

## Federal Utility Partnership Working Group Meeting

October 16-17, 2012

Hosted by Alabama Power

Mobile, Alabama

### Meeting Record

The Federal Utility Partnership Working Group (FUPWG) is a joint effort between the Federal Energy Management Program (FEMP) and the utility industry to stimulate the exchange of information among participants and foster energy efficiency projects in Federal facilities nationwide.

The FUPWG meeting held in Mobile, AL, on October 16-17 was attended by 179 professionals:

- 55 utility officials
- 39 federal agency representatives
- 10 national laboratory representatives
- 75 representatives from energy-related organizations

The complete meeting participant list can be found in Appendix A and the meeting agenda in Appendix B. The meeting presentations can be found at

[https://www1.eere.energy.gov/femp/financing/uescs\\_fall12\\_agenda.html](https://www1.eere.energy.gov/femp/financing/uescs_fall12_agenda.html).

#### Welcome Remarks from the Host Utility

*Greg Reardon, Alabama Power*

*Bob Chappelle, Mobile Area Chamber of Commerce*

Mr. Reardon welcomed attendees to the FUPWG meeting and thanked his planning team for their assistance. He discussed logistics relating to the meeting before introducing Bob Chappelle from the Mobile Area Chamber of Commerce who provided the group with information on Mobile's history. Mr. Chappelle also talked about some of the sites that attendees could visit if they planned to extend their stay in Mobile.

Mr. Reardon provided background information on Southern Company and the progress the company is making on several energy efficiency initiatives and programs. Southern Company's business philosophy is very customer-centric. Southern Company programs have reduced peak demand by 3600 MW and they plan to invest \$600 million in energy efficiency and demand control over the next ten years. Renewables offered by Southern Company include hydro, solar, biomass, wind, landfill gas and solid waste, and Mr. Reardon shared some information on some of their key projects.

To view Mr. Reardon's presentation, visit

[https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_reardon.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_reardon.pdf).

#### Chairman's Corner

*David McAndrew, Chair of the Federal Utility Partnership Working Group, FEMP,  
U.S. Department of Energy*

David McAndrew, FEMP's Project Lead for UESCs and state energy efficiency incentive programs, welcomed the attendees to the meeting, delivered logistics related announcements, and thanked Greg Reardon and the rest of the Alabama Power team for hosting the meeting. Mr. McAndrew provided an update on some of FEMP's key FY 2012 projects including the CO Guidebook and Web site updates, Advanced UESC Workshop, Strategic Partnership Meetings, and the UESC Virtual Center of Expertise.

The Advanced UESC Workshop will debut on October 18-19, after the FUPWG meeting, and another session is planned for November in Washington, DC. The Virtual Center of Expertise is developed and information on the program is posted on the FEMP Web site. Mr. McAndrew encouraged those who wanted to be included on the expert list to contact Evan Fuka with Energetics.

Future UESC training dates include the following.

#### UESC Workshops

- October 18-20, 2012 in Mobile, AL (Advanced)
- November 1-2 in Washington, DC (Advanced)

#### UESC Webinars

##### *Introduction to UESC*

- October 25, 2012 – 11-12:30 Eastern
- December 11, 2012 – 11-12:30 Eastern

##### *Placing UESC Task Order with the GSA Areawide*

- November 28, 2012 – 11-12:30 Eastern
- January 23, 2012 – 11-12:30 Eastern

Mr. McAndrew reminded the group that agency-specific UESC training is available. Agencies should contact Susan Courtney at Energetics ([scourtney@energetics.com](mailto:scourtney@energetics.com)) if interested. The 2013 Spring FUPWG Meeting will be hosted by PG&E in San Francisco in April – dates to be announced.

To view Mr. McAndrew's presentation, visit

[https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_mcandrew.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_mcandrew.pdf).

## **Washington Update**

*Dr. Timothy Unruh, Program Manager, FEMP, U.S. Department of Energy*

Timothy Unruh provided updates on six areas:

- The Federal Buildings Personnel Training Act of 2010
- Commit to Efficiency
- Customer Service
- Other FEMP Services
- Update on Presidential Memo
- OMB M-12-21

The Federal Buildings Personnel Training Act of 2010 requires training of Federal employees to maintain core competency in their ability to operate and maintain Federal facilities. It requires GSA to identify core competencies for Federal personnel in building operation and maintenance, energy management, and safety. Mr. Unruh reviewed the recommended curriculum, which includes several FEMP seminars and courses.

Dr. Unruh discussed the Commit to Efficiency campaign which asks those involved in Federal purchases to commit to buying energy-efficient products. This is an awareness campaign to motivate Federal agencies to buy the most efficient equipment. The Federal Government could save a significant amount of energy each year if the most energy efficient equipment were bought consistently, and FEMP has set a goal to capture 30% of the potential energy savings in the next fiscal year. Federal procurement officials, facility managers, energy managers, architects, technical specifiers, energy auditors, designers, and occupants of Federal buildings are encouraged to register for this important campaign.

FEMP is changing their customer service approach in order to make it a more focused effort. Dr. Unruh discussed the three areas that FEMP is currently focusing on.

- Agency Specific – Pick agency and help them get their scorecard from red to yellow to green. This approach is currently being piloted with the Department of Transportation.
- Project Focus – Project tracking.
- Reform Interagency Working Groups – Ensure that each group has a clear purpose and mandate.

Dr. Unruh provided an update on the following FEMP Services.

- Coordination of agency testing and evaluation
- FEMP awards
- Interagency coordination
- DOE Technology Portal – Provides credible energy savings data for technology categories.
- EISA 432 Guidance – Defines how agencies interact with the EISA 432 Compliance Tracking System (CTS) Database, to go live in 2013.

Dr. Unruh provided an update on the Presidential Memo. He reported that the progress on meeting goals outlined in the memo is on track. Information submitted by the agencies indicates that the goal will be met. He discussed the challenges created by the memo and confirmed that FEMP understands the frustration and continues to work through the issues. He also mentioned that too many agencies still believe that UESCs do not count toward the \$2B goal and confirmed that they do count and have always counted. FEMP has been submitting UESC data to OMB for the past 11 months, and all has been accepted without contention and is being counted toward the goal. Another challenge was there was no blanket statement on scoring for UESCs (as there is for ESPCs in the 1998 Presidential Memo).

Dr. Unruh concluded his presentation by discussing OMB M-12-21, which resolves scoring issues related to UESCs and defines the parameters of purchasing renewable power within an ESPC or UESC. He stressed the fact that there is nothing new in this memo. This guidance covers conditions of using ESPC and UESC authority and extends the budget scoring treatment prescribed in OMB Memo M-98-13 to include UESCs and on-site energy sources in ESPCs, if they meet these four criteria:

- Must be applied to a Federal building (facility)
- Must improve energy efficiency (on-site or source basis)
- Must be life-cycle cost-effective (compared to existing)
- Must involve energy conservation, cogeneration facilities, renewable energy sources, improvements in O&M efficiencies, or retrofit activities

UESCs may be scored (and obligated) annually rather than up front if the UESC requires:

- “energy savings performance assurances or guarantees of savings to be generated by improvements, which must cover the full cost of the Federal investment for the improvements;
- M&V of savings through commissioning and retro-commissioning; and
- competition or an alternatives analysis as part of the selection process....”

The first two criteria above are from FEMP guidance issued in August 2007.

Dr. Unruh also addressed issues relating to power purchase agreements and large-scale generation. In order to qualify for the scoring on an annual basis covered under this memo, ESPC and UESC authority may NOT be used for long-term purchase of off-site new renewable generation or to build merchant-scale power-generating facilities on Federal land. Summaries of all contracts related to power purchase agreements should be submitted to OMB and DOE FEMP in advance of award, per the OMB-CEQ memo of August 16, 2011.

Dr. Unruh discussed FEMP’s role in assisting OMB by providing oversight on compliance and agency progress on the President’s \$2B goal and announced that a FAQ document relating to the Presidential Memo and OMB M-12-21 will be posted on the FEMP Web site, hopefully by late November.

