



U.S. DEPARTMENT OF  
**ENERGY**



## Preliminary Program

### DEEP ENERGY RETROFIT OF BUILDINGS

#### Technical and Business Strategies

September 15-16, 2016

#### ***Thursday, September 15***

8:00:10:30      **Frameworks and Policies (Moderated by Dr. Alexander Zhivov, ERDC)**

The U.S. Government has issued a task order and provided funds to increase the DER (Deep Energy Retrofit) efforts in the Federal building stock. This session will provide an insight in to how major U.S. Federal building agencies and owners plan to adapt the DER strategy for use in their own building refurbishment strategies, and in innovative approaches that they will take in other countries.

- 08:00    Welcome – **Cameron Oskvig (NAS, FFC)**
- 08:05    [Introduction to IEA Annex 61 and DER Forum](#) – **Alexander Zhivov (ERDC)**
- 08:25    [DER from the perspective of FEMP- targets and efforts](#) – **Tim Unruh DOE (DOE, FEMP)**
- 08:40    [Why does GSA DER instead of business as usual – policies](#) **Kevin Kampschroer (GSA)**
- 08:55    [Army implementation of existing buildings major renovation and DER](#) – **Steve Bonneau (IMCOM HQ)**
- 09:10    TBC - **Christine Harada, Federal Chief Sustainability Officer (White House)**
- 09:25    [ASHRAE Energy Efficiency for Existing Buildings Standard 100](#) – **Wayne Stoppelmoor (SSPC 100 Chair, Schneider Electric)**
- 09:45    [Concept for cost-effective Deep Energy Retrofit](#) – **Mark Zimmerman (EMPA, Switzerland)**
- 10:10    Q&A

10:30-11:00      **Coffee break**

11:00-12:40      **Annex 61 DER Case and Pilot studies (Moderated by Cyrus Nasser, DOE FEMP)**

This part will present and discuss DER approaches, success stories, and lessons learned, with an emphasis on the technical solutions used to reduce energy consumption by (at least) 50%, on the cost effectiveness of the approach (es), and on the business and financial model used to make it happen.

- 11:00    [Overview DER Pilot Case Studies](#) – **Cyrus Nasser (DOE, FEMP)**
- 11:15    [Overview of 26 accomplished DER Case Studies](#) - **Kirsten Englund Thomsen (Aalborg University, Denmark)**
- 11:35    [Recent initiated DER projects in the Federal Sector- GSA Case Studies](#) – **Kinga Porst Hydras (GSA)**
- 11:50    [Barracks Building DER Case Study](#) – **Jay Tulley (POM AG)**
- 12:05    [DLA Case Study](#) – **Dusty Wheeler (Honeywell)**
- 12:20    Q&A

12:40 – 13:40      **Lunch**

## 13:40 **Annex 61 Technical Guide (Moderated by Alexander Zhivov)**

The implementation of DER projects require a cost-effective combination of energy efficiency measures. The Annex 61 Technical Guide session presents technologies, technology bundles, and quality assurance requirements that are necessary for a successful technical implementation of DER projects.

- 13:40 [Bundles of technologies for DER](#) – Alexander Zhivov (ERDC)
- 14:00 [Building envelope insulation optimization – modeling results](#) – Richard Liesen (ERDC)
- 14:15 [Insulation materials and their installation](#): Paul Bertram (Kingspan)  
[Insulation materials and their installation](#): Shawn Torbert (Roxul, USA)/ Alejandra Nieto (Roxul, Canada)
- 14:40 [Windows- technologies and installation](#) – Chris Mathis (Mathis Consulting)

## 15:00-15:30 **Coffee Break**

- 15:30 [Thermal Bridges](#) - Mark Lawton (Morrison Hershfield, Canada)
- 16:00 [Air Barrier](#)- Wagdy Anis (Anis Building Enclosure Consulting),
- 16:20 [Air Barrier](#)- Nick Alexander (USACE),
- 16:40 [Air Barrier](#)- Peter Spafford (AABA)
- 17:00 [Vapor Barrier](#) – William Rose (UIUC)
- 17:20 Q&A

17:30-20:00 **Reception** - The Federal Facilities Council of the National Academy of Sciences and Industry Partners invite for a DER Forum Reception and Networking

