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U.S. DEPARTMENT OF ENERGY

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830

2010 Northwest Federal Market Assessment Report

T Scanlon
WF Sandusky

September 2011

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Pacific Northwest National Laboratory
Richland, Washington 99352

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[a] Economic Valuation Consulting

Executive Summary

The primary objectives of this Federal Energy Management program (FEMP)-sponsored market assessment are to estimate energy efficiency market potential, identify barriers and opportunities to accelerate energy efficiency and renewable energy projects at Federal sites in the Northwest, and provide recommendations to FEMP. For the purposes of this assessment, the Northwest is considered the area within the boundaries of the states of Oregon, Washington, Idaho, and Montana.

Background

For over 30 years, energy efficiency has been congressionally mandated as the highest priority resource to meet the region's load growth. The region's utilities and energy service providers have historically been able to consistently achieve very aggressive energy efficiency targets. Many Federal sites in the region have participated in these energy efficiency initiatives. As a result, the region may serve as a potential model for accelerating energy efficiency at other Federal sites across the country.

Assessment Methods and General Approach

The primary intent of this market assessment is to provide insights on the effectiveness of current energy efficiency and renewable energy program offerings available to Federal sites in the region. The level of detail, quality and currency of the data used in this market assessment varies significantly by Federal agency and energy efficiency service provider. Limited access to some Federal sites, limited availability of key points of contact, time/resource constraints, and other considerations limited the total number of Federal agencies and energy efficiency service providers participating in the survey.

Rather than a "one-size fits-all" approach, the market assessment relied on a customized approach tailored to the unique circumstances of the individual participating agencies and service providers. A regionally representative subset (11 Federal agency sites and 8 service providers) were interviewed.

The assessment relied on primarily “off-the-shelf” information on energy use, energy savings, and opportunities for further efficiency improvements from the selected Federal agencies and service providers.

Regional Overview of Federal Sites and Service Providers

Federal agency sites in the region are a diverse mix; characterized by a limited number of relatively large and energy-intensive Federal sites, and a large number of mostly small, geographically dispersed facilities stretched across multiple public and investor-owned utility service areas. Nearly all of the largest and most energy-intensive sites in the region are located in Washington State. Most of this Federal load is concentrated in the Puget Sound area, and the larger Federal sites are either direct-served Bonneville Power Administration (BPA) Federal power customers or BPA public utility power customers.

Estimating Energy Efficiency Market Potential at Northwest Federal Sites

This assessment estimates in excess of 90 aMW (average megawatt) of remaining achievable and cost effective electric energy savings potential could be realized at regional sites over the next 5 to 10 years. Fuels other than electricity may represent a very significant portion of the remaining cost-effective energy efficiency opportunities at the largest sites. Non-electric savings potential may account for as much as 1/3 to 1/2 of the remaining total market potential for energy efficiency at these sites. Most of this potential is natural gas savings.

Roughly one--third of the total estimated market potential for energy efficiency has already been captured from Federal sites in the region. Approximately twice the amount of the programmatically achievable savings potential remains to be achieved.

Key Findings

Key determinants of achievable energy savings potential at sites include energy costs, relative costs of energy savings opportunities, access to capital funding and project incentives, availability of program delivery mechanisms and the level of onsite support for energy efficiency projects.

This market assessment has identified significant disparities in the level and availability of these key determinants at sites within the region. In general, other than access to the commercial and industrial program offerings and the limited technical assistance described above, Federal sites located outside of the geographic area served by the BPA Energy Smart Federal Partnership program currently cannot rely on their serving utility to provide the full range of energy efficiency project support that BPA has historically provided to Federal sites in its service area. BPA's ability to finance projects and hold funds, in escrow, for agency use is an example of services it can provide to customers that are not normally available from utilities.

Federal sites have grown increasingly more reliant on BPA for energy efficiency project support and facilitation of private source financing. While the demand for BPA Federal project support has grown, BPA capability to meet this demand has been constrained by a number of factors, including in-house contracting and staffing constraints. BPA is also considering a number of potential changes in how the BPA Federal program will be implemented in FY 2012 and beyond.

Issues, Perceived Barriers and Challenges

Energy costs typically represent a very small part of the total operating budget and reducing energy is not the primary focus or priority at some Federal sites. Many sites expressed concerns about their ability to meet Executive Order (E.O.) goals. Much of the low cost/ easy to access energy savings has been realized and remaining potential may require more time and resources to capture.

There appear to be many institutional barriers (including competition between Executive Order goals, mission conflicts, and lack of incentives, organizational alignment, accountability and empowerment, or energy champions) at some of the Federal sites to pursue energy efficiency improvements. Low energy costs make it difficult for many sites that have to compete for limited agency appropriations because their lower energy costs mean longer project payback periods than other parts of the country.

Some sites (outside the area served by BPA) do not have access to alternative funding and financing sources to pay the Federal share of project costs. The level of onsite energy efficiency project support available from energy service providers varies significantly between sites. Limited program offerings by investor-owned utilities and tightening of contracting procedures and staffing constraints at BPA are adversely impacting the pace of Federal agency energy efficiency project implementation in the region.

Recommendations

This assessment includes several different sets of recommendations regarding actions FEMP can take to accelerate projects at Federal sites in the region.

General recommendations include broadening FEMP's mandate to act as an extension of Federal agency staff to identify and develop project opportunities, address technical barriers (agency holding of earned incentives and access to capital), provide enhanced tools, templates and specialized training, create incentives for Federal sites to reduce energy use, and centralize and institutionalize alternative financing and use of interagency agreements.

This assessment also recommends FEMP establish and maintain more of a physical presence (FEMP circuit riders) and use memorandum of agreements (MOAs) to work directly with individual Federal sites and energy service providers, streamline contracting and expand the use of alternative energy efficiency program delivery mechanisms, and facilitate the transition of projects to other energy service providers that are not adversely impacted by the backlog of BPA provided project support.

Potential Areas for Further Research

The information provided in this market assessment provides only a limited "snapshot in time" and periodic updates to this market assessment are needed to ensure the currency and accuracy of the information. The scope could be extended to include more Federal agencies and different types of service provider participants. More research and analysis is also needed to: 1) more accurately quantify the remaining market potential for energy efficiency from fuel sources

other than electricity; (2) determine the type of gas service to each large Federal site and eligibility to receive gas incentives; and (3) understand the process mechanics involved in shifting energy efficiency project management from BPA staff to alternative service providers (like the US Army Corps of Engineers and General Services Administration (GSA) Assisted Acquisition Services).

This document is based on the final report submitted to the Pacific Northwest National Laboratory (PNNL) by Economic Valuation Consulting under subcontract No. 119026. The recommendations contained in this report are primarily those that were contained in the report from Economic Valuation Consulting and do not necessarily represent those of PNNL.

Acknowledgments

The authors wish to express their sincere appreciation for the insights and suggestions provided by the BPA Federal program [1] Lead (Curt Nichols), and the Federal agency representatives and energy efficiency service providers who gave so generously of their time to participate in this study. Their extensive knowledge, experience and willingness to share your thoughts and opinions provided valuable insights into the topics and issues addressed in this study.

Most of the information collected in this market assessment report was derived from onsite and telephone interviews and documentation provided by agency representatives, energy efficiency service providers, and publicly available information sources. The level of detail, quality and currency of the data vary significantly by agency and energy efficiency service provider.

While every effort was made to accurately capture the statements of interview participants, the meeting and interview summaries included in this report should not be treated as verbatim quotes. In some instances the authors have exercised editorial license to provide a more coherent exposition of the topics discussed and the opinions rendered in the interviews.

In nearly all instances, market assessment interview participants were not provided the opportunity to review or edit any of the author's notes from onsite meetings or telephone conferences. The authors therefore accept sole responsibility for any misinterpretations, omissions, or factual errors contained in this market assessment report.

[1] Initially, the BPA program for Federal agencies was known as the BPA Federal Agency program. In early 2009, the name was changed to Energy Smart Partnership Program. In this document, both programs will be noted as the BPA Federal program.

Acronyms

AAS	Assisted Acquisition Services
AFCESA	Air Force Civil Engineering Support Agency
aMW	Average Megawatt
ARRA	American Reinvestment and Recovery Act
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
AFB	Air Force Base
BETC	Business Energy Tax Credits
BPA	Bonneville Power Administration
BOA	Basic Ordering Agreement
BOR	Bureau of Reclamation
BRAC	Base Re-Alignment and Closure
CAR	Customer Account Representative
CO	Contracting Officer
C&I	Commercial and Industrial
DA	Department of the Army
DDC	Direct digital controls
DHW	District Hot Water
DOE	Department of Energy
DOD	Department of Defense
DOE PNSO	Department of Energy – Pacific Northwest Site Office
DOE RL	Department of Energy – Richland Operations Office
DUER	Defense Utility Energy Systems

ECIP	Energy Conservation Investment Program (DOD)
EE	Energy Efficiency
EO	Executive Order
EISA	Energy Independence and Security Act
ECM	Energy Conservation Measures
EMCS	Energy Management Control System
ESCO	Energy Services Company
ESPC	Energy Saving Performance Contract
ETO	Energy Trust of Oregon
EUI	Energy Utilization Index
FEAD	Facility Engineering and Acquisition Department
FAFB	Fairchild Air Force Base
FAR	Federal Acquisition Regulations
FEMP	Federal Energy Management Program
FTE	fulltime equivalent
FUPWG	Federal Utility Partnership Working Group
GHG	Greenhouse Gas
GSA	General Services Administration
GSHP	Ground Source Heat Pump
HVAC	Heating, Ventilation and Air Conditioning
IA	interagency agreement
ID	Irrigation Districts
INL	Idaho National Laboratory
IOU	Investor-Owned Utility