To view Dr. Unruh’s presentation, visit [https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_unruh.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_unruh.pdf).

## **Air Force Real Property Agency Enhanced Use Lease Program**

*Brian Brown, Chief of Strategic Asset Utilization Division, Air Force Real Property Agency*

*Dave Swanson, Contract Program Manager of Strategic Asset Utilization Division, Air Force Real Property Agency*

Mr. Brown provided an overview of the Air Force Real Property Agency Enhanced Use Lease (EUL) Program. An EUL is a lease by the government of non-excess property under the control of the government to a public- or private-sector lessee in exchange for fair market value rental payments in cash and/or in-kind consideration.

The role of the Air Force in the program is to manage lease negotiation and closing. The developer constructs and owns the energy asset, claims all incentives, sells the power and RECs to a third party, and makes lease payments to the Air Force. The role of the utility is dependent on the lease structure.

The goals of the Enhanced Use Lease Program are:

- Efficient allocation of AF assets
- Increase funding at AF bases
- 1GW renewable generation
- \$5B in EULs
- Energy security

Energy EUL market drivers include:

- Increased demand for energy – Utilities across the U.S. expressing need for increased generation to balance load.
- Financial incentives – Strong state and local incentives make an energy EUL attractive.
- Transmission – Proximity to existing transmission lines and capacity may make a parcel ideal for an energy EUL.
- Available acreage – Single AF landlord. Available infrastructure may be leased as is.
- Available resources – Good solar, wind, geothermal, biomass, natural gas, or coal resources.

Current AF EUL projects include:

- Puerto Rico Electric Power Authority: 7-12 MW solar PV project at the Ramey Solar Observatory (Patrick-Ramey) in Puerto Rico.
- El Paso Electric: 20 MW biomass project at Holloman AFB, New Mexico.
- City Public Service Energy: 5-20 MW solar PV project at Joint Base San Antonio, Texas.

AF EUL is currently working with major utilities across the U.S. to evaluate available AF land for future planning.

To view Mr. Brown and Mr. Swanson's presentation, visit

[https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_brown.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_brown.pdf).

## **Agency Update: U.S. Department of Veterans Affairs (VA)**

*Kristan Higgins, Management Analyst, U.S. Department of Veteran Affairs*

*Phyllis Stange, Portfolio Manager, U.S. Department of Veteran Affairs*

Phyllis Stange provided an overview of VA's UESC program. The VA did not have any UESCs or ESPCs for six years, but their UESC program is now very active and growing. VA's commitment to the program, she said, is evident in the fact that many members of their performance contracting staff were attending the meeting in Mobile and planned to attend the Advanced UESC Workshop. In the past VA typically took around 16 months to award a UESC project. Efforts are now being made to streamline the process, the goal being to reduce the time to award to 14 months.

Kristan Higgins discussed the fact that the VA program is Veteran-centric and mission-focused. It is important for companies to demonstrate that they understand the special circumstances involved in doing a project in a hospital.

Ms. Higgins reviewed a slide showing the VA's new streamlined process which outlines the new 16-month timeline for awarding a project. She also shared a chart that outlined the construction and performance-period phases.

UESC plans for FY2013 include projects in VISN 6 (notice of opportunity, or NOO, to be issued in Spring 2013) and VISN (NOO Summer 2013). Proposals have been received for ESPCs in VISN 11, 21, 01, and 18, and there will be an NOO for VISN 18 in Winter 2012. Ms. Higgins then reviewed the VA's roadmap, which outlined the plan for reaching the Presidential Memo goal.

Each VA hospital has an energy engineer who is responsible for preparing a data package for each project, which is published with the NOO. This engineer is also responsible for audits.

All energy projects are centrally managed through a central contracting office, Program Contracting Activity Central (PCAC). All contact regarding projects must go through this office.

To review Ms. Stange's and Ms. Higgins' presentation, visit [https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_higgins.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_higgins.pdf).

### **Designing and Implementing Effective Performance Assurance Plans**

*Ed Anderson, Federal Government Account Executive, Florida Power & Light Company  
Roger Farzaneh, Principal Product Manager, Pacific Gas and Electric Company*

Roger Farzaneh provided some background on PG&E's UESC program, which was started a little over four years ago. They realized that there were no clearly defined or standard UESC performance assurance guidelines, and many of their customers were asking for performance assurance as part of their projects. PG&E determined that they needed to offer performance assurance as part of its UESC Program.

PG&E, in conjunction with its implementation contractors, has developed simplified and customized performance assurance guidelines and strategies. PG&E's performance assurance does not guarantee energy savings; however, its components collectively provide assurances that equipment installed will operate as designed. PG&E's simplified performance assurance plan provides most of the benefits of a detailed M&V plan (typically tied to a performance guarantee), but is typically carried out for one to three years instead of the entire performance period, as in ESPCs, and so costs significantly less than M&V in ESPCs.

PG&E's performance assurance program includes the following:

- Commissioning is performed for each energy conservation measure (ECM) after its installation is complete to ensure that the installed equipment performs as intended and described in the IGA and design.
- Simplified measurement and verification (M&V) to show that measures are working correctly at project acceptance. Generally the contractors prepare and present an annual M&V report to the customer.
- If the customer believes the system is not functioning on an optimal level, they can participate in PG&E's retro-commissioning program to identify and correct deficiencies. The program provides incentives to the customer if the deficiencies are corrected.
- PG&E, in its Energy Efficiency Program, is required to provide data on 5 years of energy savings for projects that receive incentives. All projects are subject to audits by the California Regulatory Commission. If the energy savings are not realized, PG&E may be subject to penalties.

Ed Anderson began his presentation with some background information on FP&L. FP&L is part of the NextEra energy family, is the third largest investor-owned utility, and has completed more than 50 UESC projects since 1995.

Mr. Anderson said that there is a lot of confusion about what performance assurance is. Performance-based contracts are different because they are specification-based.

FP&L's program has six Performance Assurance processes, listed below but not in any particular order:

- Start-up performance verification (based on measured data)
- Performance verification at the end of the warranty period (based on measured data)
- Operations and maintenance training
- Provision of continued training throughout the contract period as specified in the contract as determined by the needs of the facility
- Periodic inspections and verification of appropriate O&M performance
- Performance discrepancy resolution

A commissioning team must be part of the pre-installation process. The FP&L commissioning team is under the Engineering and Development staff.

Mr. Anderson then discussed FP&L's two-step commissioning process:

- Step 1 – Pre-functional – validate equipment installation
- Step 2 – Functional – verify equipment performance

FP&L's recommissioning process has three steps:

- Step 1 – Verify equipment performance
- Step 2 – Verify operating parameters
- Step 3 – Identify/investigate performance variations

Mr. Anderson concluded his presentation with some recommendations:

- Always understand customer expectations or requirements in detail and up front.
- Get the Commissioning Team involved early.
- Maintain continuous communication.
- Deliver formal documents and hold review meetings.

To review Mr. Farzaneh's presentation, visit

[https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_anderson.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_anderson.pdf).

To review Mr. Anderson's presentation, visit

[https://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_anderson.pdf](https://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_anderson.pdf).

### **Alabama Power – UESC Activities – Fort Rucker Heat Recovery Project**

*Randy Wynn, Alabama Power*

Mr. Wynn briefly reviewed five UESC projects carried out by Alabama Power, and then discussed heat recovery as a winning energy efficiency strategy. In a Fort Rucker UESC project, for instance, fuel oil boilers that produced hot water to heat hangars and associated buildings were replaced by a "Piggyback" heat pump-boiler system consisting of a 50-Ton air-source heat pump water heater and a 240-kW electric boiler. The heat pump will provide hot water for space heating when the ambient temperature is above 40°F (about 90% of the time); below that temperature the boiler will take over. The simple payback on these systems is always below five years, and 20-year histories show that they require very little maintenance.

Mr. Wynn discussed how the industry is using heat recovery to lower GHG emissions and deliver greater efficiency, installing systems that deliver paybacks of two years or less. They started by considering the compression cycle, and for the heating side, looking for the kind of paybacks that are acceptable to

industry – 18 months to 2 years. Alabama Power is in this way trying to help customers drive down cost and also meet return-on-investment requirements, Mr. Wynn said.

