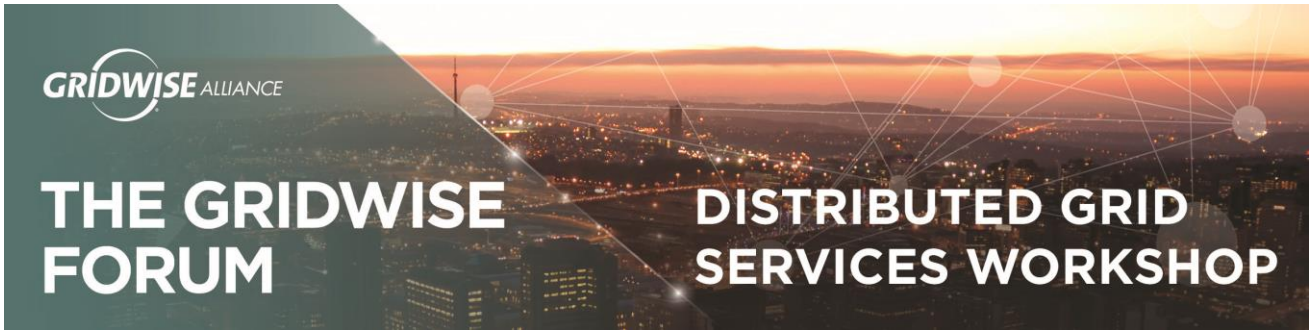

The GridWise Forum Distributed Grid Services Workshop

Tuesday, March 21 to Wednesday, March 22, 2017

Hosted by GE Grid Solutions at the Grid IQ Center in Atlanta, GA

The GridWise Alliance, with GE Grid Solutions and Intel, is hosting a free industry workshop to develop a methodology for characterizing smart devices ability to provide valuable grid services. This workshop will be held in Atlanta, GA on March 21 and 22, at the GE Grid Solutions Grid IQ Center and will facilitate collaboration between equipment manufacturers, grid services providers and utilities that is necessary to define, build and encourage widespread intelligent device adoption making our power grid more sustainable, efficient & resilient.

Who Should Attend?

- DER device manufacturers
- Electric utility service providers
- Grid Independent system operators (ISOs) and regional transmission system operators (RTOs)
- Regional energy efficiency organizations (NEEA, NEEP, etc.)
- Other industry organizations (AHRI, AHAM, ACEEE, CEE, NEMA, etc.)

Preliminary Agenda:

<table>
<tr><th>March 21</th><th>Equipment Manufacturers</th><th>Utilities</th></tr>
<tr><td rowspan="2">Beginning at 12:00 PM</td><td colspan="2">Lunch and Networking
Keynote Presentation(s) from GE and Intel</td></tr>
<tr><td colspan="2">Background: Overview of GMLC project effort and approach</td></tr>
<tr><td colspan="3">EVENING RECEPTION at Grid IQ Innovation Center
Interactive Poster Sessions on Key Device Topics</td></tr>
<tr><th>March 22</th><th>Equipment Manufacturers</th><th>Utilities</th></tr>
<tr><td rowspan="3">Beginning at 8:30 AM</td><td colspan="2">Keynote Presentation(s) from Utility Leaders
Workshop Set-Up: Setting the Stage for Critical Feedback Opportunities</td></tr>
<tr><td>Manufacturer Perspectives Needed: Discuss and provide feedback on standardized device test protocol and specific evaluation details for each device</td><td>Utility Perspectives Needed: Discuss and provide feedback on minimum grid service requirements</td></tr>
<tr><td colspan="2">Lunch and Wrap Up: Report out from industry-specific breakouts and discuss next steps.</td></tr>
<tr><td>1:00 PM – 2:00 PM</td><td colspan="2"></td></tr>
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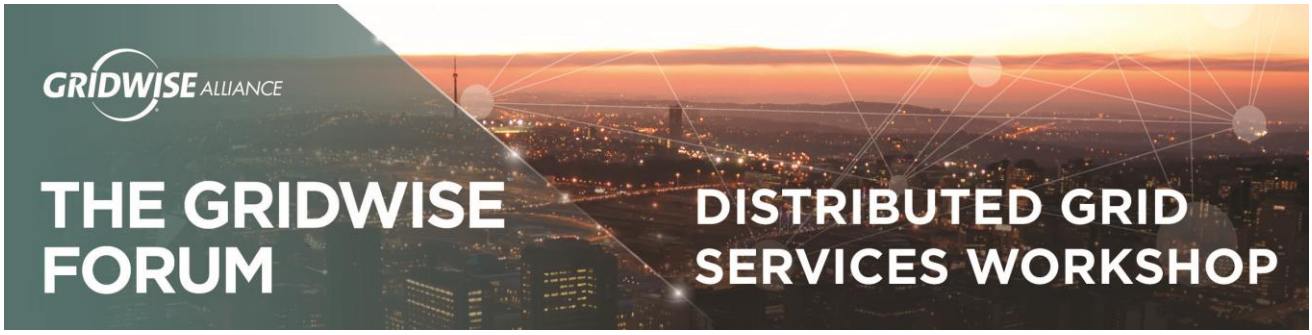
REGISTER TO RESERVE YOUR SPOT

Sponsorship Opportunities



Expected Outcomes of Characterizing Devices Performance of Grid Services:

- Reward innovation by device/system/controls manufacturers by helping them understand grid service opportunities to enlarge device markets and providing recognition for product performance and potential value
- Validate performance models and value for grid operator decisions on purchases, incentives, markets, programs and planning/operating strategies
- Independently validate information for consumers and 3rd parties for device purchase decisions so that manufacturers can effectively communicate their products' value

Long-term Goal of the Device Characterization Initiative:

- Create simple, low-cost testing protocols and metrics that manufacturers can use to characterize their equipment's performance and potential value in providing a standard set of existing and new grid services.