IPC	Idaho Power Company
JBLM	Joint Base Lewis McChord
JOC	Job Order Contracting
kW	Kilowatt
kWh	Kilowatt hour
LCC	Life-Cycle Cost
LEED	Leadership in Energy and Environmental Design
MAFB	Malmstrom Air Force Base
MILCON	Military Construction
MOA	Memorandum of Understanding
MRI	Magnetic Resonance Imaging
MSA	Mission Support Alliance
MTCO2E	Metric Tons of Carbon Dioxide Equivalent
MW	Megawatt
NAVFAC	Naval Facility Command
NEMA	National Electric Manufacturers Association
NEPA	National Environmental Protection Act
NPS	National Park Service
NREL	National Renewable Energy Laboratory
NRNW	Navy Region Northwest
NRM	Non-Recovery Maintenance
NW	Northwest
NWE	Northwest Energy Company
NWPPC	Northwest Power Planning Commission

O&M	Operation and Maintenance
ODOE	Oregon Department of Energy
ORP	Office of River Protection (DOE)
PECI	Portland Energy Conservation, Inc.
PG&E	Pacific Gas & Electric Co.
PMA	Power Marketing Agencies
PNNL	Pacific Northwest National Laboratory
PNSO	Pacific Northwest Site Office (DOE)
POC	Point of Contact
PRC	Plateau Remediation Contractor
PSE	Puget Sound Energy
PUD	Public Utility District
PWR	Pacific West Region
PV	Photovoltaic
RCM	Resource Conservation Manager
REC	Renewable Energy Credits
REM	Resource Efficiency Manager
ROI	Return on Investment
SAIC	Science Applications International Corporation
SC	Supply Chain
SCE	Southern California Edison
SEMP	Strategic Energy Management Plan
SNOPUD	Snohomish County PUD
TPU	Tacoma Public Utility

TSP	Technical Service Providers
UESC	Utility Energy Services Contract
USACE	United States Army Corps of Engineers
USB	Universal System Benefits
USDA	United States Department of Agriculture
USFS	United States Forest Service
USC	United States Code
VA	Veterans Affairs
VISN	Veterans Integrated Service Network
WANG	Washington Air National Guard
WCH	Washington Closure Contractor
WDFO	Work Done for Others
WTP	Waste Treatment Plant

Contents

Note: all references to utility programs were current at the time of the survey; the reader is advised to re-visit utility websites to determine program availability and conditions.

1.0 Introduction and Objectives

The primary objective of this Federal Energy Management program (FEMP) sponsored market assessment was to estimate energy efficiency market potential; identify the key barriers, challenges and opportunities to accelerate energy efficiency and renewable energy projects at Federal sites in the region; and to develop specific recommendations that FEMP can undertake to better assist agencies and energy efficiency service providers in achieving Federally mandated energy reduction and renewable energy goals.

The type and availability of energy efficiency and renewable energy project support currently available to individual sites in the region is the primary focus of this study.

Interviews were held with agency representatives responsible for energy management and facility operations at 11 different sites across the region over a 6 month period (June through November, 2010). Of the 11 interviews, 9 were conducted onsite, and 2 interviews were conducted by teleconference. The purpose of these interviews was to gain insights from energy and facility managers regarding their energy programs and the challenges, barriers and opportunities for improving energy efficiency and increasing the amount of renewable energy consumed at the site.

Agency representatives were also solicited for ideas as to how FEMP can better assist them in meeting their goals.

Another key part of this market assessment was to solicit the insights and opinions of energy efficiency service providers based on their respective knowledge and experience gained in various aspects of delivering energy efficiency programs and project support to sites in the region. Most of the energy efficiency service provider interviews were conducted over the telephone over the same 6-month period. These individuals were also asked about their ideas for FEMP to assist in accelerating energy efficiency projects.

2.0 Background

The Northwest region is unique in many ways from other regions in the United States. For over 30 years, energy efficiency has been Congressionally mandated as the highest priority resource to meet the region's load growth. Despite the comparatively low electricity rates (as a result of the region's extensive, low-cost hydroelectric power system), the region's utilities and energy service providers have historically been able to consistently achieve very aggressive energy efficiency targets. Many sites have participated in these energy efficiency initiatives. As a result, the region may serve as a potential model for accelerating energy efficiency at other Federal sites across the country.

Congress enacted the 1980 Pacific Northwest Electric Power Planning and Conservation Act (16 USC 839) that authorized the states in the region (Oregon, Washington, Idaho, and Montana) to create a Regional Planning Council to develop 20-year power plan to assure the region has an adequate, efficient, economical, and reliable power system while at the same time developing programs to protect, mitigate, and enhance fish and wildlife. The plan is updated every 5 years to guide energy providers (i.e., public and private utilities, Bonneville Power Administration (BPA) and the Energy Trust of Oregon (ETO)) on managing and developing demand-side energy resources to meet the regions' energy needs over the 20-year planning horizon.

Energy efficiency is the priority resource for meeting future load growth in the region. In response to the regional energy efficiency targets established in the Council's plan, many retail electric utilities, BPA, and ETO have developed and implemented a variety of energy efficiency program offerings to provide financial incentives for the installation of qualifying energy efficiency measures. Some of these entities also provide project financing, or facilitate third party project financing, for all or a portion of the remaining capital cost of new and upgraded energy efficient equipment.

Since adoption of the first Council Plan in 1980, the Northwest Region has been able to meet over 60% of the regions' electric load growth through energy efficiency. These measures include energy efficient building codes, minimum

efficiency standards for commercial heating, ventilation, and air conditioning (HVAC) and residential appliances, and utility–implemented energy efficiency programs targeted primarily to residential, commercial and industrial customers.

Federal agencies have Executive Orders, as well as congressional legislation regarding reduction of energy consumption intensity in buildings. Specifically, Section 2 (a) of Executive Order 13432, issued January 26, 2007, requires all Federal agencies beginning in FY 2008 to improve energy efficiency and reduce greenhouse gas emissions through reduction in energy intensity, relative to the baseline of the agency's energy consumption in FY 2003, through life-cycle cost-effective measures by 3% annually through the end of FY 2015 or 30% total by the end of FY 2015.

Depending on their geographic location within the region, Federal sites may have access to financial incentives for energy efficiency under state programs implemented through the Energy Trust of Oregon (ETO) and retail utility-implemented energy efficiency programs (Puget Sound Energy, Idaho Power, Avista Utilities, and Northwestern Energy). Federal sites served directly by BPA, or served by BPA public utility customers are also eligible to receive financial incentives, and may also qualify for BPA-facilitated third party project financing.

3.0 Assessment Methods and General Approach

The primary intent of this market assessment is to:

- Provide insights on the effectiveness of current energy efficiency and renewable energy program offerings available to Federal sites in the region.
- Identify the regional barriers and challenges to achieving Executive Order energy reduction, renewable energy and carbon mitigation goals.
- Provide recommendations to FEMP for accelerating the implementation of energy efficiency and renewable projects at sites in the region.

The level of detail, quality and currency of the data used in this market assessment varies significantly by agency and energy efficiency service provider. Given the time and resources available, the estimation of remaining achievable energy efficiency potential was limited to the best available and readily accessible (off-the-shelf) data sources.

Primary data sources used in the study included: (1) the energy savings potential estimates contained in the Northwest Power Planning Council (NWPPC) 6th power plan; (2) historic energy efficiency project and program accomplishments provided by BPA and other utility service providers; (3) agency provided planning documents and reports; and (4) the FEMP Buildings Database and other FEMP publications.

The focus of this market assessment effort was not to initiate new facility and agency level energy modeling, or new quantification of savings potential by end-use, building type, or specific technologies. Rather, this study is primarily intended to provide a subjective assessment of the feasibility and potential of select sites in the region to achieve or exceed currently mandated Executive Order energy reduction and renewable energy goals. To a limited extent, this assessment also identified gaps in available data and provides specific recommendations where additional research may be warranted.

This market assessment was intended to include a broad and diverse mix of representatives of agency sites and energy efficiency service providers. It was

intended to provide a “snapshot” of the state of energy efficiency and renewable energy efforts at a select number of sites across the region and insights into some of the perceived barriers and challenges facing both the agencies and service providers.

This market assessment is not a census of Federal sites or service providers, and no representation is made to the statistical accuracy of market assessment results. Limited access to some sites, limited availability of key points of contact, time/resource constraints, and other considerations limited the total number of agencies and energy efficiency service providers participating in the survey.

Interview Approach

Rather than a “one-size fits-all” approach, the market assessment relied on a customized approach that was intended to be informal, flexible, and tailored to the unique circumstances and characteristics of the individual participating agencies and service providers.

To conserve time and resources, and maximize agency participation, market assessment interviews were conducted using a combination of email, telephone, and onsite meetings.

To maximize response rates, letters of introduction were provided by the PNNL market assessment project lead and the BPA Federal program lead (BPA support for this study was crucial, because nearly all the agency participants receive or have received some level of energy efficiency project support from BPA). A private consultant (Skip Schick), hired to evaluate and provide recommendations to BPA concerning the BPA Federal program, participated in many of the agency interviews (refer to individual agency interviews in Appendix A of this report for more details).

