

Symposium on Secure and Resilient Microgrids

Draft Agenda

Day 1: Research Needs and Challenges **Monday, August 29, 2016**

7:30am	Morning Check-In and Registration
8:00am	Welcome, Introductions, and Expectations Carol Adkins (Sandia) and Tom Key (EPRI)
8:15am	Opening Panel Session: Emerging Microgrid Use, Applications & Opportunities <i>Description: Each speaker will discuss their perspectives on the following questions: What are the primary power delivery challenges you are facing? How do microgrids address those challenges? What do you see as major technological gaps to microgrid adoption?</i> Session Chair: Michael Hightower (SNL) (<i>Confirmed</i>) Panelists <ul style="list-style-type: none">• DOE (Office of Electricity)(Dan Ton) (<i>Confirmed</i>)• Utilities (John Murach, from Baltimore Gas and Electric) (<i>Confirmed</i>)• DoD (Gary Morrissett, from USMC 29 Palms Base) (<i>Confirmed</i>)• Industry (Dave Barr, from Burns and McDonnell) (<i>Confirmed</i>)• Electric Power Manufacturer (Drew Gravitt, from Schneider Electric) (<i>Confirmed</i>)
10:00am	Morning Break
10:30am	Microgrid Lessons Learned and Current Gaps <i>This session will present lessons learned based on field experience, covering design, operations, and economics.</i> Session Chair: Bruce Geil (CERL) Panelists <ul style="list-style-type: none">• DOE – Merrill Smith and Microgrid Exchange Group (<i>Confirmed</i>)• State/regulatory representative-Michael Winka, Sr. Policy Advisor, New Jersey BPU (<i>Confirmed</i>)• DoD – Harold Sanborn, SPIDERS (<i>Confirmed</i>)• INL – Rob Hovsopian (<i>Confirmed</i>)• Municipal/Community – Northampton, MA - John Tourtelotte, Rivermoor Energy (<i>Confirmed</i>)
12:00pm	Lunch

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1:30pm **Emerging System Design Requirements – Security, Resiliency, and Reliability**
This session will discuss the major performance elements and corresponding metrics that are taken into account in microgrid design.

Session Chair: Glen Chason (EPRI) (*Confirmed*)

Speakers:

- Critical mission energy assurance (Troy Warshel, OSD EIE) (*Confirmed*)
- Physical security/protection (David Lawrence, Duke) (*Confirmed*)
- Cyber Security (Jason Stamps, SNL) (*Confirmed*)
- DOE and DOD definitions and metrics (Mike Hightower, SNL) (*Confirmed*)
- Resiliency of multiple microgrids (Scott Backhaus, LANL) (*Confirmed*)
- Market Interface (IIT) Mohammad Shahidehpour (*Confirmed*)

3:00pm **Break**

3:30pm **State of Modeling, Simulation and Analysis Tools for Microgrids**
This session will discuss current toolsets and areas where further research or improvement is needed. Moderator will provide a vision for how the R&D can be addressed, and propose the formation of a working group to move forward with ideas discussed.

Session Chair: Merrill Smith (DOE) (*Confirmed*)

Speakers:

- Overview of economic-based and design-based tools, (Dean Weng, EPRI) (Andre Cortes, EPRI) (*Confirmed*)
- Microgrid Design Tool Set(MDT) (John Eddy, SNL) (*Confirmed*)
- Homer – John Glassmire (*Confirmed*)

5:00pm **Break for Dinner**

6:30pm **Evening Session: Technology Provider/Commercial Tools/Developers present**
Session Chair: Abraham Ellis, SNL
This session will include several ~10 minute presentations by vendors with discussions questions and answer session, moderated by a Sandia chairman.
*XENDEE – **Adib Nasle**; Homer- **John Glassmire**, Schneider – **Phillip Barton**, U.S. Green Building Council – **Ryan Franks**, GE – **Jayant Kumar**, etc)*

8:00pm **Adjourn**

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Day 2: Research Approaches and Solutions **Tuesday, August 30, 2016**

8:00am **Day 1 Summary and Day 2 Agenda Overview**
Abraham Ellis (Sandia) and Tom Key (EPRI)

8:15am **Benefit Analysis and Business Case for Microgrids**
This session will examine cost-benefit methodologies and case studies.

