



# Energy Planning for Resilient Communities – Best Practices

## EBC Annex 73 Symposium

Wednesday, December 6, 2017

8:00 **Registration**

8:30 **Welcome** - Cameron Oskvig (NAS FFC)

**Introduction** – Alexander Zhivov (ERDC-CERL)

8:45 **IEA EBC Program Annex 73 "Towards Net Zero Resilient Public Communities"** Alexander Zhivov (ERDC) and Rüdiger Lohse (KEA, Germany)

9:05 **Advanced Energy Supply Strategies for Resilient Applications. Part 1**

Moderator: Alexander Zhivov (ERDC)

- 4th Generation of Energy Supply Systems – Anders Dyrelund (Ramboll, Denmark),
- Advanced Hot Water Systems – Stephan Richter (GEF, Germany),
- Biomass and Fuel Flexible CHP/District Energy Systems – Bob Smith (RMF Engineering, Inc.)
- Steam-to-Hot Water Conversion – Anders Dyrelund (Ramboll, Denmark)
- Advanced Hot Water Piping: Cost and Heat Losses – Jean Laganiere (Georg Fischer Urecon Ltd, Canada)

10:30 **Coffee Break**

10:45 **Advanced Energy Supply Strategies for Resilient Applications. Part 2**

Moderator: Robert Jeffers (Sandia National Laboratories)

- Community-Scale Geothermal Energy Systems – Daniel Dixon (Lincoln Electric System)
- Community Scale Heating/Cooling Systems with Seasonal Storage and Solar Thermal Collectors – Nicole Olsacher (SOLID, Austria)
- Renewable Energy Community-Scale Energy Planning – Thomas Phelps (Stantec)
- Electrical Systems Resiliency with Power Micro Grids – Brad Luyster (IPERC)
- Storage:
  - o Power Storage:
    - Daniel Fingleton (Solar Turbines)
    - Richard Brody (Lockheed Martin Energy)
  - o Advantages and Costs of Implementation of Seasonal Thermal Storage – Mark Worthington (Underground Energy)

12:15 **Lunch**

13:15 **Energy Planning as a Part of the Installation Master Plan** – Jerry Zekert (USACE HQ)

13:30 **Energy supply to Mission Critical Facilities – Lessons Learned from University Campuses**

*Moderator: Robert Thornton (IDEA, USA)*

- University of Texas Medical Branch at Galveston – Jerry Schuett (Affiliated Engineers)
- University of Texas Austin – Supporting a Fast Track Mission-Critical Campus Healthcare Expansion – Juan Ontiveros (UT Austin)
- Emergency Preparation & Response Lessons from Super Storm Sandy – Ted Borer (Princeton University)
- Energy Supply to the U.S. Capitol - Christopher Potter (Director of Utilities)
- Planning and Optimizing Energy Efficiency at University of Missouri Columbia – Gregg Coffin (University of Missouri Columbia)
- DOE Zero Energy Districts Accelerator – Sarah Zaleski (DOE Building Technologies Office)
- Bjerringbro District Energy - Pete Korzeniewski (Grundfos)

15:00 Coffee Break

15:30 **Business Case for Energy Scenario Selection**

*Moderator: Rudiger Lohse (KEA, Germany)*

- Multi-Criteria Decision Analysis – Michael Case (ERDC)
- Monetary Value of Resilience – David Tine (HBC RE)
- Funding and Financing Strategies – Baird Brown and Christopher Berendt (Drinker, Biddle & Reath, LLP)

16:20 **Business Case for Resilient Energy System Scenarios, Industry Perspective – Panel Discussion**

*Moderator: Robert Thornton (IDEA, USA)*

- Paul Wyman, Lockheed Martin Energy
- Kevin Vaughn, Schneider Electric
- Thomas Phelps, Stantec
- Serge Zinger, Thermo Systems

17:20 **Conclusions and Closing Remarks**