Using heat recovery to lower GHG emissions and deliver greater efficiency involves using the refrigeration cycle like a heat pump, producing hot or cold air. When cooling, these systems reject heat – good Btu's that you've paid to produce – that can be applied to producing hot water. Mr. Wynn's analysis shows that the cheapest way possible to produce hot water is with a heat pump. With a credit for cooling, and heat recovery, systems can have a COP (for cooling + heating) of 6.7, yielding a cost as low as \$0.31/kw (assuming \$0.7/kWh). This type of ROI can also be accomplished by adding heat recovery to existing systems, through recovering heat from cooling towers, or installing heat recovery heat pumps, including heat recovery chillers.

Mr. Wynn reviewed a number of projects that had average COPs of 6 to 7 and produced significant reductions in CO<sub>2</sub> emissions. Some projects can pay back in as little as 1.1 years. Mr. Wynn said that Alabama Power looks forward to installing these systems into campus settings with hot water loops. Heat recovery technologies should be the first systems considered to replace failing equipment, he said.

To view Mr. Wynn's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_wynn.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_wynn.pdf).

### **Combined Heat and Power with Your Local Utility**

*C.A. Skip Cofield, Manager of Federal Development, Southern Company*

Mr. Cofield covered the basics of combined heat and power (CHP), which is the simultaneous creation of electricity and heat from a single fuel source (capturing some energy that is usually lost as heat).

The outputs of CHP systems are electricity and thermal energy for space heating (in a steam or hot water loop), space cooling (with absorption chiller), process heating and/or cooling, or dehumidification (with desiccant regeneration). CHP systems can be configured with reciprocating engines, combustion turbines, or steam turbines, using any fuel source.

CHP objectives and drivers include reducing operating costs, increasing efficiency, enhancing energy security, reducing emissions, implementing renewable energy, and meeting various Federal energy goals.

It is important to understand that CHP projects require detailed evaluations of a number of factors, and every application is unique. To be successful, CHP projects must benefit all parties in terms of capital, fuel, and operations; and several environmental rules and regulations regarding fuel use and emissions controls must be considered.

Southern Company owns more than 700 MW of CHP, developed over the last 45 years, and the utility has developed more than 15 customer-owned CHP facilities in the last 5 years. Utility partnerships to develop CHP include the potential to produce electricity for the grid.

Mr. Cofield said that the “take-aways” from his presentation are the following: CHP (co-generation) projects are extremely complex; there is no one-size-fits-all system or project. However, utilities have developed a core competency in CHP and have been doing CHP projects for well over 50 years. Southern Company is willing and able to evaluate their customers' potential CHP projects (and most other utilities are, too).

Southern Company has established its Federal Energy Initiative to facilitate coordination and partnerships to help Federal agencies meet their energy goals and related mandates, focusing on helping Federal customers evaluate opportunities and potential projects.

To view Mr. Cofield's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_cofield.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_cofield.pdf).

## Top ECMs for Labs and Data Centers

*Otto Van Geet, National Renewable Energy Laboratory*

Mr. Van Geet introduced his presentation by stating that laboratories and data centers present big opportunities to save energy because they use a lot of energy.

### Laboratories

Although most Federal agencies have laboratories, they are underrepresented in UESCs. As documented in the Labs21 Benchmarking Database, labs are “energy hogs,” using 6–8 times as much energy as office buildings. Labs21 focuses on energy use in labs, and their Web site offers many resources, such as a design guide, case studies, energy benchmarking, best practice guides, technical bulletins, and others, at <http://www.labs21century.gov/>.

Mr. Van Geet named “six big hits” for cutting energy use in labs:

1. Scrutinize the air change rates (ACR) and optimize ventilation rates. Most labs are over-ventilated, and ventilation effectiveness is more dependent on lab and HVAC design than ACR.
2. Compare exhaust device options. High-performance hoods have better aerodynamics that allow the use of lower-flow hoods. Do not use auxiliary air hoods and canopy hoods.
3. Loads: Up to one-half of energy used for HVAC in labs goes to fans. Right-size these systems and drop the pressure drop.
4. Get real with plug loads. Measure actual loads in similar labs, and design for part-load efficiency. Significant over-sizing is not unusual.
5. Reheat (simultaneous heating and cooling of ventilation air) is a major energy usage in labs. High-load areas require a lower supply air temperature, requiring reheating in other spaces. System alternatives for minimizing reheating include ventilation air with zone coils, fan coils, radiant cooling, or inductive cooling coils (chilled beam). A best practice guide is available on the Labs 21 Web site.
6. Use energy recovery in most climates. Energy recovery economics tend to be best in colder climates, or with high exhaust rates or high utility rates.

### Data Centers

All agencies have data centers, and their intensive energy use is becoming a controversial topic.

Mr. Van Geet explained that most data centers provide cooling in excess of ASHRAE thermal guidelines, and that maintaining environmental conditions in the ASHRAE-recommended/allowable range in many cases yields cooling energy savings of 95-98%.

Typically more air is circulated in data centers than necessary, so improving air management is a good strategy for saving energy. Isolating hot and cold aisles can cut energy use by decreasing the mixing of intake and exhaust air and thereby promoting efficiency. Simply putting curtains between hot and cold areas can yield significant savings.

Changing from air to liquid cooling in data centers is a paradigm shift that will happen pretty quickly, Mr. Van Geet said. Liquid removes much more heat than air, and removing heat directly to a liquid allows more computing power to fit in a rack and provides better potential to use the heat coming off racks for other purposes (e.g., to heat your building).

Among the new strategies on the market are in-row cooling (blowing cold air close to racks), and rear-door liquid cooling (running liquid through back of rack). Also, direct cooling of chips in server components can be accomplished through retrofitting standard air-cooled heat sinks. The future of cooling is heralded by RackCDU™ products, which bring liquid coolant directly to the hottest



components. “Chill-off 2,” a demonstration of cooling solutions for rack-mounted computer equipment, documented the performance of several new cooling technologies.

Mr. Van Geet’s takeaways on data center cooling are the following.

- Use a central plant, e.g. chiller/computer room air handler (CRAH) vs. computer room air conditioner (CRAC) units.
- Use centralized controls on CRAC/CRAH units to prevent simultaneous humidifying and dehumidifying.
- Move to liquid cooling (room, row, rack, chip).
- Consider variable-speed drives on fans, pumps, chillers, and towers.
- Use air- or water-side economizers.
- Expand humidity range and improve humidity control (or disconnect).

Mr. Van Geet reviewed an example of retrofits and energy savings at data centers. Van Geet and an NREL team spent a week at the data center at NASA’s Stennis Space Center. The team identified 15 energy conservation measures (ECMs) which improved the data center’s PUE to about 2. (PUE, or Power Utilization Efficiency, is a metric used for measuring the efficiency of powering data centers. PUE is the ratio of total energy to IT energy. State-of-the-art data centers have PUEs of around 1.1.) The identified ECMs, including a PV system, had a total cost of about \$10 million and a simple payback of 6.3 years. Without the PV system, the cost was about \$3 million and the simple payback about 2.2 years.

To view Mr. Van Geet’s presentation, visit

[http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_vangeet.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_vangeet.pdf).

### **Meeting Energy Security Requirements — An Opportunity to increase the Scope of Federal–Utility Partnerships**

*Larry Markel, Principal, SRA International*

Mr. Markel introduced the theme of his presentation: Meeting energy security requirements in Federal facilities provides opportunities for additional types of cooperation between utilities and agencies. However, constraints on utilities and on Federal agencies, as well as sometimes-competing objectives, are significant barriers to pursuing these opportunities.

Mr. Markel presented a comprehensive definition of energy security encompassing sufficiency, surety, and sustainability, and requirements for energy security in Federal facilities. He said that energy security should not be regarded as if in a vacuum, but should be planned for as a part of situational security, and integrated with physical security, cyber security, intrusion detection, and other security measures. Silo’ed scopes are not efficient, he said.