These letters of introduction, along with a questionnaire (tailored to either the Federal agency or energy service provider) were sent electronically to all market assessment participants in advance of the scheduled interview to: (1) explain the purpose of the market assessment; (2) sanction and endorse the subcontractor conducting the market assessment; and (3) encourage agency participation.

Copies of the letters of introduction are provided in Appendix C of this report.

Follow Up Contacts

To the extent practical, some of the agencies and energy efficiency service providers received follow up contacts to solicit their views on the feasibility and appropriateness of key recommendations identified in the course of conducting the market assessment.

Market Assessment Focus Areas

At a minimum, the assessment attempted to collect as much "off-the-shelf" information as possible from the selected Federal agencies and sites regarding:

- Geographic boundaries of agency "regions"
- Number, size, and type of facilities located in the four Northwest states
- Annual energy consumption and costs for facilities located in the four Northwest states
- Facility-level energy characteristics (fuel mix, energy usage intensity, etc.)
- Agency mission and relationship (if any) of agency mission to energy reduction goals
- Organizational nexus for energy management and energy efficiency project implementation
- Agency policies and procedures pertaining to energy efficiency and renewable energy
- Agency and facility level energy reduction targets and action plans
- Historic energy efficiency accomplishments
- Number, type and availability of energy efficiency service providers
- Prior experience with energy efficiency service providers
- Agency and facility perceived barriers and challenges to accelerating energy efficiency and renewable energy

- Agency and facility perceived opportunities for FEMP program improvements

Federal Agency Interview Topics

Federal agency market assessment interview participants were asked to address the following topics, as well as any other topics the participant believed to be relevant to energy efficiency and renewable energy activities within their agency or at their site. These focus areas included (but are not limited to):

- Intergovernmental agreements (basic ordering agreements/task orders)
- Project identification and development (scoping/design/change orders, etc.)
- Project approval process
- Project funding mechanisms (utility incentive payments, facility utility budgets, other agency appropriations, and project financing sources)
- Procedures used for procurement of energy efficiency goods and services
- Project implementation (measure installation/project management)
- Project measurement and verification (energy and cost)
- Pre- or Post-project operator training
- Project follow-up (operations and maintenance (O&M), commissioning, retro commissioning).

Energy Service Provider Interview Topics

Energy service providers participating in the market assessment were asked to address the following topics, as well as any other topics the participant believed to be relevant to agency energy efficiency and renewable energy activities in their service area. These focus areas included (but are not limited to):

- The full range of their energy efficiency and renewable energy project support capabilities available to Federal sites in their service area (including project financing).
- Current and planned energy efficiency and renewable energy program offerings to Federal agencies, and program eligibility criteria.
- Prior experience in providing energy efficiency and renewable energy project support services to Federal sites (number and type of projects).

- Perspectives on barriers, challenges and opportunities for accelerating energy efficiency and renewable energy projects at Federal sites in their service area.
- Perceived opportunities for FEMP to better assist the energy service provider in meeting the needs of their Federal agency customers.

Selection of Federal Agency Participants

Given the character of this study, sites selected for participation in the market assessment interviews were intended to provide a regionally representative cross section of: (a) large, single, more energy-intensive, and smaller, multiple and more geographically diffuse sites; (b) Civilian and Department of Defense agencies; (c) sites currently utilizing a full range of energy efficiency project support (including third party financing), and those with more limited experience in energy efficiency program implementation.

To ensure as broad a regional representation as possible, interviews were conducted with agencies managing facilities in one or more of the four Northwest states.

Based on the selection criteria described above, the following agencies were selected for participation in the market assessment:

- Department of Defense (DOD) - US Army (Joint Base Lewis McChord, Tacoma, WA)
- Department of Energy (DOE) (Richland Operations Office, Pacific Northwest Site Office -Richland, WA)
- DOD - US Air Force [Fairchild AFB (Air Force Base), Spokane, WA]
- DOE (Idaho National Laboratory, Idaho Falls, ID)
- Department of Interior, Bureau of Reclamation (BOR) (Regional Operations Office, Boise, ID)
- General Services Administration (GSA) (Northwest Arctic–Region 10, Auburn, WA)

- DOD - US Navy NW (Bremerton, Bangor, Whidbey Island and Keyport Naval Bases, WA)
- National Park Service (NPS) (Pacific West Region, Seattle)
- DOD – US Air Force (Malmstrom AFB, Great Falls, Montana)
- US Forest Service (USFS) (Region 1, Missoula)

Department of Veterans Affairs (VA) Hospitals for Veterans Integrated Service Network (VISN 20) - Vancouver/Seattle/ Walla Walla, WA

Meeting notes for all agency interviews, along with background information, observations and recommendations are contained in Appendix A of this report.

Selection of Energy Efficiency Service Provider Participants

The energy efficiency service providers selected for participation are a regionally representative mix of (a) Federal, regional, state and local utility service providers and other energy efficiency delivery agents; (b) public and investor-owned utilities; and (c) single fuel (electric) and dual fuel (gas and electric) utilities.

Based on the selection criteria described above, the following energy efficiency service providers were selected for participation in the market assessment:

- BPA (Seattle, WA Field Office and Portland, OR Headquarters Office)
- US Army Corps of Engineers (NW District, Seattle, WA)
- GSA Assisted Acquisition Services (Port Orchard, WA)
- Puget Sound Energy (Bellevue, WA)
- Northwestern Energy Corporation (Butte, MT)
- Energy Trust of Oregon (Portland)
- Avista Utilities (Spokane, WA)
- Idaho Power Company (Boise, ID)

Meeting notes for all energy service provider interviews, along with background information, observations and recommendations are contained in Appendix B of this report.

4.0 Regional Overview of Federal Sites and Service Providers

Agency sites in the region are a diverse mix; characterized by a limited number of relatively large and energy-intensive sites (Bremerton and Bangor Naval Bases, Joint Base Lewis McChord, DOE Offices in Richland, Fairchild AFB, VA medical facilities in Seattle, Tacoma and Vancouver Washington, and DOE Idaho National Laboratory), and a large number of mostly small, geographically dispersed sites (General Services Administration, National Park Service, US Forest Service, US Fish and Wildlife, US Coast Guard, and Federal irrigation districts) stretched across multiple public utility and investor-owned utility service areas.

Approximately 45% of the total regional electric loads are served by over 130 public utilities or directly served by BPA. Over 80% of BPA firm electric loads are located in the state of Washington.

With the exceptions of DOE Idaho, Mountain Home AFB and Malmstrom AFB, nearly all of the largest and most energy-intensive Federal sites in the Northwest are located in Washington State. Most of this Federal load (with the exception of Fairchild AFB and DOE Offices in Richland in Eastern Washington) is concentrated in the Puget Sound area.

These larger Federal sites are either direct-served BPA Federal power customers (Naval Station Bremerton, Naval Base Bangor, Fairchild AFB, and two of the DOE Offices in Richland), or electric retail customers of public utilities that purchase power from BPA (Joint Base Lewis McChord and VA-served by Tacoma Public Utilities; Whidbey Island and Keyport Naval Station-served by Snohomish Public Utility District (PUD), VA Vancouver Campus-served by Clark County PUD, VA Seattle-served by Seattle City Light).

5.0 Estimating Energy Efficiency Market Potential at Northwest Federal Sites

Electric Energy Savings Potential

Despite the relatively low cost of electricity and the significant electric energy savings achieved in the region over the past 3 decades, this market assessment concludes that a significant amount of remaining achievable and cost effective electric energy savings potential [conservative estimate in excess of 90 average megawatt (aMW)] could be realized at Federal sites over the next 5 to 10 years.

The Northwest Power Planning Council (NWPPC) is the seminal source for estimating electric energy savings potential in the Pacific Northwest Region. The NWPPC updates its estimates of electric energy savings potential every 5 years. Over the 20-year (2010 – 2030) planning horizon, the NWPPC 6th Power Plan, updated in 2010 (http://www.nwcouncil.org/energy/powerplan/6/default.htm), estimates more than double the amount of total technical potential electric energy savings, relative to the NWPPC 5th Power Plan, updated in 2005 (http:/www.nwcouncil.org/energy/powerplan/5/default.htm).

The NWPPC primarily attributes this increase in electric energy savings potential to a combination of technology advances, higher avoided costs for alternative generation, and adoption of renewable portfolio standards in three of the four Northwest states.

The NWPPC classifies Federal loads in the Northwest as part of the public buildings subsector of the commercial sector conservation potential. Office functions in public buildings are the dominant use of Federal floor space in the region, although some sites (DOE and Navy) have large process loads, which have energy savings potential that is primarily “industrial” in character, and there are a number of Federal irrigation districts with have projects with a more “agricultural” character.

According to internal estimates provided by BPA Federal Agency program staff, Federal electric loads (including irrigation districts) comprise approximately 4%

(300 aMW) of the total (7800 aMW) firm load of the Northwest Federal power system.

It is important to draw a clear distinction between "total technical potential" (based on the NWPPC 6th Power Plan) and "programmatically achievable" savings potential at Federal sites in the region. A key determinant of the latter is the level of energy efficiency project support available to the Federal site.

Federal sites receiving energy efficiency project support from the BPA Federal program account for the largest share of delivered energy savings and the majority of the remaining energy savings potential.

