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CPS Energy, OMNETRIC Group, Siemens and UTSA demonstrate microgrid technology at US military post, marking final implementation for NREL's Project INTEGRATE

- **OMNETRIC Group and CPS Energy have completed a new implementation of Siemens' Microgrid Management System (MGMS) software in live grid conditions**
- **NREL's *Project INTEGRATE* brings together CPS Energy, Duke Energy and The University of Texas at San Antonio with OMNETRIC Group and Siemens to advance the integration of large-scale, renewable, clean energy resources into the grid**

OMNETRIC Group and Siemens today announce their final deployment in the U.S. Energy Department's National Renewable Energy Laboratory's (NREL) Project INTEGRATE - an initiative aimed at resolving the current constraints utilities face when integrating distributed general assets including renewable energy sources into the grid.

Working with OMNETRIC Group and Siemens, CPS Energy installed a microgrid solution at the Joint Base San Antonio's Fort Sam Houston military post consisting of a 20 kilowatt solar PV array, 48 kilowatt hour battery, a weather station, and a Siemens microgrid controller. Demonstration tests at CPS Energy showed improved control of the new microgrid under live conditions, which enables renewable resources to be integrated more predictably. The demonstration will help advance the integration of renewables and development of microgrid systems on a larger scale.

As part of the solution, OMNETRIC Group has verified and implemented a new interoperability reference architecture, called the Open Field Message Bus (OpenFMB) framework. This solution, integrated with Siemens Microgrid Management Software (MGMS), allows CPS Energy to overcome the lack of standardization and interoperability between the vast array of equipment in operation to better manage load behavior on the power grid. This in turn enables the OpenFMB distributed applications on the microgrid test site to locally optimize renewable energy resources and battery storage.

The project partners also include the University of Texas at San Antonio (UTSA), which has integrated the university's solar PV and load forecasting technology with the microgrid management system. Using its own sky imager technology, UTSA is able to study cloud movement in real-time (speed and direction of travel). This information, updated every 15 minutes, is fed into the Siemens and OMNETRIC Group software for it to predict power generation in near real-time from the microgrid. This example, which has already proven successful in the CPS Energy test environment, illustrates the ability of OMNETRIC Group's

integration approach and Siemens MGMS software to seamlessly integrate any third-party forecasting technology.

A lack of common standards and the variable nature of renewable sources has traditionally led to difficulties in the communication and interoperation of renewables within the complex, multi-vendor operating systems used by today's utilities. Through Project INTEGRATE, OMNETRIC Group and Siemens have been working to allow utilities to integrate these disparate systems more successfully than before. The success of the field testing promises a future of increased renewable energy use, as integration with legacy systems becomes easier, thus faster and more manageable.

"We are eager to utilize technology to modernize the electric grid for the benefit of our customers. The seamless integration of distribution assets is another step toward our ability to offer the next generation of reliability, resiliency, and product choice to our customers." said James Boston III, Manager of Market Intelligence at CPS Energy. "CPS Energy is delighted to have worked on this project and is committed to the advancement of renewable integration in the grid, which this deployment has furthered."

"At OMNETRIC Group, we specialize in bridging the gap between operations and information technology systems. Our work with CPS Energy marks the final stage in our latest effort to demonstrate first-hand the opportunity for utilities to optimize renewable resources and become more diverse," said Shailendra Grover, Senior Manager, Grid Operations at OMNETRIC Group. "The implementation of the project has been a great success and we looked forward to sharing the impact of our deployments with the wider industry."

"Siemens is excited to have our leading microgrid management software play such an integral role in this important milestone with our partners CPS Energy, UTSA and NREL," said Mike Carlson, president of Siemens Digital Grid. "Our software is not only providing the detailed insight and decision making ability necessary to effectively manage a microgrid, but has demonstrated extensive security capabilities and islanding coordination, which are critical in helping power producers embrace agility and successfully integrate renewables across the country."

OMNETRIC Group, in partnership with Siemens, is one of five suppliers to receive funding from NREL as part of its Integrated Network Testbed for Energy Grid Research and Technology Experimentation (INTEGRATE) project.

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About OMNETRIC Group

OMNETRIC Group is dedicated to the global delivery of integrated information technology and operational technology solutions and services, helping utility companies to achieve greater grid reliability and efficiency. OMNETRIC Group is a joint venture between Siemens AG and Accenture. Combining Siemens' leading energy technology product portfolio with Accenture's systems integration, consulting and managed services capabilities, OMNETRIC Group can support clients with innovative solutions wherever they may be on their path to a smarter grid. For more information, visit www.omnetricgroup.com

About Siemens

Siemens Corporation is a U.S. subsidiary of Siemens AG, a global powerhouse focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of systems for power generation and transmission as well as medical diagnosis. With approximately 348,000 employees in more than 190 countries, Siemens reported worldwide revenue of \$86.2 billion in fiscal 2015. Siemens in the USA reported revenue of \$22.4 billion, including \$5.5 billion in exports, and employs approximately 50,000 people throughout all 50 states and Puerto Rico.