Defining a concept of operations (CONOPS) for three levels is useful in setting security objectives: (1) Red: Extended outage or widespread threat (natural disaster or attack); (2) Yellow: Grid is “shaky,” possible short duration outages or load shedding; and (3) Green: Normal operations. Meeting Federal energy and sustainability requirements (the space in which most UESCs operate).

Energy security technologies being introduced at Federal sites include renewables, microgrid, energy storage, and advanced controls and sensors. “Net zero” is not an energy security strategy in itself.

Agency efforts toward energy security offer opportunities for increased cooperation with utilities. Mr. Markel elaborated on opportunities in the areas of load relief, reserve support, reactive power management, dispatch of energy storage to buffer variability of as-available energy sources, improving the utility’s situational awareness, and participation of facilities or energy service providers in energy and ancillary service markets.

Challenges discussed by Mr. Markel include designing and addressing CONOPS, tariff alignment (earning value for legitimate value propositions); contracting/Federal Acquisition Regulations (FAR) and franchise issues; and technical issues, such as mitigating cyber security threats introduced by communications, and engineering and specifying standards for emerging microgrids and smart grids to ideally allow microgrids to control the network for better reliability when physical or communication systems are damaged.

To view Mr. Markel's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_markel.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_markel.pdf).

### **Smart Grid Overview**

*Ben Kroposki, Director, Energy Systems Integration, National Renewable Energy Laboratory*

The "smart grid," Dr. Kroposki explained, is the electricity production and delivery system along with consumption integrated with communications and information technology. The smart grid is an automated, widely distributed energy delivery network characterized by a two-way flow of electricity and information, capable of monitoring and responding to changes in everything from power plants to customer preferences to individual appliances.

DOE is looking at the chance, through its roadmapping and standards work, to integrate how the grid works from end to end. The smart grid would involve much more communication and information than the present grid, and this folds back into how utilities work and how business structures will integrate the smart grid.

The National Institute of Standards and Technology is charged by Congress with designing a framework or roadmap for the smart grid in the United States, which requires investigating how all its parts will work together. The integration of communication, information, transmission, distribution, end uses, and distributed energy will fold back into how utilities work. How business structures will integrate this is another question. The vision is of a smart grid that integrates all its elements seamlessly for interoperability, security, and reliability.

Smart Grid R&D at NREL includes coordination of organizations developing (1) Smart Grid Interoperability Standards (IEEE 2030), which is being developed to assure the interoperability of all parts of a smart grid: power, IT, and communication, and both conveyance of information into the grid and from the grid; and (2) Interconnection Standards (to replace IEEE 1547). Since this standard was put in place, there has been an explosion in distributed generation.

NREL is also researching the integration of a high penetration of renewables and distributed generation into the grid; the potential of using the grid to control distributed energy systems; and control, testing, and evaluation of dispatchable generation, loads, and energy storage; along with developing conformance test protocols for smart grid technology. NREL also conducts analyses of smart grid demonstration projects.

Smartgrid.gov is a resource for information about the smart grid and government-sponsored smart grid projects.

To view Dr. Kroposki's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_kroposki.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_kroposki.pdf).

### **NREL Energy Systems Integration Facility**

*Ben Kroposki, Director, Energy Systems Integration, National Renewable Energy Laboratory*

Dr. Kroposki described NREL's new Energy Systems Integration Facility (ESIF), which is designed to reduce investment risk and integrate and optimize the design and performance of electrical, thermal, and

fuel pathways of future energy systems at all scales. ESIF is a unique national asset for energy systems integration R&D, testing, and analysis. Research at ESIF will address the following:

- Increasing penetration of variable renewable energy in grid
- Increasing ultra-high-energy-efficiency buildings and controllable loads
- New data, information, communications, and controls
- Electrification of transportation and alternative fuels
- Integrating energy storage (stationary and mobile) and thermal storage
- Interactions between electricity, thermal energy, fuels, and data pathways
- Increasing system flexibility and intelligence

ESIF's system integration capabilities encompass full systems interface evaluation for integration of electricity, fuels, thermal, storage, and end-use technologies.

ESIF was undergoing commissioning in November, and the facility will be fully occupied in January 2013, and will be fully operational in 2014. DOE programs represented in ESIF will include Solar, Wind, Fuel Cell Technologies, Buildings, Vehicles, Office of Electricity, and Scientific Computing.

The energy use target (site EUI) for the office area of ESIF is 26.7 kBtu/sf/yr, while the U.S. average is 90 kBtu/sf/yr. ESIF's High Performance Computing Data Center will be the world's most energy efficient data center, with a PUE of 1.06. ESIF's unique advanced capabilities include the following.

- Petascale HPC and data management system in showcase energy efficient data center
- Virtual utility operations center and visualization rooms to understand impact of high-penetration variable renewables, electric vehicle, and energy efficiency deployments
- Interconnectivity to external field sites for data feeds and model validation
- Multiple parallel research electrical distribution busses (REDB) at MW power level with grid and load simulation
- Flexible interconnection points for electricity, thermal, and fuels to multiple labs
- Medium voltage (15 kV) microgrid test bed
- Extensive selection of existing distributed energy systems and high-power PV and wind simulation

Dr. Kroposki said ESIF is a "flight simulator" for energy systems operators, connecting integration studies to operations. The facility will develop operations techniques for resource forecast integration, high storage/distributed resource penetrations, and other operations.

More information is available at [www.nrel.gov/esi](http://www.nrel.gov/esi).

David McAndrew added that ESIF is a DOE National User Facility, which means that it will be available to industry and others for conducting their own research and simulations.

To view Dr. Kroposki's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_kroposki\\_esif.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_kroposki_esif.pdf).

### **FEMP Exterior Solid-State Lighting (SSL) Technology Pilot**

*Jeff McCullough, Pacific Northwest National Laboratory*

Mr. McCullough introduced his topic by stating that solid-state lighting (using light-emitting diodes, or LEDs) is now considered to be a proven technology, and agencies should consider it for their facilities.

Great gains are not expected in other lighting technologies at this point, and the market in this area is in transition, with a tsunami of new products available. SSL is fundamentally different from conventional

technologies, and you cannot and should not do one-for-one retrofits with this technology. Those who implement SSLs will face a learning curve.

Mr. McCullough noted that the values of LED lighting include superior photometrics and color-rendering index, long life, efficiency, controllability, instant on, and dimming capability. Challenges include product cost and availability, uncertainty about manufacturers' claims for new products, color consistency among lamps and over time, and reliability of system components.

To illustrate the possible future of lighting technologies, Mr. McCullough showed a video about a conceptual lighting design of the future called "MOBLI," which is a series of track lights that charge when not in use and then are deployed along their tracks to wherever needed. Using the type of technology already available in a smart phone and responding to wireless commands, lighting systems of the future could integrate adjustments in lighting spectrum or color/temperature to suit the user, take advantage of daylighting, and provide load shedding. The majority of lighting savings in the near future will be in system retrofits, but systems like MOBLI are not that far off, Mr. McCullough said.

How do we decide which technologies should be moving into the mainstream? FEMP conducts a screening process of proven but underutilized technologies, which is documented in the FEMP Technology Deployment Matrix (at [http://www1.eere.energy.gov/femp/technologies/newtechnologies\\_workgroup.html](http://www1.eere.energy.gov/femp/technologies/newtechnologies_workgroup.html)). This is a mechanism for deciding which technologies should go forward. Evaluators score the technologies objectively based on three weighting factors: Federal impact, cost-effectiveness, and probability of success. The output of this process is a ranked list of 50, and SSL is no. 9 on that list. FEMP is moving forward in FY13 with an initiative to mainstream interior SSL, which is currently ranked at no. 13.

There are challenges in moving technologies into the mainstream in the Federal sector, and the initiative starts with the challenges at the policy level. Each branch of each agency has its own needs and sets its own policies, and those policies are often carried out inconsistently at regional or local levels.