As of the end of FY 2010, internal estimates provided by BPA staff indicate the BPA Federal Agency program has achieved approximately 31a MW of cumulative energy savings in public utility service areas since 2001. Over that same timeframe, BPA staff estimate an additional 6 aMW have been realized in public utility service areas through energy savings performance contracts (ESPC) projects and/or agency self-funded and implemented projects.

At the time of the market assessment interview (June 2010), BPA has set a Federal program goal of 5 aMW of energy savings per year for the 2010-14 period. This represents approximately 7% of BPA's overall energy savings program targets for this timeframe.

In terms of energy efficiency penetration rates at sites, the BPA Federal Agency program experience (utilizing multi-year interagency agreements, utility incentives and private source financing) suggests it is feasible to programmatically achieve a reduction of approximately 30% in Federal site electric consumption over a 5-to-7 year period (30% of 300 aMW, or approximately 90 aMW of achievable savings potential).

This 30% reduction is consistent with the current Executive Order energy reduction goals, and comparable to the actual levels of energy savings already realized and reported by Navy sites in the region that have received the full scope of energy efficiency project support from the BPA Federal Agency program over the past decade.

Non-Electric Savings Potential

Some of the sites interviewed for this market assessment provided anecdotal information that suggests that fuels other than electricity may represent a very significant portion of the remaining cost-effective energy efficiency opportunities. Non-electric savings potential may account for as much as 1/3 to 1/2 of the remaining total market potential for energy efficiency at these sites. Most of this potential is natural gas savings.

Fairchild AFB reported that natural gas represents approximately 70% of the total annual energy costs at the Base. Navy Region Northwest also reported that a significant amount of their remaining potential was in the form of natural gas savings. This is also true for Joint Base Lewis McChord. Most of the natural gas service to these sites is provided by investor-owned utilities (IOU).

Some Federal sites (like the VA Campus in Vancouver, Washington) have long-term gas purchase contracts through GSA, where the IOU simply provides gas transport. The type of contract for gas service to the site is another area that merits more research. All the IOUs interviewed in this assessment reported that utility incentives are only available to the site if the site is served under a retail tariff. Access to utility incentives for natural gas saving measures is an important determinant of the remaining cost effective market potential for energy efficiency at these sites.

In addition to the energy savings potential from reducing natural gas consumption, a significant amount of additional market potential for energy efficiency may be available from other fuel sources. Idaho National Laboratory (INL) reported that diesel generators are in operation 24 hours a day/7 days a week to provide required emergency back-up power to the nuclear plants at the INL desert site. Malmstrom Air Force Base in eastern Montana reported that more than 20% of their annual energy costs are for onsite coal-fired boilers, and the cost of new coal deliveries have increased significantly in the past year.

More research is needed to accurately quantify this non-electric savings potential. Additional research on non-electric onsite fuel sources at sites would also support

Energy Independence and Security Act (EISA) requirements related to quantification of source energy. Most of the electricity provided by BPA and retail public utilities to serve Federal loads in the NW is primarily hydroelectric generation from the Federal base system (includes the Federally owned and managed hydroelectric dams on the Columbia and Snake Rivers. The anecdotal information gleaned from this assessment suggests a much larger potential for greenhouse gas (GHG) reduction at the largest NW Federal sites from reducing or displacing these fuel sources with alternative power sources, energy efficiency and/or renewable energy.

Total Remaining Energy Efficiency Potential in Northwest Federal Sites

This assessment concludes that, in aggregate, roughly one-third of the total estimated market potential for energy efficiency has already been captured from sites in the region. Approximately twice the amount of programmatically achievable savings potential remains to be achieved.

6.0 Key Findings

Key Determinants of Achievable Energy Savings Potential at Federal Sites

Based on the findings of this assessment, the following factors appear to be the key determinants of achievable energy savings potential at NW Federal sites:

- Energy costs at the site
- Amounts and relative costs of energy saving opportunities at the site
- Access to capital to fund the site's share of project costs, net of utility incentive payments (including but not limited to facility utility budgets, additional agency appropriations, and/or availability of project financing).
- Level of onsite energy efficiency project support available to the site to identify, develop and implement efficiency improvements
- Types of energy efficiency project delivery mechanisms available to the site (i.e., energy savings performance contracts (ESPC), utility energy service contracts (UESC), and/or "Economy Act" intergovernmental agreements)

This assessment has identified significant disparities in the level and availability of these key determinants at sites in the region

Utility-Provided Energy Efficiency Project Support

The most notable disparities between sites is their access to utility-provided energy efficiency and renewable energy project support, availability of alternative project delivery mechanisms, and access to capital to fund efficiency improvements.

With respect to the latter, the relatively low cost of electricity in the Northwest results in longer paybacks for most types of energy efficiency projects. This inhibits the site's ability to compete for limited agency appropriations with other Federal sites outside the region, where higher electricity costs result in shorter project paybacks. That said, some sites are more successful than others in securing agency appropriations.

Most sites in the region have access to utility energy efficiency program offerings. Virtually all IOUs and many of the larger public utilities in the NW (along with the

Energy Trust of Oregon) offer commercial and industrial energy efficiency incentive programs to their retail customers.

Sites located in these service areas may be eligible to receive financial incentives for qualifying measures, subject to meeting program eligibility requirements. However, the results of this assessment indicate that, other than BPA, the IOU and public utilities in the Northwest do not currently tailor their energy efficiency program offerings to Federal customers or actively market to Federal sites for program participation.

In most instances, there is limited utility outreach to Federal sites, and the site must take the initiative to participate in these utility program offerings. Some of the larger sites located in IOU service areas may be viewed as key accounts by the utility. These sites may have access to customer account representatives that can respond to requests for energy efficiency and renewable energy project support. Some IOUs and public utilities provide preliminary ("walk-through") audits to their Federal customers upon request, and a few offer limited matching funds for "investment quality" engineering studies.

In general, other than access to the commercial and industrial program offerings and the limited technical assistance described above, sites located outside of the geographic area served by the BPA Federal Agency program currently cannot rely on their serving utility to provide the full range of energy efficiency project support that BPA has historically provided to Federal sites in its service area.

Currently, IOUs and public utilities in the region do not offer the utility energy services contracts (UESC) option to Federal sites in their service area.

Some of the IOUs (including Puget Sound Energy, Avista and Idaho Power) have provided a UESC option in the past, but no longer offer UESC "as part of their business model".

Some of these IOUs also indicated they are more averse to taking on the risk of managing energy efficiency construction and equipment installation at Federal sites, and have made a conscious decision to limit energy efficiency project support to Federal sites in their service area. The sites are treated in the same

manner as any other commercial or industrial customer and are subject to the same eligibility requirements for participation in utility energy efficiency program offerings.

Virtually all of these also indicated that providing project financing to Federal sites no longer fits within their business model. These IOUs have inhibitions regarding internally financing capital improvements at sites. The latter are recognized as a form of non-collateralized debt, and this has a negative impact on the IOUs' balance sheet.

Avista and Puget Sound Energy representatives indicated they are receptive to possible consideration of use of "on-bill" financing, but this would require a major overhaul in the current customer billing system. They indicated there are plans for this type of upgrade, but it would not likely be in place within the 3 years. Puget Sound Energy indicated willingness to revisit some form of custom "on-bill" financing for larger Federal sites if it was a practical option.

For the reasons cited above, sites outside the BPA service area cannot turn to their serving utility for assistance with project financing, procurement of equipment and support service contractors, or onsite project and construction management.

Additional research is needed to determine whether and to what extent Federal sites could qualify for energy efficiency project funding or alternative financing from "non-utility" sources (such as private banks and loan programs offered by Oregon and other Northwest states).

ESPC activity also appears to be very limited, and isolated to the largest energy-intensive sites in the region. Smaller, geographically dispersed sites interviewed during this assessment reported limited if any ESPC activity. Understandably, energy services companies (ESCOs) target projects in areas with higher energy costs, which have better paybacks.

BPA Federal Programs

Most of the eligible Federal sites primarily rely on BPA for project implementation, although some sites have in-house capability to design and implement energy efficiency projects, and limit their reliance on BPA to either facilitation of private source financing, and/or provision of financial incentives for electric energy savings. In these instances, energy efficiency projects are managed directly by the site.

BPA is the only energy service provider to have offered an energy efficiency program specifically designed to meet the unique needs of the agencies.

The BPA Energy Smart Federal Partnership program, which replaced the BPA Federal Agency program in early 2009 (hereafter referred to as the BPA Federal program) currently stood alone in the region in providing a full range of energy efficiency (EE) project support to sites through September 30, 2011. This program provided the following:

- Technical assistance to identify and develop projects
- Contracting support (project specification and procurement of EE service providers, materials and equipment purchases)
- Onsite project management and quality assurance
- Measurement, verification and reporting (of project savings)
- Provision of incentive payments for qualifying electric energy savings
- Facilitation of private source financing for project costs (net of utility incentives and agency appropriations)
- Facilitation of IOU incentives for natural gas saving measures
- Holding and dispersing of earned utility incentives on behalf of the site.

BPA Federal Programs: Historical Context

The BPA Federal programs have been supporting other agencies in meeting their energy efficiency goals for over 17 years.

As part of its charter under the Northwest Power Planning and Conservation Act (16 USC 839, December, 1980), BPA has a mandate from Congress to "foster and promote energy efficiency". Over the past 3 decades, BPA has been a leader in achieving energy efficiency in the region.