## ***Friday, September 16***

### 8:00 – 9:30 **Technical Guide (Cont'd)**

Quality Assurance strategy panel: a DER of a building is a once-in-lifetime opportunity to improve a building's performance to ensure that the building's comfort levels, energy efficiency, and a reliable and efficient energy supply will meet high standards for 40 years and more. To secure that the building performance meets the building owners' expectations, both users and financiers must employ a rigorous QA strategy. The panel group will discuss QA strategies required for a DER based on recent research and experience in the design, implementation, and operation phases of building retrofit: **Alexander Zhivov (ERDC), Paul Johnson (Smith Group), Brian Clark (ERDC)**

### 9:30-10:00 **Coffee Break**

### **Annex 61 Business Guide – Business and Financial models to approach DER in public buildings**

Still many Federal, public, private and commercial building owners hesitate to improve their building stock by investing in technologies that will yield greater energy efficiencies, or by investing in a DER. If one considers energy savings alone, it will appear that DER projects require high investments and yield long payback periods. This perception, in combination with customers' lack of experience with DERs and the lack of performance data from a larger number of DER projects can tend to discourage building owners, ESCOs, and other private investors from considering DER projects as a primary method to improve building energy efficiency. This session expands on the experience of the Investors Day 1 and 2 in Europe in the past 2 years, and features presentations by building owners, ESCOs, financiers, and facilitators, who will discuss approaches to overcome these impediments and to create a DER-friendly business and financial model.

10:00-13:00 **DER Business Guideline (Moderated by Rüdiger Lohse, KEA)**

The first part of the Annex 61 Business Guide addresses different business and financial approaches. The Guide highlights the legal aspects of the approaches that aim to bundle EPC projects, and describes the business models that are in use in the U.S. Federal Sector to implement DER projects. This section takes the perspective of the investors, and presents the way experienced investors calculate and prepare their decision making criteria.

- 10:00 [Introduction](#) – Rüdiger Lohse (KEA, Germany)
- 10:15 [Army Policies to Energy Efficiency in Existing Buildings](#) – HON Katherine Hammack (US Army)
- 10:35 [The future of energy efficiency financing in the U.S. Federal sector](#) – Tim Unruh (DOE, FEMP)
- 10:50 [Legal perspectives of EPC business models in the public sector](#) – Margaret Simmons (USACE, HNC)
- 11:05 [Guideline on Business Models for DER](#) – Rüdiger Lohse (KEA, Germany)
- 11:20 [Business models used by GSA](#) – Sharon Conger (GSA)
- 11:35 [Business models - Army Approach](#) – Randy Smidt (U.S. Army)
- 11:50 [Financing Energy Performance Upgrades: Challenges and Opportunities](#) – Ryan Colker (NIBS)
- 12:05 [The SEAF project](#) – Maria Fields (Joule Assets, New York)
- 12:20 Q&A

13:00-14:00 **Lunch**

14:00-15:00 **Business Concept**

When energy savings are considered alone, a DER will often appear to require a significant investment and to provide a long pay- back period even in countries with high energy prices. This session discusses how to improve the cost-effectiveness of DER projects.

- 14:00 [Full Value of DERs](#) - Cara Carmichael (RMI)
- 14:20 [Investing in the energy efficiency of buildings](#)- Scott Foster (Bostonia)
- 14:40 Q&A

15:00 -15:30 **Coffee break**

15:30-16:45 **DER - Existing roadblocks and the way ahead. (Moderated by Tim Unruh)**

**Panel: Natasha Shah (NAESCO)** – ESCO prospective , **Scott Foster (Bostonia)** - financier prospective, **George Lea (USACE HQ)** – technical prospective, **Steve Bonneau (IMCOM HQ)** - user prospective, **Kevin Kampschroer (GSA)** – Real Estate agency prospective; **John Shonder (DOE)** -federal government prospective.

The panel will discuss the following questions with four to five major stakeholders, researchers, agencies, and public building owners:

- Which are the three major obstacles to increase the number and pace of DER in the public sector?
- Which role do you see for private investors to push DER?
- If a DER mostly is not cost effective if only energy savings are considered, what are your three major recommendations and experiences that could improve the cost effectiveness of DER

16:45 **Closing remarks – Alexander Zhivov (ERDC)**