Last summer the initiative team characterized the size of the Federal lighting market. The vast majority of exterior lighting is roadway, area, and parking lighting. Across the Federal sector today, only about 3% is SSL. Mr. McCullough showed a breakdown of the number of outdoor fixtures and projected savings from installing SSL per agency, based on today's dollars and appropriate life-cycle costing. David McAndrew noted that it is interesting that the Dept. of Interior has an estimated 1.5 million outdoor fixtures, an order of magnitude more than most other agencies, though its overall energy use is much lower than most other agencies.

Starting on out on policy level, the initiative is collaborating with the Army, which has a policy that requires the agency to install highly efficient lighting where cost-effective. The initiative is helping Army develop an SSL policy and implementation plan, including dissemination of the policy along with outreach, education, qualified products lists, and performance specifications, in support of widespread installation of the technology. Mr. McCullough announced that Air Force has become that first agency to have a policy promoting exterior SSL.

Mr. McCullough noted that Federal agencies are required to buy energy efficient products, meaning Energy Star or FEMP-designated products. FEMP has now specified efficiency requirements for six categories for exterior lighting, representing 97% of all exterior lighting in Federal sector. These specifications are not unrealistically high compared to the capabilities of the technology, and in fact there is some call for raising the numbers.

In another DOE effort toward increasing lighting efficiency, *Lighting Facts* labels are now showing up on all lighting products. The labels show output, efficiency, and color accuracy, as well as a visual scale for color temperature. DOE's Lighting Facts Web site supports this effort and offers a data base of approved products. Lighting Facts ([www.lightingfacts.com](http://www.lightingfacts.com)) is a truth in reporting site, which means that it includes manufacturers' testing data. Users can search by light output and other factors for all fixture types. The

big news is that FEMP will be using this Web site to support the initiative by connecting it to the initiative's Web portal and pre-applying FEMP-designated standards to searches.

SSL demonstration projects have been underway for 3-4-5 years, so we're past that point by now, Mr. McCullough said. Demonstrations have shown that well-designed systems can easily save up to 50%, as well as the feasibility of adding features such as sophisticated controls and routing applications and optimizing according to user patterns. Demonstrations have also shown that the white light produced by SSLs gives much better color rendering and better acuity with lower lighting levels than other lighting technologies.

Mr. McCullough noted that resources on this subject are available at several Web sites:

- "FEMP-designated" Covered Products , [www1.eere.energy.gov/femp/technologies](http://www1.eere.energy.gov/femp/technologies)
- LED Lighting Facts®, [www.lightingfacts.com](http://www.lightingfacts.com)
- DesignLights™ Consortium, [www.designlights.org](http://www.designlights.org)
- DOE SSL Program, [www.ssl.energy.gov](http://www.ssl.energy.gov)
- Commercial Building Energy Alliance (CBEA), [www1.eere.energy.gov/buildings/alliances/](http://www1.eere.energy.gov/buildings/alliances/)

DOE has a robust SSL program, including fertile cross-pollination between Building Technology partners such as private-sector companies in the Commercial Building Energy Alliance (CEBA). These partners are sharing information and collaborating in their efforts to develop specifications for products for use in their own facilities.

LEDs/SSLs are making inroads into the market much earlier than expected, with LED products already available to match linear fluorescent applications. Specifications have been developed for the entire troffer family as well as for parking structures, including illuminance requirements and controls.

These specifications require initial minimum light output to be higher for SSLs than for fluorescents because of the long-term degradation of light output for SSLs. Interior application of SSLs is still a challenge, and unfortunately there is no standardization for specifying lighting designs considering the gradual decline in light output. There is movement afoot to make the needed projections or at least ask the right questions of manufacturers.

FEMP is expanding the program to include interior applications, and is continuing its efforts to engage additional agencies and departments. Mr. McCullough encourages people to get in touch if they have an interest in help with promulgating policies or supporting instructional documents. FEMP can also offer some level of technical assistance. FEMP is also modifying a cost-effectiveness tool developed by DOE's Municipal Solid-State Street Lighting Consortium (the tool is available at [www1.eere.energy.gov/buildings/ssl/consortium.html](http://www1.eere.energy.gov/buildings/ssl/consortium.html)). Most SSL projects pay back in the range of 6 – 9 years.

The FEMP contact for the FEMP Exterior SSL Initiative is Shawn Herrera, [shawn.herrera@ee.doe.gov](mailto:shawn.herrera@ee.doe.gov), 202-586-1511, and for FEMP-designated products, Amanda Sahl, [amanda.sahl@ee.doe.gov](mailto:amanda.sahl@ee.doe.gov), 202-586-1662. Mr. McCullough's e-mail address is [jeff.mccullough@pnnl.gov](mailto:jeff.mccullough@pnnl.gov) and his phone number is 509-375-1562.

In response to questions from the audience, Mr. McCullough noted that for successful use of SSLs, location and application must be carefully considered. For example, SSLs are not currently being used to replace incandescent runway lighting, because SSL luminaires don't get as hot as incandescents so there are concerns about having to add heaters to keep them clear of snow and ice. However, the technology is getting much more thermally robust, so these issues are starting to be addressed, and temperature issues are being diminished as we go forward.

To view Mr. McCullough's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_mccullough.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_mccullough.pdf).

## **ENERGY LAWYERS AND CONTRACTING OFFICERS WORKING GROUP**

*Facilitators: Linda Collins, GSA, and Julia Kelley, Oak Ridge National Laboratory*

### **UESC Contracting Officers Issues Roundup**

*Alice Oberhausen, FEMP Utility Team*

Ms. Oberhausen's presentation addressed questions that continue to be asked by contracting officers (COs) and others about UESCs. Ms. Oberhausen said she believes that one of the reasons that questions about the details of the acquisition process persist, even with the legislated authorization for agencies to enter into contracts with utility companies, is that there is no Federal Acquisition Regulation (FAR) part that outlines processes, procedures, and pertinent clauses applicable to this kind of contract. Part 41 contains overarching procedures for acquisition of utility services, but not detailed guidance for the CO's acquisition of energy management services. FEMP has done a great job of developing comprehensive enabling documents to assist COs in answering questions and finding solutions, however, the opinions of acquisitions and legal professionals sometimes differ with regard to specific agency processes. FEMP is committed to working with agencies, understanding their internal processes, and helping them as they work through the UESC process, Ms. Oberhausen said.

The GSA Areawide Contract (AWC) includes energy management services so that COs can use this streamlined vehicle to place UESCs with their regulated utility companies, but the AWCs stop short of providing the details in the process that concern the CO. Also, the level of detail in available training sometimes does not address the detailed concerns of COs.

One question is how agencies can accept rebates. Does a check from the utility have to be issued to the U.S. Treasury, thereby eliminating the installation's ability to use the money? Can the rebate be taken at the time of the TO award?

The original EPACT legislation and the DPPM memo allow agencies to accept rebates; there is also separate legislation applicable to DOD and GSA. There are differing opinions about whether the agency can keep 100% of the rebate or whether 50% must go to the Treasury.

Linda Collins, GSA, commented that the real issue is where to put rebate funds. Most agencies know that they can accept rebates, but have questions about how to retain the funds without letting them be absorbed into general agency funds. GSA worked with their financial office to establish a system whereby rebates go into a specific funding stream and are applied to later energy projects in the region. These funds are tracked regionally and managed at the HQ level. Other agencies could also set up this kind of funding stream to protect rebate funds.

David McAndrew commented that he has come across a DOE legal opinion from the 1980s saying that, for all agencies, rebates are not savings, but instead are refunds of money already paid to the utility. Mr. McAndrew also advised agencies to talk with their utilities about rebates. Many will allow the customer to apply the rebate to the project to lower capital cost (and also interest cost in financed projects), and this has been done in many projects. He points out, however, that rebates are the customer's responsibility, and agencies should not depend on contractors to handle this area. Another good option is to have the rebate applied as a credit to the utility bill. A participant in the forum commented that in this case, however, this could cause the next year's funding to be reduced. Another participant pointed out the risks in assigning rebates directly to the contractor.

Ms. Oberhausen said that she favors applying rebate funds to the project to lower capital costs and financing costs, but that COs need to work with their agencies to solve this issue.