Defining "Grid Modernization", and the key characteristics of the future grid is and has been a top priority for the GridWise Alliance since our founding in 2003. Equally invested in this goal, the U.S. Department of Energy's (DOE) Grid Modernization Laboratory Consortium (GMLC), has recently begun an initial three-year effort to develop standardized testing protocols and performance metrics to evaluate and to communicate the ability of different devices to serve as distributed energy resources (DERs) and to provide a variety of new and existing grid services, including peak load management, ramping and frequency regulation, etc.

GRID MODERNIZATION LABORATORY CONSORTIUM
U.S. Department of Energy

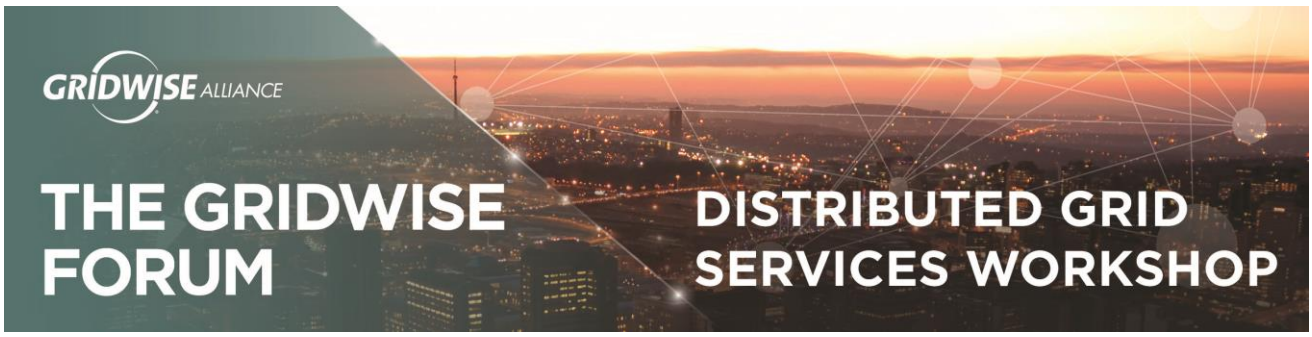
Want to learn more and get involved sooner? (link)

Devices and systems on both sides of the electric meter can help the grid function more efficiently, manage variable generation, and be more resilient under adverse conditions. Research within this technical area falls under four main activities with related goals.

Join us on Feb. 15 at 3:00 PM EST for an interactive introduction (link)

The GridWise Alliance will sponsor a one-hour webinar introducing the scope and technical approach of the Grid Modernization Laboratory Consortium’s Characterization Initiation. This webinar will provide you the context for the initiative, outline its scope, goals and objectives, and introduce the methods being proposed for its construction.

A great way to understand the relevance of this initiative to your organization and prepare your input and perspectives for the workshop!



Meeting Date:

Tuesday, March 21, 2017 (beginning at 12:00 pm EST – through evening reception)
Wednesday, March 22, 2017 (beginning at 8:30 am EST – concluding at 2:00 pm EST)

Location:

2018 Powers Ferry Rd SE,
Atlanta, GA 30339
For additional information and to register for any of the workshops please visit our website.

Why Should You Attend?

Meet us in Atlanta to get an update of the DOE's recent efforts to develop draft characterizations and metrics that describe DER devices' ability to provide important grid services, as well as, how these parameters can be used in a standardized model to understand the performance of these DERs at scale. In addition, different industry groups can learn from one another in specific break-out sessions how different devices will be evaluated, what data are required to evaluate the device's ability to provide grid services, and what are different grid services' requirements

	Device Manufacturers	Utilities	All
INFORM	Ensure developed test protocols that are reasonable and feasible	Determine minimum requirements for different grid services	Define standardized taxonomy and metrics to communicate DER capability in meaningful and transparent way
LEARN	Understand different grid service performance requirements to inform intelligent device design and development	Learn about new, standardized DER modeling approaches to characterize population performance	Next steps in DOE's program to develop test methods and metrics for DER grid services.

DER Device Classes

This project focuses on:

- Batteries
- PV inverters
- Thermal energy storage
- Electric vehicles
- Fuel cells and electrolyzers
- Residential/commercial water heaters and HVAC equipment
- Commercial refrigeration equipment
- Commercial lighting

Webinars on Device Test Protocols

Interested in finding out more and getting involved sooner? DOE is offering a series of device-specific webinars to present and request feedback on draft test protocols for each DER device class. **Manufacturers of these devices should attend these webinars to learn more about the proposed approach to evaluate and describe your device class performance capabilities and to help us understand what information and/or analysis you would need to build devices to provide grid services.** Dates and times for these webinars will be announced shortly.