The BPA Federal programs have been able to successfully leverage BPA in-house energy efficiency program expertise as a self-supporting (but not-for-profit) energy services provider. BPA has its own contracting authority, and has been able to employ simple and flexible interagency (fed–to-fed) agreements to provide a full range of energy efficiency project support to sites. BPA typically assigns an in-house BPA project manager (usually from the BPA energy efficiency engineering group) once project funding has been authorized by the site under an interagency agreement task or delivery order. Qualified contractors are then solicited to bid on a project, with BPA's supply chain organization managing the contracting process. The BPA project manager then oversees project installation by the contractor, including the measurement and verification and project close out.

Most significantly, BPA developed a mechanism to facilitate non-recourse, private source financing for the agencies projects. This ability to access low cost energy efficiency project financing was identified by many Federal agencies as one of the most valuable aspects of the BPA programs.

Deregulation of the wholesale power markets in the western United States in the mid-1990s created a power surplus in the region, and less near-term need for BPA to aggressively pursue in-region energy efficiency programs to meet regional load growth. This freed up some of the BPA energy efficiency staff to provide assistance to other agencies with sites outside the region.

Federal energy efficiency project support has proven to be a natural and complementary “niche market” for BPA. BPA has been able to use the programs to reduce Federal loads on the Northwest power system, while simultaneously assisting all sites in meeting their energy reduction goals. BPA reports indicate the cost of delivered energy savings from the BPA Federal programs are among the lowest of all BPA energy efficiency programs.

In recognition of this mutual benefit, over a decade ago BPA and its parent agency, the US Department of Energy, established memorandums of agreement (MOAs) at three different levels of their respective organizations (BPA Administrator and DOE Assistant Secretary for Energy Efficiency and Renewable Energy; BPA Energy Efficiency Vice-President and DOE Director of the Seattle Regional Office; and BPA Federal Market Lead and FEMPProgram Manager). Under the terms of these MOAs, BPA support for achievement of the original Executive Order energy reduction goals was given the highest priority. All three MOAs were of limited duration and have long since expired.

During this period, BPA worked closely with the DOE Seattle Regional Office (no longer in existence) and DOE National Laboratories [primarily Pacific Northwest National Laboratory (PNNL), Lawrence Berkeley National Laboratory (LBNL), and National Renewable Energy Laboratory (NREL)]. BPA also collaborated with FEMP to provide energy efficiency project support and facilitate private source financing to Federal sites across the country.

As the region moved from power surplus to power deficits, and the onset of the West Coast energy crisis of 2001, BPA ramped up its regional energy efficiency programs. Competing demands for limited BPA energy efficiency staff led BPA to reduce the geographic scope of the BPA programs to the Western US (the geographic area covered by the Western States Coordinating Council). BPA program priorities shifted from supporting other agencies' achievement of Executive Order energy reduction goals, to in-region acquisition of electric energy savings to meet BPA annual energy efficiency targets.

BPA Federal Program: Current Status

In-region demands for BPA energy efficiency staff have continued to increase in response to higher energy savings targets identified in the NWPPC 6th power plan. BPA ramped up its Federal energy savings targets and curtailed all energy efficiency project support to sites outside the region.

Today, BPA limits Federal project support exclusively to the Northwest; to direct-served Federal customers and sites served by BPA electric customers in the public utility service areas in the region.

Many of the Federal sites interviewed in this assessment credit the assistance they receive from the BPA Federal programs in helping them achieve their energy reduction goals. By their own admission, they would not have been able to accomplish nearly as much on their own.

As BPA has expanded its role as the primary energy efficiency service provider to Federal sites in the region, other regional utilities (like Puget Sound Energy) have gradually reduced their level of hands-on project management support.

In general, the results of this assessment indicate that over the past decade, Federal sites have grown increasingly more reliant on BPA for energy efficiency project support and facilitation of private source financing.

BPA Energy Smart Federal Partnership Program: Future Direction

While the demand for BPA Federal project support has grown, BPA capability to meet this demand is limited by a number of factors, including in-house contracting and staffing constraints. Recently BPA and its customer utilities agreed on changes to how all their EE programs are implemented. These changes will have an impact on how much money is available for incentives and how Federal project payments will be processed and paid out starting October 1, 2011 (FY 2012).

Recent tightening of BPA contracting procedures has significantly restricted the number of contract actions implemented annually. This inhibits BPA's ability to provide energy efficiency contracting and procurement support to other agencies. These restrictions have resulted in significant backlogs for project identification, development and execution.

The BPA Federal program is one of a very few "direct acquisition" programs implemented by BPA. BPA primarily relies on its public utility customers to design and deliver energy efficiency programs. BPA essentially purchases the energy

savings from its customer utilities (the latter approach accounts for the vast majority of the 1100 aMW of energy savings BPA has delivered over the past 30 years). The Federal program was viewed by BPA management as being more staff intensive than other BPA program offerings, and the program must compete for limited in-house staff with BPA "flagship" utility programs.

Over the past 2 years, BPA has been engaged in an extended "public process" review of its current approach for delivering its energy efficiency programs. The trend is moving toward even greater local control by BPA customer utilities to deliver the public utility share of the region's energy efficiency goals. In January 2011, BPA notified its agency customers it would implement a number of potential changes in how the BPA Energy Smart Federal Partnership program would be implemented in FY 2012 and beyond.

These changes address how incentive payments are processed and paid out, and the total amount of BPA incentives available for the purchase of energy savings at sites. Other than sites where there is not a serving utility (including direct-served BPA Federal customers, station service efficiency upgrades at hydroelectric power plants, and Federal irrigation districts operating on reserve power), energy efficiency projects will have incentive payments provided by the public utility serving the Federal site, not directly from BPA, as was the case in the past.

BPA is intending to provide information and guidance on how these program changes will impact Federal agencies in the NW. However, specific details regarding the exact nature of their Federal program changes contemplated by BPA were not available at the time the market assessment report was prepared.

7.0 Issues, Perceived Barriers and Challenges

Costs/Benefits

- Energy costs represent a relatively small fraction of the total operating budget at many sites, and reducing energy is not the primary focus or priority.
- Virtually all sites interviewed expressed concerns regarding their ability to meet Executive Order energy reduction and renewable energy goals.
- Most sites indicated the current renewable energy goal is unattainable without a massive increase in agency appropriations.
- A significant amount of the energy reduction already realized at sites is from low cost, and relatively easy to implement lighting upgrades. Much of the "low hanging fruit" has already been captured, and the remaining potential is likely to require more time, money and resources to capture.
- Energy reduction goal achievement is measured from a fixed baseline, which does not account for facility expansion (VA Hospital for example) or other factors (normalizing for weather or prior energy reduction achievements).
- New construction of residential housing at the larger Department of Defense (DOD) sites accounts for a significant portion of the reported energy reductions (Fairchild and Malmstrom AFB are examples). Many of these DOD sites have, or are in the process of privatizing residential housing at their sites. It appears that much of the previously reported energy reductions in their housing stock will be erased if that housing is sold off and their energy baseline is reset prior to the last year of the current energy reduction Executive Order.
- Many sites must compete with other sites outside the region for limited agency appropriations to fund energy efficiency improvements. Longer project paybacks (primarily the result of low electric costs) inhibit the ability of these sites to effectively compete for limited agency appropriations.
- Many sites do not have easy access to their energy bills or basic information about their serving utility.

In-House Staffing, Project Management and Access to EE Service Providers

- Data collection for new EISA reporting requirements requires more facility staff time. This staff time might otherwise be spent identifying and implementing energy efficiency projects.
- While some of the larger sites are staffing up with resource efficiency manager (REM) positions, many of the smaller Federal sites interviewed reported limited or no in-house resources available to identify, develop and implement energy efficiency projects.
- The level of onsite energy efficiency project support available from energy service providers varies significantly between Federal sites.
- The availability of alternative energy efficiency delivery mechanisms (UESC, ESPC, and BPA Federal program) is a function of the geographic location of the Federal site.
- Federal sites located in areas not served by the BPA Federal program are adversely impacted by regional investor-owned utilities' decision to not provide a UESC option, onsite construction management or project financing.
- There are currently no IOU program offerings tailored to Federal sites, and IOU program marketing and outreach to sites may be limited in some parts of the Northwest.

Accountability, Empowerment, Organizational Alignment and Incentives for EE

- There appears to be a lack of organizational alignment between energy management and facility operations at many sites.
- The level of empowerment to act on energy efficiency opportunities varies significantly by site.
- Organizational accountability for achievement of Executive Order goals varies significantly by site
- Other than INL, most sites do not appear to have specific incentives for facility staff to achieve energy reduction goals.

- Several sites interviewed appear to have no "energy champion" at the site, and/or limited support from top management to achieve energy reduction, carbon mitigation and renewable energy goals.

Organizational Conflicts, Competing Objectives and Institutional Barriers

- There appears to be inherent conflicts between mission priorities and energy reduction goals at many of the sites interviewed.
- At some of the sites, there appears to be competition between Executive Order goals for limited agency resources and in some instances, energy efficiency goals are being supplanted by renewable energy and carbon mitigation goals.
- Some sites appear to be more focused on meeting current EISA audit requirements than energy reduction goals.
- BPA internal analysis suggests that Federal irrigation districts represent a very significant and untapped source of the remaining achievable Federal sector energy efficiency market potential in the Northwest. This market assessment has identified major institutional barriers (within the Bureau of Reclamation, BPA and the irrigation districts) that are currently inhibiting the realization of this energy efficiency and water savings potential.