The next question was: What is the Government position on requiring the utility to perform work for the removal of hazardous materials (asbestos/lead paint) when encountered in performance of the UESC?

Ms. Oberhausen said that the GSA AWCs exclude this kind of work, as it is not an energy management service. Similarly, straight construction contracts often exclude hazardous materials work and specify that

if hazardous materials are discovered, the government will have another contractor do the remediation work.

Ms. Oberhausen said that she does not think that costs for hazardous materials work for unforeseen conditions can be factored into the total cost of the project, simply because it is unforeseen. She said she saw no reason to assign a contingency number for work that may not be needed.

Next question: Should the Service Contract Act apply to the post-award requirement to provide performance assurance analysis and reports?

In this area there are two opinions: (1) that the Service Contract Act does apply to post-award services; and (2) that the act does not apply.

Next question: Why is a Justification for Other Than Full and Open Competition (J&A) required when legislation authorizes the direct award to a serving utility?

In many instances there is more than one utility company, so a limited form of competition (regarded as market research by many) is necessary to determine which one the agency will work with. In similar situations, where there is similar statutory authority, COs do not use a J&A. However, the UESC authority does not directly address competition, so a J&A is often used by COs to document their procurement process, and also because, as Mr. McAndrew points out, this is “other than full and open competition,” even if there is only one source.

To view Ms. Oberhausen’s presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_oberhausen.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_oberhausen.pdf).

### **Utility Interconnection Agreements**

*Renee Jewell, U.S. Forest Service; Dan Tunnicliff, So Cal Edison; and Richard Butterworth, General Services Administration (GSA)*

#### Renee Jewell, U.S. Forest Service

Ms. Jewell spoke about her experience in negotiating interconnection agreements for two PV installations installed by the U.S. Forest Service (USFS). These negotiations also involved the National Park Service (NPS) and Dept. of Veterans Affairs (VA), who were also in the process of applying for interconnection.

Ms. Jewell said that after the USFS installations were completed and she applied for interconnection, she was surprised by the terms of the utility’s interconnection agreement and saw several obstacles to signing it. The agreement seemed to violate the Federal Government’s sovereignty, which is established in the U.S. Constitution. Also, Article 6, Clause 2, the supremacy clause, establishes Federal law as the supreme law of land; however, investor-owned utilities are regulated by the state in which they operate, and the interconnection agreement stated that it would be governed by the laws of the State of California, specifically “Rule 21,” whereas FAR 41 governs Federal acquisition of utility services. The supremacy law also makes the Federal government immune from state and local taxation, and the interconnection agreement prescribed tariffs. The utility interconnection agreement also had a 25-year term, whereas the FAR limits agreements with utilities to 10 years.

Another obstacle was the indemnification clauses in the interconnection agreement, because the Federal Government cannot indemnify a utility without an act of Congress. The agreement also required insurance, while the Federal Government is self-insured. The utility suggested putting insurance limits into the agreement, but that couldn’t be accepted either without violating the Anti-Deficiency Act, Ms. Jewell said.

Another complication was the media exposure that occurred when it came to light that USFS and NPS “could not” secure interconnection agreements for their renewable energy resources. Ms. Jewell warned

that if this happens when you're in middle of negotiations, it can be a major distraction. The media attention led to Congressional inquiries, which demanded responses from both the agencies and the utilities.

Ms. Jewell said that she happened to meet Michael Picker, the Senior Advisor to California Governor for Renewable Energy Facilities, at an unrelated event and told him about these problems, and he agreed to host a meeting to discuss it. The meeting, with representatives of California legislators, the utilities, the California Public Utilities Commission (CPUC), and the agencies was held in January. The majority of the participants, Ms. Jewell said, were committed to finding solutions.

After negotiations continued, resolutions were found that allowed signing of the interconnection agreements: GSA negotiated a new Exhibit D in their AWC with the utility. The exhibit is specifically for Federal Government interconnection agreements. USFS and the utility also negotiated deviations to its tariffs for the government only, a 10-year term, modified liability and deleted indemnification and insurance requirements in recognition of the Anti-Deficiency Act, and revision of governing law language that worked for both the Federal and state governments.

Estimated annual production of these renewable energy installations are 473,000 kWh for USFS, 528,000 kWh for NPS, and 2,996,000 kWh for VA.

Ms. Jewell reviewed her lessons learned from this experience: (1) When so many people and organizations are involved in an endeavor like this, it takes time and it is necessary to work as a team and have patience. (2) There is a difference between the wholesale and retail sides of a utility. (3) The contracting vehicle can make a difference. In some cases these issues can be handled within the contract. (4) Renewable energy credits are a consideration. Be sure to understand what you are keeping or giving away. (5) With delays in starting up the installed systems, release of the contractors from their payment and performance bonds was delayed, and therefore some contractors were prevented from taking new jobs. Lengthy negotiations may cost you money.

To view Ms. Jewell's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_jewell.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_jewell.pdf).

#### Dan Tunncliff, Southern California Edison (SCE)

Mr. Tunncliff reiterated that this was a very interesting process, and said that he has spent a lot of time during the last few months presenting on all the changes in Rule 21, which governs the interconnection applications in the State of California. Partly because of this work, SCE has strengthened its relationship with the Governor's office and Michael Picker's office. SCE has developed webinars to educate people about the complexities of this process, which he said he can make available to others.

He said that similar issues are probably being faced by utilities and their customers across the country. As the utilities permit interconnection, they are also obligated to protect the utility grid, maintain stability and reliability standards, and make sure everyone has equal access to the system. In some cases the utility must determine who pays for upgrades to the grid that are necessary because of interconnections, though these cost issues did not come up in the cases discussed in this forum. There are also issues of compliance with the CPUC and the California Independent System Operator (CAISO), which manages the grid.

Mr. Tunncliff said that SCE started working with the NPS on interconnection issues in 2010, worked out agreements and workarounds, and when they thought they were ready to file the deviations, there was a personnel change in NPS counsel's office, and the agreements were taken off the table. He started working with VA in 2011, and VA had started to come to terms on modifications to the agreement. What really helped to motivate everyone and bring things to a successful conclusion was when the agencies began working together.

Mr. Tunncliff pointed out that the terms in California's interconnection agreement were written in 1998. Many agencies had signed the agreement with the indemnification and other terms that USFS and other



agencies found problematic, but it's very good that robust solutions have been found. The involvement of GSA and Richard Butterworth was pivotal in arriving at a practical solution that worked for all.

SCE agreed to file deviations for existing tariffs, allowing the utility to initiate service under the modified agreements upon filing, subject to final disposition by CPUC, and in good faith that CPUC would approve after review. CPUC has not changed any of the terms. All of the facilities are now interconnected except for two very large installations (2 – 3+ MW) that are still under construction.

Though DOD does not fall under GSA, but SCE and DOE have started reviewing their interconnect agreements and considering these deviations.

Mr. Tunncliff thanked GSA for helping SCE work through these issues and thanked Ms. Jewell for sticking to the real issues and persevering with USFS's efforts.

To view Mr. Tunncliff's presentation, visit

[http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_tunncliff.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_tunncliff.pdf).

#### Richard Butterworth, GSA

Mr. Butterworth spoke about the lessons learned from this experience. Speaking for the "feds," he said, we have the attitude that the FAR tells us all we need to know about the world of procurement and utilities. We assume that our Federal laws, Federal procurement regulations, and Federal everything rule the world. However, that's not always the way it is. For example, Federal real estate folks have to deal with state environmental laws, because the states have been given authority to regulate environmental issues.

In the monopolistic utility scheme that we have in the U.S., with state PUCs, we have this scheme of review and authority that is in its essence federal but is delegated to the states, and we enter that world whenever we deal with utilities. The Federal arrangements with utilities, however, are like no others in the Federal realm. We take service from the utilities and they are required to serve us whether there's a written contract or not. To deal with this we feds come up with numerous regulations, forms, policies, and procedures.

