



ENERGY EFFICIENCY AND RENEWABLE ENERGY RESILIENCE THRUSTS WETO/SETO/WPTO

TUESDAY: SESSION 1, TRACK 1

SESSION CHAIR

Tim McJunkin, Idaho National Laboratory

PRESENTERS

- David Walter, Solar Energy
- Ben Ollis Oakridge, National Laboratory
- Hill Balliet, Water Power
- Abhishek Somani, Pacific Northwest National Laboratory
- Bret Barker, Wind Energy
- Megan Culler, Idaho National Laboratory

Moderator

Brian Seal, EPRI

SESSION ABSTRACT

Three renewable energy program offices of the U.S. Department of Energy's Energy Efficiency and Renewable Energy Office will present their perspectives from program manager and representative project leads on adapting the nation's grid to renewable energy while maintaining safety, security and resilience of the system. Program managers and leads from each Wind Energy, Water Power, and Solar Power Technology Offices will exchange key approaches to resilient outcomes on the road to green-house gas reduction in the energy sector.

A synopsis of the panelists and topics:

The Wind Energy Technologies Office has invested in research to enable wind, as a distributed energy resource (DER), to support the resiliency of electric energy delivery systems and the communities they supply through the development of resilience metrics which can be applied to evaluate the resilience of the distribution grid and how distributed wind can be used to enhance resilience. Bret Barker will discuss the breadth of their work from rapidly deployable wind turbines for disaster response to advanced and adaptive controls for hybrid and microgrid systems. He will be joined by Megan Culler of Idaho National Laboratory who will discuss two a recently published



papers Resilience Framework for Electric Energy Delivery Systems and Distributed Wind Resilience Metrics for Electric Energy Delivery Systems which can be used for evaluating and enhancing resilience.

The Water Power Technologies Office (WPTO) invests broadly in resilience to ensure that the US will have resilient water and electric systems for years to come. Hill Balliet will outline WPTO's resilience portfolio from cybersecurity to hydropower hybrids and discuss future areas of work. He will be joined by Abhishek Somani of Pacific Northwest National Laboratory, who will go into detail about his work on the role of hydropower in grid resilience.

The Solar Energy Technologies Office has invested in research to better utilize solar and other distributed resources to enhance the resiliency of the grid through advanced controls and better situational awareness of the distribution system. David Walter will discuss the history of their work from microgrid controls to adaptive protection schemes and where the office plans to go in the future. He will be joined by Ben Ollis of Oak Ridge National Laboratory who will discuss a recently funded project that is connecting community level microgrids in Puerto Rico in an effort to enhance the region's ability to survive high impact events.