



SolarTAC Technology
Acceleration Center

SolarTAC Upgrades Microgrid Testing Environment with Diesel Engine Upgrade

LOCATION

Aurora, Colorado USA

POWER

Cummins QSX15
500kW diesel
generator

OBJECTIVE

Provide a realistic
test set up for
microgrid and solar
technologies

SOLUTION

Woodward
easYgen-3200XT
controller

RESULTS

The customer is
able to monitor,
control, and analyze
combined power
from diesel and
various renewable
energy sources

Installation by:

Winn-Marion



Customer Goal

The SolarTAC facility (operated by MRIGlobal) provides an open environment to prove out the technologies and financial benefits of renewables, energy storage, and integration with conventional generation and flexible loads. SolarTAC sought to upgrade their facility, which has evolved from validating solar solutions to supporting a full range of microgrid testing. This boost in microgrid testing capabilities is important to SolarTAC, particularly since plummeting solar prices have resulted in the proliferation of solar installations and utilities must now deploy new technologies and approaches to integrate variable solar resources.

To achieve this goal, MRIGlobal turned to the original designers of the SolarTAC center, Burns and McDonnell, to provide a plug-and-play microgrid system which included the addition of a diesel generator. Woodward business partner Winn-Marion was contracted to upgrade the diesel generator so it could support the range of testing and interface to new technologies in support of microgrids and solar integration.

Solution

Winn-Marion upgraded the controls on the Cummins QSX15 500kW diesel generator from the standard Cummins 2100 to Woodward's easYgen-3200XT. The easYgen provided the proven performance and Ethernet connectivity to operate islanded or grid-connected testing environments, as well as provide different modes of operation from which SolarTAC users can validate their solar and inverter technologies for optimal cost savings and seamless grid interaction.

New wiring was run to the pickup and fuel shutoff relays. Shielded cable was laid to allow the easYgen to communicate over CAN bus J1939 protocol to the engine controller to provide commands and speed bias paralleling control signals.

Result

With the upgrades, SolarTAC can now support a wide variety of operational scenarios for equipment manufacturers to validate their microgrid solutions, renewable generation technologies, and microgrid control and optimization algorithms. The operational flexibility of the easYgen readily allows SolarTAC to adapt to future challenges and industry needs. With the knowledge gained at the SolarTAC center, the technical performance and economic return on investment for microgrid projects and technologies can be demonstrated and improved upon.





“The Woodward easYgen provided the operational flexibility and ease of use for our application and allows the SolarTAC microgrid to operate in both paralleled and island modes. This project should help move microgrids to the mainstream of energy management.”

Wade Johnson
Project Manager
Burns and McDonnell

“The Woodward easYgen upgrade provides outstanding operational flexibility for our testing environments.”

Dustin Smith
Executive Director
SolarTAC / MRIGlobal



Woodward easYgen-3200XT
inside cabinet



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We've provided power management for diesel and gas generation for decades and can be a partner on your path to microgrids and the integration of renewable energy.

Our technologies and services enhance energy conversion of renewable and fossil fuels, energy extraction and distribution, and electric power generation and distribution. Major power generation OEMs throughout the world use Woodward engine management systems and genset controls, as well as power converters for CO2-free renewable energy generation.

Woodward power management systems for diesel, natural gas, and alternative-fueled engines successfully address strict EPA emissions regulations while providing reduced overall cost of system ownership. These technologies have

helped us maintain preferred supplier status in the diesel- and gaseous-fueled power generation industry, plant control systems operation, and the wind power generation industry.

Backed by decades of experience with generator controls, load sharing, synchronization, and power protection technologies, Woodward's power generation control solutions set standards worldwide.

We're ready to be part of every microgrid system, working with all parts of the renewable microgrid ecosystem to provide solutions for the industry.

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