Mr. Butterworth stressed that the utilities are not required to give us right to interconnect. Utilities don't report to OMB; they're not on board with EISA. We don't have the absolute right to interconnect. Utilities are not like other companies either. Because of their regulation by public utility commissions, they do not necessarily have the right to change their contracts in ways that feds want.

Mr. Butterworth asks utilities: This is the world you have to deal with when you deal with us – can you make it easier? He points out that utilities could make things easier by passing on what they learn from dealing with complications or making agreements work with others, and not make feds work through the same problems over and over again.

Utilities could accept the fact that feds must comply with the Anti-deficiency Act, and that indemnity and insurance contract issues are difficult for us. Mr. Butterworth suggested that utilities could help by not putting indemnity provisions in contracts if at all possible. Mr. Butterworth asks utilities to please work with their legal teams and help them understand about working with feds.

As feds, Mr. Butterworth said, we need to think things through. For instance, just because a clause says "indemnity" on it, is it really asking us to indemnify? Half of the "indemnity" provisions in one contract Mr. Butterworth reviewed, he said, were things we were already dealing with through indemnity provisions in our contract with the contractor, so in fact we were already flowing that provision in our contract with the contractor to the utility. Utilities can also help by understanding the contract issues that feds deal with and then trying to write their contracts to be as close to a standard government contract as possible.

GAO has looked at the indemnity issue in the past and decided that the Federal Government may enter into a contract that has an indemnity provision if it is with a serving utility and the contract is for service that the government can't get anywhere else – but not if the service can be obtained somewhere else. This does apply to interconnect agreements, Mr. Butterworth said. The litmus test is whether the utility is a required source and whether the service is required to fulfill the government's mission, not optional. In the case of these interconnection agreements, the utility is a required source, and Mr. Butterworth said that the interconnection of the already-built facility does qualify as a required service.

The FAR recognizes that utilities are subject to a PUC's regulation, including the regulation of tariffs. The alternative disputes clause for utilities in the FAR is another recognition that PUCs have legitimate power over utility operations.

40 USC 591 says that Federal agencies may not spend appropriated funds to purchase electricity in a way that is inconsistent with state law, which constitutes another "out." This provision allows COs to sign contracts which any other customer served by the utility to need to sign to secure service.

Mr. Butterworth noted that changing the AWC required that all parties make concessions. GSA will be incorporating "Exhibit D" into all AWCs, plus making changes in the body of AWC that should streamline some things.

To view Mr. Butterworth's presentation, visit [http://www1.eere.energy.gov/femp/pdfs/fupwg\\_fall12\\_butterworth.pdf](http://www1.eere.energy.gov/femp/pdfs/fupwg_fall12_butterworth.pdf).

## Appendix A

### 2012 Fall FUPWG Meeting - Final Attendee List

First Name	Last Name	Company
Christopher	Abbuehl	Constellation
Leonard	Adamson	Cooperative Utility Services, LLC
Steve	Allenby	Allenby Associates, LLC
Ed	Anderson	FPL
William	Astary	Lumenergi
Erica	Atkin	Energetics, Inc.
John	Avina	Abraxas Energy Consulting
David	Base	Chevron
Gene	Beck	FPL
Barbara	Bird	NORESKO
Joe	Bosco	Mississippi Power Company
Sterling	Bowen	PowerSecure Solar
Steven	Boyle	Pepco Energy Services
Melanie	Braddock	U.S. Army Corps of Engineers, Huntsville Center
Charlie	Brewer	McLean Engineering Company, Inc.
Jeffery	Brown	Sandhills Utility Services, LLC
Brian	Brown	US Air Force
Nicole	Bulgarino	Ameresco
Richard	Butterworth	General Services Administration
Maryanne	Campbell	PGW
Samuel	Campisi	Southern Company Services
Lincoln	Capstick	Department of Veterans Affairs (VA)
Toby	Chandler	AGL Resources
Arlan	Chenault	Mississippi Power Company
Raja	chirumamilla	Shakti Consultants, Inc.
Bud	Clark	American Electric Power
Patrick	Clark	McKinstry
Ted	cleberg	Ellsworth AFB
Skip	Cofield	Southern Company
Linda	Collins	General Services Administration
Phillip	Consiglio	Southern California Edison
Steve	Corbett	Lumenergi
Susan	Courtney	Energetics Incorporated
Doug	Culbreth	US DOE FEMP
Gary	Dagenhart	General Dynamics
Keith	Dickerson	Schneider Electric
John	Dierkes	Schneider Electric
Doug	Dixon	Pacific Northwest National Laboratory
Duane	Dobson	Mississippi Power Company
Regina	Durga	Siemens Industry Inc.
David	Dykes	Southern Company/Georgia Power
Lee	Earhart	CoBank
David	Erickson	Gulf Power Company

Josh	Evans	Bostonia Partners
Roger	Farzaneh	PG&E
Gregory	Fike	USAF
Ken	Filip	CoBank
Marilyn	Fine	Noresco
Mike	Fleming	San Diego Gas & Electric
Scott	Foster	Hannon Armstrong
Coy	Fredd	Alabama Power Company
Evan	Fuka	Energetics Incorporated
Steve	Ganzer	SEE Solutions
Karen	Gierhart	Banc of America Public Capital Corp
Chris	Gillis	PG&E
E.J.	Gomes	Elgin AFB
Tim	Gravitt	Southern Company
Ayanna	Green-Garrett	Utility Systems Solutions, Inc.
Bruce	Gross	Dominion Federal Corporation
David	Hagewood	Cummins Power South
GLENN	HAHN	SPIRAX SARCO
Lisa	Harris	US Army Corps of Engineers
Barbara	Hathaway	Cree
Lee	Hays	PG&E
Chad	Henkin	LVI Energy
Bob	Hennessee	US Army Corps of Engineers
Vincent	Heuser	Nolin RECC
Kristan	Higgins	Department of Veterans Affairs
Craig	Higgins	Southern Company
Joe	Holton	Canoochee E.M.C
Darcy	Immerman	AECOM
John	Jackson	Progress Energy
Marilyn Renee	Jewell	U.S. Forest Service
Adeitra	Jimmison	Dept. of Veteran Affairs
Kevin	Johnson	Vectren - ESG
Jay	Johnson	Chevron Energy Solutions Company
Jack	Kavanagh	Utility Systems Solutions, Inc.
Julia	Kelley	Oak Ridge National Laboratory
Andrea	Kincaid	DLA Energy
Sean	Knowles	McLean Engineering Company, Inc.
Pamela	Komer	Dept. of Veteran Affairs
Mark	Krog	Siemens
Benjamin	Kroposki	National Renewable Energy Laboratory
Art	Kwerneland	Xcel Energy
Jon	Lewis	Honeywell
Tracy	Logan	US DOE FEMP
Kazi	Mamun	Eaton Corporation
Lawrence	Markel	SRA International
Leslie	Martin	USAF
Gordon	Maynard	Southern California Gas Company

david	mcandrew	FEMP
Jeff	McCullough	Pacific Northwest National Laboratory
Jack	Menninger	Constellation NewEnergy
Josh	Mersfelder	Hannon Armstrong
Chris	Mills	Energy Systems Group
Nancy	Milner	Baltimore Gas & Electric
Bill	Mooney	Jefferson National Laboratory
Ava	Morgan	Department of Homeland Security
Duncan	Morrison	CCI Alliance of Companies
Patricia	Nardone	Georgia Power
Jeff	Niesz	Pepco Energy Services
Lawrence Michael	Norton	US Army Corps of Engineers, Huntsville Engineering & Support
ALICE	OBERHAUSEN	Alice Oberhausen Consulting, LLC
Cynthia	Obermeyer	DLA Energy
Dave	Olmsteaad	Johnson County REMC
Justin	O'Rourke	Dept. of Veteran Affairs
Ted	O'Shea	ABM Energy
Matthew	Ossi	Chevron Energy Solutions, Inc.
BARBARA	OSTERKAMP	US Army Corps of Engineers
William	Oswald	Gulf Power Company
Roderick	Oxford	US Air Force
JANE	PARKS	AGL Resources Energy Services
Brent	Patera	PG&E
Timothy	Payne	GSA
Dell	Petersen	WBI Energy
Dick	Peterson	PEAK POWER SERVICES
Christopher	Pimentel	H2O Applied Technologies
Scott	Pinckard	Green Campus Partners
Scott	Pogue	Afrisa, LLC
Veronica	Porter	Gulf Power
Joseph	Price	Ameresco
Ray	Prosise	Spirax Sarco
Frank	Pucciano	Sabot 6
Anthony	Raimondo	Southwest Gas
Teri	Rainville-Scott	Baltimore Gas & Electric
Greg	Reardon	Alabama Power Co
Michael	Richardson	Georgia Power Company
Matthew	Ridley	Siemens Industry, Inc.
Matthew	Rush	Chevron Energy Solutions
Andrew	Saleh	Gulf Power
Bill	Sandusky	Pacific Northwest National Laboratory
Joe	Scarcello	Jefferson Science Associates, LLC
Rudd	Schultze	Alabama Power Company
Tim	Schwartz	CTC (Representing SAF/IEN)
Rod	Schwass	Jacobs Engineering
Chandra	Shah	National Renewable Energy Laboratory
Bradford	Sharp	REC Solar