Access to Alternative Funding and Financing

- There appears to be a decline in the total level of agency appropriations to fund energy efficiency improvements (particularly energy retrofit projects).
- Many sites have limited or no access to alternative funding and financing sources to pay the sites' share of project costs (net of utility incentives).
- Some agencies (the Forest Service and Coast Guard, for example) pay the energy bills at the headquarters level and the sites never see the billing. Even those where agencies do pay and manage billings at the local level, may have no mechanism in place for holding earned utility incentives at the site.
- Over the past decade, many sites directly served by BPA or BPA customer public utilities have grown increasingly more reliant on BPA to achieve their energy reduction goals. Most of the largest sites have, or are planning to use BPA facilitated private source financing to pay for most of the costs of planned energy efficiency improvements.

Tightening of Contracting Procedures and Proposed BPA Program Changes

- Tightening of BPA contracting procedures and staffing constraints are adversely impacting the pace of BPA Federal program project implementation, and inhibiting the development of new projects in the Northwest.

- Some of the Federal sites interviewed also reported a tightening of their energy efficiency contracting requirements (such as requiring BPA to increase competition in contractor selection) or imposing new restrictions on the type of energy efficiency project support that can be provided under interagency agreements with BPA. This is also having an adverse impact on the pace of energy efficiency project implementation.

- In response to their customer utilities, BPA has proposed to shift funds for incentive payment to local serving public utilities. This could have an adverse impact on the incentives that drive the attainment of energy reduction goals for Federal sites. BPA will no longer be providing uniform incentives for all projects; rather, the project incentives will be set by the local serving utility.

- BPA Federal program policy requires that a significant portion of the project energy savings result from electric efficiency improvements to receive project support from BPA. This effectively excludes natural gas-savings only projects from what can be financed and implemented under the BPA Federal program.

8.0 Recommendations

What FEMP Can Do To Accelerate Projects at Sites in the Region

1. General Recommendations

- Seek congressional authority to broaden the existing FEMP mandate to take on a more active leadership role as a catalyst, facilitator and advocate for energy efficiency and renewable energy projects at sites (this expanded role could include acting as an extension of the agency to assist in the identification and development of project opportunities, and help broker custom agreements with service providers).
- Address and resolve the problem of Federal facilities' inability to receive and hold earned utility incentives at the site.
- Assist in overcoming the barriers to accessing low cost capital to fund EE and renewable projects.
- Create more incentives for sites to reduce energy use.
- Help institutionalize and reutilize the use of alternative (private source) financing mechanisms to fund the agencies' share of total project costs.
- Work with the Department of the Army (DA) to centralize alternative financing at the DA level for Army installations within and outside the Northwest.
- Seek congressional authority and develop a mechanism to provide loan guarantees for energy efficiency and renewable energy project financing.
- Work with GSA and DOD to encourage use of non-recovery maintenance discretionary budgets to replace old, inefficient equipment with new, energy efficient equipment.
- Work with GSA Assisted Acquisition Services (AAS) to clarify the types of energy efficiency projects that can be accessed under the GSA AAS Schedule.
- Provide strategic energy management planning (SEMP) training and implementation support to Federal facility managers.
- Develop and market model interagency agreements for EE and renewable energy project implementation.

- Leverage existing FEMP relationships with other agencies at the department, agency, region and facility level to promote and institutionalize use of interagency agreements for EE and renewable energy project implementation.
- Develop a National Environmental Protection Agency (NEPA) compliance template for renewable generation projects, and identify up front all the studies that are needed.
- Identify and periodically update the most efficient equipment options on the GSA Supply Schedule.
- Place more emphasis in FEMP training on optimizing building operations.
- Encourage sites to initiate and maintain energy benchmarking (as part of establishing specific metrics for REMs).
- Work with other agencies to incentivize Executive Order goal attainment in employee performance contracts.
- Incorporate energy efficiency procurement specifications for equipment purchases and O&M contracts.
- Establish a "Federal Extension Service" to provide sites access to "resident experts" with specialized and esoteric knowledge (example: energy management control system (EMCS) programming and HVAC systems optimization).
- Release a periodic electronic newsletter to notify the sites of any new studies, or tools (templates, calculators, etc.) available from FEMP and other sources.
- Create a Federal "government-wide" database on contractor performance.
- Provide a simple online energy efficiency certification program for Federal facility managers.
- Enhance existing life-cycle cost analysis tools to more effectively capture the environmental impacts in project investment.
- Limit FEMP webinars to 90 minutes; and include new topics (examples: how to access EE and renewable project funding; and showcase new technologies (like cool roofs). Establish and support topic-specific "expert" groups for specific technologies and other issues (such as contracting).

- Provide more assistance on energy efficiency information and outreach to facility staff and base/installation residents.
- Provide assistance to sites with analysis of utility bills and preliminary screening of project opportunities.
- Provide assistance in identifying and securing appliance rebates.
- Create more awareness of the impacts of agency decisions to continue to operate old and inefficient equipment.
- Utilize social media communication techniques to get the energy efficiency renewable energy and sustainability message out to the younger generation of Federal employees.
- Provide more energy awareness training for facility managers.

2. Establish and Maintain a Physical Presence in the Northwest

- Provide "boots on the ground" (FEMP circuit riders) to work directly with individual sites and energy service providers to identify, develop, and implement energy efficiency and renewable energy projects. [Alternatively, FEMP could set up and facilitate a fed-to-fed job exchange program where experts from one agency can be "borrowed" by another for a limited period of time.]
- Work with United States Army Corps of Engineers (USACE), JBLM and BPA to implement a pilot project with the USACE as an alternative energy efficiency project delivery mechanism. If this is successful, FEMP can also help to expand the use of this alternative delivery mechanism to other sites that are adversely impacted by the backlog of BPA provided project support
- Assist DOE RL, DOE PNSO (Pacific Northwest Site Office), and INL in obtaining BPA-facilitated private source financing to fund identified energy efficiency project costs.
- Investigate the feasibility of funding a shared REM position for smaller agencies with multiple sites in the Idaho Power Company (IPC) service area (GSA, NPS, USFS, BOR)

- Develop and market the energy scorecard (currently used by the Pacific West region of the National Park Service) for use by other agencies (like the US Forest Service) to support more comprehensive energy efficiency and renewable energy program and project planning, and to track Executive Order goal achievement across multiple facilities.
- Leverage relationships with the Air Force Civil Engineering Agency to advocate on behalf of both Malmstrom and Fairchild AFBs (to expedite energy efficiency and renewable energy project development and implementation of the new EMCS upgrade).
- Consider the possibility of adding energy efficiency improvements as one of the elements addressed within the scope of the Northwest Renewable Energy Initiative.
- Participate in monthly VISN Energy Manager meetings.
- Provide more onsite training to sites on energy efficient procurement practices.
- Tailor current available FEMP training to topics of greatest value to agencies in the region.
- Set and disseminate at a high level, an energy project pre-screen standard of a 5% net simple return on investment (ROI) or better to help easily focus investments where they can get the most savings.

3. <u>Formalize Relationships with Agencies and Service Providers</u>

- Establish MOAs with individual Federal sites and energy efficiency service providers (including but not limited to US Army Corps of Engineers Northwest District, GSA Assisted Acquisition Services, Energy Trust of Oregon, as well as public and investor-owned utilities) to mutually support achievement of current Executive Order goals at sites in the region.
- Engage BPA, ETO, and Avista and other regional IOUs in local commercial and industrial (C&I) lighting trade ally networks to target sites.
- Establish a stronger linkage with the Oregon Department of Energy and other state or local resources that agencies can take advantage of. (This could

include assistance on obtaining Oregon's Business Energy Tax Credits and the "efficient commercial building" tax deduction, which takes a bit of coordination with the installing contractor (or other tax-paying third party) to utilize.

4. Recommendations related to FEMP and the BPA Federal Program

- Strengthen ties (and level of influence) with BPA by instituting new MOAs at the agency (BPA Administrator), department (EE VP), and program (Federal Market Lead) levels.
- Use these MOAs to re-establish "commonality of purpose" between BPA and FEMP to mutually support achievement of agency Executive Order energy reduction/renewable energy goals and BPA regional energy savings targets.
- Apply as much assistance as necessary to help BPA: (1) fulfill all existing ("contracted for and committed to") Federal project task and delivery orders under active agreements in a timely manner; and (2) accept and deliver on new agreements with VA, INL and others for BPA facilitation of private source financing at these sites.
- Encourage BPA to expand the level of private source financing to Federal sites to include facilities that are served by IOUs (like the INL desert site, served by Idaho Power).
- Natural gas measures account for a significant amount of the remaining energy savings potential at BPA direct-served Federal sites. Encourage BPA to consider relaxing the current limitations associated with bundling of gas and electric measures to enable Federal sites to maximize the amount of low cost private source financing available to the site (possibly in exchange for less BPA onsite energy efficiency project support).
- To the extent BPA institutes changes to the Federal program, encourage BPA to preserve the most essential elements (including facilitation of project financing, and holding and disbursement of earned incentives on behalf of agencies).
- Assist BPA and sites in transitioning to alternative project delivery mechanisms (USACE and GSA AAS) for project implementation.

- Take on more of an advocacy role with BPA to capture the energy and water savings potential within Federal irrigation districts. Consider providing funding (or share the cost) for a more comprehensive assessment of this particular energy efficiency opportunity. This more in-depth assessment could address all the institutional barriers and identify the most viable options for moving forward (including use of REMs for project development and leveraging of BPA private source financing).
- Encourage BPA and other sites to adopt job order contracting and other methods to expedite contractor selection and project implementation.

