelligent Management System Achieves Fuel Consumption Reduction During Field Demonstration

OVERVIEW

In 2007, IPERC was awarded the \$2.0 Million open solicitation contract, Intelligent Integrated Tactical Power Grids.

In theater, systems must be able to share energy with other systems, obtaining it from those that have excess and moving it to those that need it. The work completed as a result of this contract was a fundamental step in building an energy-sharing infrastructure. The goal of this effort was to design, develop and demonstrate an intelligent, tactical power grid with plug-and-play capability that could be used to integrate tactical shelters and other applications into a network power system on the battlefield.

SOLUTION

IPERC developed an intelligent power management and power grid system that optimized performance and efficiency through local and system-level autonomous control. The architecture design addressed, but was not limited to the feasibility of the following capabilities in a tactical environment:

- Load and source side management capability
- Scalability from 2 kW up to 1,500 kW
- Compatible interface and operation with legacy equipment
- Reduction in fuel consumption
- Autonomous power control
- Plug-and-play capability
- Ability to handle transient events

- Capability to parallel sources
- Testing of the demonstrator was conducted at the contractor's facilities.

RESULTS

IPERC achieved a reduction in fuel consumption through the use of intelligent management of generators and prioritized load shedding. The July 2010 field demonstration resulted in a 36 percent fuel reduction for plug-and-play grids during a test to determine the benefits IPC implementation. A grid of networked generators, enabled by the IPC was compared to the same set of generators configured as standalone units. Demonstrated was the IPC's ability to:

- Automatically recognize and control equipment on a plug-and-play micro-grid
- Learn equipment characteristics and optimize performance
- Control both synchronous and asynchronous generators, at the same time, on the same grid
- Reduce fuel consumption by 36%
- Decentralize control which increases reliability
- Automatically adjust to compensate for changing load patterns

Contact IPERC

Discover how we can provide your business with the latest in microgrid technology.

John Carroll, Business Development Director
Mobile - 631.704.7150
Office - 800.815.6183
John.Carroll@IPERCsolutions.com
IPERCsolutions.com