Chair: Arindam Maitra (EPRI) (*Confirmed*)

Speakers:

- The Integrated Grid Benefit-Cost framework to develop resilient community microgrids (Jeffrey Roark, EPRI)(*Confirmed*)
- Deferral value and resiliency update (Edward Jarmas, Fabien Nilsson, EDF) *Confirmed*
- Cost analysis (Annabelle Pratt, NREL)(*Confirmed*)

9:45am **Decentralized Operation and Control**
This session will describe several concepts for application of local controllers for microgrids and the main grid.

Chair: Haresh Kamath (EPRI) (*Confirmed*)

Speakers:

- Architectures, communication, interfaces and requirements (Alex Rojas, Ameren)(*Confirmed*)
- Controller coordination with building automation functions and protection (Jayant Kumar, GE)(*Confirmed*)

10:15am **Morning Break**

10:30am **Decentralized Operation and Control *Continued***
This session will describe several concepts for application of local controllers for microgrids and the main grid.

Chair: Haresh Kamath (EPRI) (*Confirmed*)

Speakers:

- Requirements of energy storage and controller within microgrids (Phillip Barton, Schneider/S&C)(*Confirmed*)
- Microgrid real-time controller with open systems architecture - (CSEISMIC, ORNL speaker requested by DOE) (Ben Ollis) (*Confirmed*)

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11:00am **Developing and Applying Standards**
This session will review and provide updates on standard development efforts related microgrids.

Chair: Rick Langley (EPRI)(*Confirmed*)

Speakers:

- IEEE 2030.7 Controller (Arindam Maitra, EPRI)(*Confirmed*)
- IEEE 2030.8 System Testing (Ward Bower, Consultant)(*Confirmed*)

12:00pm **Lunch**

1:00PM **Developing and Applying Standards** continued

- IEEE 1547 Interconnection Requirement (Tom Key, EPRI) (*Confirmed*)
- DoD Microgrid Standards Working Group (ERDEC) (*Invited*)

1:30pm **Testing and Performance Verification**
This session will review emerging performance matrix, test protocols and experience.

Chair: Rick Langley, EPRI (*Confirmed*)

Speakers:

- HIL testing, power and control and validation (Erik Limpaecher, MIT LL) (*Confirmed*)
- Microgrid verification at DOE National Labs (Abraham Ellis, Sandia)(*Confirmed*)
- Microgrids and integration of non-dispatchable resources (Scott Manson, SEL)(*Confirmed*)
- Site-specific controller evaluation using HIL (Annabelle Pratt, NREL)(*Confirmed*)

2:30pm **Utility Microgrids: Integrations and Implementation Challenges**
This session will highlight lessons learned from demonstration projects in different settings.

Chair: Jim Crane, Exelon (*Confirmed*)

Speakers:

- Military Installation of Microgrid and Lessons Learned Study (Mike Hightower, Sandia) (*Confirmed*)
- Utility-owned Public Purpose Microgrids (Manuel Avendano, ComEd) (*Confirmed*)
- Microgrid Controller Testing and Lessons Learned at Borrego Springs (Bill Baker, Spira) (*Confirmed*)

3:30pm **Afternoon Break**

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3:45pm Utility Microgrids: Integrations and Implementation Challenges (cont.)

Chair: Jim Crane, Exelon (*Confirmed*)

Speakers:

- Concordville Microgrid
 - Overview and Scope (Eric Stein, Peco) (*Confirmed*)
 - Microgrid Feasibility (Travis White, Peco) (*Confirmed*)
 - Utility Integrated Microgrid Framework & Challenges (George Sey, Peco) (*Confirmed*)
- Integration challenges in urban environment (Andrew Reid, ConEd) (*Confirmed*)

4:45 Wrap-Up, Key Outcomes, and Next Steps
(Abe Ellis and Tom Key)

5:00 Adjourn

Day 3: Microgrid Training & Education and Selected Project Reviews Wednesday, August 31, 2016

Training and Project review Sessions currently available

	Room1	Room 2	Room 3	Room 4
Morning	Cyber Security for Microgrids Workshop ~15 people; Jason Stamps, Sandia	HOMER Pro Demo: Techno-Economic Modeling of Grid-connected Microgrids; John Glassmire, HOMER	Energy Security Assessments and Microgrid Conceptual Design 101 (3 hours); Mike Hightower, Sandia	CLOSED SESSION: Exelon Concordville, ½ day ~20 people; PECO, Rachna Handa and Dean Weng, EPRI
Afternoon	Microgrid Design Tool Set (MDT) Project Review, 2 ½ hours ~10 people John Eddy, Sandia			