9.0 Potential Areas for Further Investigation

- The information provided in this assessment provides only a limited “snapshot in time”; the energy efficiency environment in the Northwest region is very dynamic, and the currency of the information in this type of market assessment has a limited shelf life. Consider undertaking periodic updates to this assessment to ensure the currency of the information pertaining to energy efficiency and renewable energy activities at Federal sites in the Northwest.

- Time and resource constraints limited the scope and number of interviews conducted in this market assessment. Consider building on this initial assessment by extending the scope to include more participants. Additional participants could include (1) more Federal sites (US Coast Guard, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Bureau of Indian Affairs, among others); (2) large and small private energy service provider companies (ESCOs, commercial equipment vendors, equipment contractors, private energy consultants and architectural/engineering firms); (3) state energy offices; (4) local community economic development agencies; and (5) trade ally networks for commercial and industrial lighting.

- A significant amount of the remaining market potential for energy efficiency at sites in the Northwest is associated with fuels other than electricity (natural gas, diesel, propane, etc.). Little "off-the-shelf" information is currently available to estimate energy savings. More research and analysis is needed to more accurately quantify the remaining market potential for energy efficiency from these other fuel sources.

- To qualify for financial incentives for natural gas saving measures from investor-owned utilities, the Federal customer must be receiving natural gas service on a retail rate tariff. Some Federal customers have long-term gas delivery contracts where the local utility simply transports the natural gas. The specifics regarding natural gas service to each large site is another area that merits more research.

- Given the amount of potential energy and water savings, it is recommended that a comprehensive assessment of energy and water saving potential of Federal irrigation districts be undertaken. This more in-depth assessment could address all the institutional barriers and identify the most viable options for moving forward.

- Additional research is needed to determine whether and to what extent sites could qualify for energy efficiency project funding or alternative financing from state energy loan programs and other “non-utility” sources.
- Additional efforts need to be undertaken to determine the process mechanics for transitioning Federal project task order work from BPA to other energy service providers, like the U.S. Army Corps of Engineers and GSA Assisted Acquisition Services.
- Additional investigation with GSA Assisted Acquisition Services is required to determine exactly what types of energy efficiency project support can be accessed under the GSA AAS Schedule.
- Help BPA investigate specific opportunities for Federal projects as they look into using their special borrowing authority to fund their energy efficiency programs in the future.

APPENDIX A:

Federal Agency Interview Notes,

Observations and Recommendations

Summary of Meeting Notes from Onsite Interview with Energy Management Staff, Department of Veterans Affairs (Vancouver WA Campus - 6/14/10)

Attendees

Steve Juhasz – VA Regional energy coordinator
Ron Higgins – VA Portland Hospital energy manager
Skip Schick- BPA EE Federal program consultant
Tim Scanlon – PNNL subcontractor

Background

There are a total of 22 VISN "regions" in the U.S. (VISN is the acronym for Veterans Integrated Service Network). Each VISN typically contains 6 to 10 facilities. VISN 20 covers all of the VA facilities in the states of Oregon, Washington, and 80% of Idaho. The remainder of the NW (Montana and the eastern portion of Idaho) is covered by VISN 19. The VISN 19 energy manager is Bob Ansalmi, located in Cheyenne, WY.

Collectively, VISN 19 and 20 represent a very large component of the remaining market potential for energy efficiency in the NW. However, internal resources are not enough to meet agency goals.

Interview Highlights

Steve is the first VISN 20 energy coordinator (he previously served as the energy manager at Mountain Home, AFB in Idaho). He noted that the VA has made a decision to put staff and money into energy management. He believes the VA is very focused on the Executive Order energy and water reduction, and renewable energy goals.

All VISNs "pass down the energy reduction goals" to the facility level, rather than target the least efficient facilities. Steve has been heavily involved in the benchmarking and accounting for energy efficiency (EE) in VISN 20, although he acknowledged that this effort still needs refinement for gas and electricity. Steve has developed an EE and renewable energy goal tracking spreadsheet.

The energy reduction goal is measured in EUI (EUI, or energy utilization index = annual energy consumed for heating and cooling a building or facility, expressed in Btu/per gross square foot). To meet the goal, each facility must reduce their EUI to the range of 120. Currently, the most energy efficient VA hospital has a EUI rating of 150. VISN 20 has some of the lowest EUIs of all the VISN Regions. The "worst" VISNs (in terms of energy efficiency) have facilities with EUIs in the range of 260.

The energy reduction goal requires a 3% reduction per year, but VISN 20 energy use has actually trended up (1 to 2% per year). New process loads are raising annual energy consumption levels. Steve noted a new magnetic resonance imaging (MRI) machine alone caused a 1% increase in annual energy use. The baseline for measuring energy reduction is locked in at the 2005 level, and there is no adjustment to either the baseline or the EE reduction target for facility expansion. Hospitals operate "24 -7"; there are very stringent standards for the number of air exchanges per hour, and no opportunities for thermostat or lighting setbacks. Whereas other Federal agencies have categorically excluded certain facilities (for example CIA, National Security, DOE Laboratories), the VA has not categorically excluded any of their facilities.

VA HQ is now providing more guidance on EE. There is a $70 million "non-recovery maintenance" (NRM) discretionary budget, and the VA is "fencing" a portion of this budget for EE and sending these funds directly to the VA sites. In addition, there is a national VISN competition for limited VA funding for new construction. Steve has been told that the Energy Independence and Security Act (EISA) legislation will allow the VISNs to retain 100% of utility EE incentives. Steve is awaiting more guidance on this from VA HQ.

As the VISN 20 regional energy coordinator, Steve is responsible for the EE project support interagency agreement (IA) with BPA. The VA has not worked with BPA in the past.

Under the terms of that IA, Steve is currently planning a 10-year, $30 million capital funded EE program at the three VA campuses served by public utilities in Western Washington, including the VA Vancouver campus (served by Clark

County PUD); American Lake (located at Fort Lewis, in Tacoma Public Utility service area, although Ft. Lewis Department of Public Works provides gas and electric service to the site); and Seattle (served by Seattle City Light).

VISN 20 plans to use BPA-facilitated private source financing for 100% of the total EE project costs for all three VA sites (total estimated cost: $30 million).

Steve is trying to leverage the UESC with BPA to compete for surplus ARRA funds. If VISN 20 is successful in competing for funds, they will use this funding to buy down the EE project costs and/or pay down or buy out the private source financing.

Steve thinks the VA facilities at American Lake and Seattle represent the largest targets of opportunity. He noted that smaller VA facilities (like Walla Walla) have smaller budgets, and are not likely to receive a large chunk of EE funding.

All new construction at VA facilities is funded with line-item appropriations in the congressional budget. There is some new construction funding for Walla Walla, and the Seattle VA campus has over $100 million in new construction (mostly for facility expansion). The VA wants all new construction to be at least 30% above current building code requirements (subject to cost effectiveness).

Each VA facility in the VISN 20 region has its' own energy manager. Ron Higgins is the energy manager for the Vancouver VA campus. The following is a list of other VISN 20 energy managers in the NW:

- Steve Mathis (Seattle, WA)
- Manny Faridina (Spokane/Walla Walla, WA)
- Dave Skelinger (White City/Roseberg, OR)

Steve noted he gets very good support for energy management from each VA facility.

The VA is required to audit their facilities every 2 years. EMP2 (a NW contractor) performed the earlier audit work. The strategy 2 years ago was to create an ESPC

for all sites in the VISN. Steve and Ron decided to remove three VA sites and use BPA for EE project implementation.

There are presently three different task orders VISN 20 wants to implement under their IA with BPA:

- EE improvements at the Vancouver Campus
- VA facilities in Portland
- Retro-commissioning.

According to Steve, under the terms of the IA task orders, BPA has agreed to bundle water and gas-saving measures with electric measures.

VISN 20 is also relying on the DOE ESPC program, and will only work with contractors that are pre-approved. The VA had identified several energy conservation measures (ECMs), but no contractor originally bid on the project (as a result of very restrictive caps VA placed on profit and overheads). Now Steve is working on Round 2 and added a retro-commissioning element to the project. Three of the top contractors have participated in a walk-through of the VA facilities. Each of the contractors will put a package of ECMs together. Then the VA will select from the top three offers.

Steve and Ron believe it is 30% more expensive for the VA to go the ESPC route compared to doing it themselves or working with BPA.

BPA eligible sites have been taken out of the ESPC arrangement because of a preference for working with BPA where possible. They would do “all the EE work with BPA if we could”. They don’t see the performance guarantees as that valuable because they have a good feel for the projects and the reliability of the energy savings.

They prefer working with BPA because: (1) BPA is flexible and the VA can make changes to the project along the way, whereas the ESPC is fixed and cannot be changed; (2) BPA is “open to new ideas and new approaches”; (3) there is “no risk, BPA has as much incentive to achieve EE as the VA”; (4) BPA is not “dollar-driven, like the ESCOs”; (5) Ron and Steve have a “relationship with local BPA EE

staff" (Todd Amundson, the BPA EE project manager lives nearby in Battleground WA); and (6) BPA is another Federal agency, and the VA prefers pursuing this "fed-to-fed version of an UESC"(Steve views BPA as a "UESC", but understands this is not the same as a "utility version of UESC").