Kevin	Shelley	Johnson County REMc
Stephen	Sherman	Alabama Power Company
David	Shutler	Utility Systems Solutions, Inc.
Matthew	Silvestri	Lane Valente Industries
Linda	Sisk	Northrup Grumman/Tyndall AFB
Randall	Smidt	US Army
Bob	Somers	2rw Consultants, Inc.
Kathryn	Sommerkamp	US Army Corps of Engineers
Michael	Sparks	Alabama Power, A Southern Company
Nicole	Stanbra	AGL ENergy Services
Phyllis	Stange	Department of Veterans Affairs
Bob	Starling	B. Starling & Associates, Inc.
David	Stewart	Alabama Power Company
Jeff	Stott	2rw Consultants, Inc.
Howard	Strand	Climatec BTG
David	Swanson	Ageiss
David	Swanson	Ageiss Inc.
Richard	Tattersall	San Diego Gas & Electric
lisa	teeslink	WBI Energy
Wayne	Thalasinios	NASA
Rusty	Thomas	Alabama Power Company
Karen	Thomas	National Renewable Energy Laboratory
Art	Thompson	Siemens
Oanh	Tran	Washington Gas Light Company
Ming	Truong	NAVFAC Atlantic
Daniel	Tunncliff	Southern California Edison
Dawn	Turner	Abraxas Energy Consulting
Beth	Tweedy	AGEISS Inc.
Tim	Van Horn	Powersmiths
Otto	VanGeet	National Renewable Energy Laboratory
Christine	Wade	Cherry, Bekaert & Holland, LLP
Adrienne	Weber	SRA International
Susan	Weber	Department of Energy
Paul	Wenner	Energy Systems Group
francis	wheeler	Water Savers, LLC
Chris	Wheeler	Powersmiths International Corp
Anthony	Wilson	Dept. of Veteran Affairs
Billy	Wise	Eaton Corp
Randy	Wynn	Alabama Power Company
Dean	Yobs	Consultant
Patricia Gardner	Young	NRG Energy
Steve	Zip	Energy Systems Group







Center

# Federal Utility Partnership Working Group Meeting

## October 16-17, 2012

### Mobile, AL



Hosted by: Alabama Power



### Monday, October 15

7pm	<b>Networking Dinner – Felix’s Fish Camp</b> (1530 Battleship Parkway)
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### Tuesday, October 16

7:45 am	<b>Registration and Continental Breakfast</b>
8:30 am	<b>Welcome</b> – Greg Reardon, Alabama Power and Bob Chappelle, Mobile Area Chamber of Commerce
8:45 am	<b>Chairman’s Corner</b> – David McAndrew, DOE FEMP
9:00 am	<b>Washington Update</b> – Tim Unruh, DOE FEMP Program Manager
9:30 am	<b>Air Force Real Property Agency Enhanced Use Lease Program</b> <ul style="list-style-type: none"> <li>▪ Brian Brown, Air Force Real Property Agency Strategic Asset Utilization</li> <li>▪ Dave Swanson, Air Force Real Property Agency Strategic Asset Utilization</li> </ul>
10:00 am	<b>Networking Break</b>
10:30 am	<b>Agency Update: U.S. Department of Veterans Affairs</b> <ul style="list-style-type: none"> <li>▪ Kristan Higgins, VA</li> <li>▪ Phyllis Stange, VA</li> </ul>
11:15 am	<b>Designing and Implementing Effective Performance Assurance Plans</b> <ul style="list-style-type: none"> <li>▪ Ed Anderson, Florida Power &amp; Light Company</li> <li>▪ Roger Farzaneh, Pacific Gas and Electric Company</li> <li>▪ David McAndrew, DOE FEMP</li> </ul>
Noon	<b>Lunch with Keynote Presentation on Electric Transportation</b> – Cedric Daniels, Alabama Power
1:15 pm	<b>UESC Case Study: Fort Rucker Heat Recovery Project</b> - Randy Wynn, Alabama Power
2:00 pm	<b>Combined Heat and Power with Your Local Utility</b> – Skip Cofield, Southern Company
2:45 pm	<b>Networking Break</b>
3:15 pm	<b>Top ECMs for Labs and Data Centers</b> – Otto VanGeet, National Renewable Energy Laboratory
4:20 pm	<b>Wrap – up</b> – David McAndrew, DOE FEMP
6:30 – 8:30pm	<b>Networking Event at Battle House Renaissance Mobile Hotel</b>

### Wednesday, October 17

7:45 am	<b>Continental Breakfast</b>
8:30 am	<b>Welcome</b> – David McAndrew, DOE FEMP
8:35 am	<b>Meeting Energy Security Requirements – An Opportunity to Increase the Scope of Federal/Utility Partnerships</b> – Larry Markel, SRA
9:30 am	<b>Smart Grid</b> - Ben Kroposki, National Renewable Energy Laboratory
10:15 am	<b>Networking Break</b>

10:45 am	<b>NREL Energy Systems Integration Facility, ESIF</b> – Ben Kroposki, National Renewable Energy Laboratory
11:30 am	<b>FEMP Exterior Solid-State Lighting Technology Pilot</b> – Jeff McCullough, Pacific Northwest National Laboratory
12:15 pm	<b>Evaluations and Wrap-up</b> – David McAndrew, FEMP
12:20 pm	<b>Lunch On Your Own</b>

**Special Session: Wednesday, October 17**  
**Energy Lawyers and Contracting Officers Working Group**  
Facilitators: Linda Collins, GSA and Julia Kelley, ORNL

1:00 pm	<b>Announcements and Introductions</b> - Linda Collins (GSA) and Julia Kelley (ORNL), FEMP Utility Team
1:05 – 1:30pm	<b>UESC Contracting Officer Issues Round Up</b> – Alice Oberhausen, FEMP Utility Team
1:30 - 2:30pm	<b>Utility Interconnection Agreements</b> <ul style="list-style-type: none"> <li>▪ Renee Jewell, U.S. Forest Service</li> <li>▪ Dan Tunnicliff, So Cal Edison</li> <li>▪ Richard Butterworth, General Services Administration</li> </ul>
2:30 pm	<b>Adjourn</b>

**Thursday, October 18**

8:30 am – 5pm	<b>UESC Advanced Workshop</b>
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**Friday, October 19**

8:30 am – 2pm	<b>UESC Advanced Workshop</b>
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**2013 SPRING FUPWG**

April 2013 (dates tbd)  
San Francisco, CA

Hosted by:



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**Federal Utility Partnership Working Group**  
**Code of Conduct**

All delegates are required to honor the Federal Utility Partnership Working Group guidelines developed by the Working Group Steering Committee. Hospitality/social functions (on and off site) are strictly prohibited from conflicting with the timing of official Working Group activities listed in the "Schedule of Events". Aggressive sales techniques are to be avoided while attending Working Group meetings. Signs and flyers may not be displayed or distributed in the meeting or guestroom areas of the hotel reserved for Working Group participants.