In addition to the IA with BPA, Steve has been in discussion with IOUs in the NW (including PacifiCorp, Avista, and Portland General Electric) regarding a utility UESC option for the VA Hospital in Walla Walla and local VA clinics. Steve noted that none of the utilities are willing to offer VISN 20 an UESC option.

VISN 20 also includes several small VA clinics in Oregon (mostly leased facilities where utility costs are included in the lease), and Steve is working with the Energy Trust of Oregon (ETO) to address EE opportunities in these facilities.

In terms of renewable energy goals, the VA recently completed a study (out of the WA D.C. Headquarters) to assess the feasibility of onsite renewable energy at VA sites. The VA goal for renewables is higher than the E.O. goal for renewables. Currently, renewable energy goals are applied at the facility level, but Steve and Ron are betting on the VA Central Office to purchase renewable energy credits.

The VA has applied for American Reinvestment and Recovery (ARRA) funds for renewable projects. Steve noted that EE projects are not as "sexy" as renewable projects. Any renewable projects would need to be funded through a special competition, because they are not typically implemented using NRM funds.

Steve noted that some onsite renewable projects have already been implemented. The VA Boise facility has direct geothermal heating, and they are looking into co-generation and absorption cooling at this site. Steve indicated he can count renewable energy savings "three times" (once for displacement, once for onsite generation and once for reduction of energy use). He noted that DOE "rules" allow this crediting if renewables displace electric hot water, but not if hot water is provided by gas.

In terms of achieving EE and renewable energy goals, the biggest barrier for the VA is that health care service is the primary VA mission and focus. "Anything that negatively impacts customer care (comfort and safety) will take a back seat". Even

the perception that you are spending money on other than "the highest mission priorities" can be a major obstacle. "All VA facilities get to decide on their own priorities". In the past, Steve has only gotten 15 minutes per year to talk with the VISN Director about energy. Now the VISN Directors and Steve have the same energy goals in their performance contracts.

Another major barrier is the fact that energy costs represent an extremely small fraction of the VA facilities overall budget (for example, the VISN 20 Vancouver campus total annual operating budget is approximately $350 million, while the total annual energy component of the budget $3 million to $4 million).

Neither Steve nor Ron offered a few specific suggestions when asked about what FEMP can do to assist the VA in accelerating EE and renewable energy project implementation.

Steve suggested that FEMP could be "a voice to the VA" to showcase FEMP capabilities. He noted that GSA has participated in monthly VISN energy manager meetings and FEMP could do the same thing. He recommended someone from FEMP contact Rick Hart (Dallas VA) who manages the agenda for the monthly VISN energy manager meetings.

Steve thinks the VA could use more training and support from FEMP on energy efficient procurement practices. They are interested in purchasing energy efficient equipment, and would like guidance on how best to do that. Can FEMP expand its focus to include identification of the most efficient equipment listed on the GSA Schedule? The VA has to buy through GSA and it doesn't appear that GSA places any particular emphasis on energy efficiency. It isn't clear if GSA follows Energy Star requirements and specifications.

Ron also wondered if FEMP could act as a facilitator, or actually broker an acquisition contract in the same manner as the Defense Energy Supply Center (DESC) handles procurements. The Vancouver VA campus has a purchase agreement with GSA to purchase natural gas. Ron described this current purchase agreement as a "bad deal". {Note: Based on follow up discussion with the PNNL

Market Assessment Project Lead, currently FEMP can only act as a facilitator for DOE sites, and this function may be moved to a different organization.}

Ron thinks FEMP is "doing a good job, but it is a monster of a program".

Steve noted that the VA worked with FEMP to do energy audits in the past, but that was long ago. He recalls doing a water case study with FEMP on VA facilities in Portland. He is aware of FEMP online training, but concludes the audience for this training is "very naive compared to the VA", and the VA staff knows more about EE projects than staff from most other Federal agencies.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Similar to the circumstances facing JBLM, the VA is just starting to work with BPA, and is relying extensively on the BPA Federal program to achieve its' energy reduction goals. The new 10-year, $30 million IA with BPA for the Vancouver, American Lake and Seattle VA Campuses envisions using BPA for turnkey project implementation and financing 100% of the total project cost.

This reliance on BPA may be ill timed. Of most immediate concern is the potential impact on VISN 20 EE goal attainment, given BPA's intention to rely on utilities to implement EE projects with agencies after 2011. The VA and other agencies (like GSA, NPS, USFS and the Coast Guard) with facilities in multiple utility service areas will be disproportionally affected by further reduction or elimination of BPA project support.

FEMP needs to heighten its credibility with the VA. It is recommend that: (1) FEMP increase its' presence in the region, and consider staffing a "circuit rider" position to establish ongoing relationships with VISN 20 (and other agencies) so that FEMP can function as a catalyst, facilitator, and advocate of EE and renewable energy projects; (2) FEMP initiate MOAs between FEMP and VISN 20 to jointly support achievement of EPACT and E.O. mandates for EE and renewables.

FEMP needs to contact Steve Juhasz and/or local VA energy managers to establish an MOA and offer FEMP assistance to VISN 20. FEMP should advocate that BPA

honor all outstanding IA task orders and/or facilitate transition to alternative energy service providers (like USACE and/or GSA AAS).

It is recommend that FEMP give full consideration to Steve and Ron's other suggestions to:

- participate in monthly VISN energy manager meetings
- provide training to the VA on energy efficient procurement practices
- identify the most efficient equipment options on the GSA Supply Schedule
- "broker" energy acquisition contracts (a la DESC).

Summary of Meeting Notes from Interview with Steve Butterworth, Regional Energy Manager, Pacific West Region, National Park Service (June 17, 2010)

Attendees

Steve Butterworth, Regional energy manager, NPS
Tim Scanlon, PNNL subcontractor

Background

The National Park Service (NPS) has the largest number of individual facilities of all civilian agencies. NPS is growing; new National Parks are being established, and new facilities are being constructed in existing parks to build out and fully operationalize the parks.

The Pacific West Region (PWR) of NPS stretches from the Columbia River Basin (the BPA service area in the region), and includes all of California, Nevada and the Pacific Islands.

Interview Highlights

PWR is the only NPS region to develop and use an "energy scorecard" for each and every park in their region. This tracking and reporting system is in the process of being updated to a "climate action scorecard".

For quantifying the electric energy savings in each park, Steve defines the minimum market potential as the difference between the current park usage level and the "targeted usage level" (i.e., 30% reduction based on the EISA 2007 goal). The amount of "red" is equal to the remaining market potential in the park.

In addition to tracking electricity reduction, the scorecard is used to track other E.O. goals (including renewable generation, and reduction in greenhouse gases, fuel oil, propane and water). One of Steve's responsibilities as the regional energy manager is to collect scorecard data from each individual park in the PWR. He started collecting energy consumption data in 1984. This morphed into the current scorecard format in FY 2007.

The scorecard approach "caught fire" in FY 2008, when NPS Regional Directors bought into using the scorecard as a "performance metric". Park superintendents

pay attention to their scorecard ratings and do not want to be “caught in the red”. In addition the scorecard approach intentionally is designed to create peer pressure. Parks see other park’s scores. The scorecard is also used to direct PWR capital investments to the “worst” parks to achieve the highest impacts.

Steve noted that a single major construction project can potentially have a big impact on an individual park’s score; for example, the new construction project to replace a Mount Rainier Visitors Center with a new and smaller facility. The park was able to achieve an 80% reduction in electric and fuel oil consumption at the Visitors Center. “Instead of making the dinosaur more energy efficient, we got rid of the dinosaur.”

One of the biggest energy aspects for many parks is the treatment of water prior to release of water back to the environment.

Currently, the most important goal of the PWR NPS is minimizing their carbon footprint, or managing their “climate action plan” in response to E.O 13514. Steve cited the “evolving metrics” that have been developed in response to E.O. 13514. In the past, NPS PWR investments were primarily “dollar driven”. Now, the key measure used is MTCO2E (metric tons of carbon dioxide equivalent) reduction.

The Interior Department goal is a 28% reduction in carbon emissions by 2020. Unlike the E.O energy reduction “facility level” goals, setting an aggregate goal at the Department level allows for recognition of past achievements within individual Bureaus like NPS (“Parks that acted early are recognized, rather than penalized.”) Otherwise, adding new 10-year goals favors “non-performance in the past”.

“Evolving metrics” (from $ to MTCO2E) requires a shift in how projects are evaluated. Steve noted that the National Laboratories are stuck in the “old paradigm” of cost effectiveness and life-cycle costs (LCC). When LCC analysis is used to evaluate onsite renewable generation against utility-supplied (remote) generation, the latter almost always wins out as the cheapest way to provide electricity because LCC does not place a dollar value on externalities. By contrast, when MTCO2E is the primary metric, externalities drive the calculation and

therefore, drive the investment decision. (You can't build a new glacier, but you can print more money.)

Steve thinks it would be useful to place more emphasis on Scope 1 (onsite emissions from park operations), Scope 2 (electric power generation sources) and Scope 3 (visitor impacts, including transportation and waste generation). Steve thinks Scopes 1 and 2 are achievable, but Scope 3 is less unattainable, because it would require significant changes in park employee and visitor behaviors and preferences.

E.O. 13514 reporting requirements rely on generation source data. The existing energy scorecard data is insufficient, because it is not generation source-specific. As a result, PWR NPS has used the MTCO2E national average for electricity for its tracking and reporting.

Steve looks to direct PWR NPS investment toward "Scope 2 reductions" (i.e., focus on those parks served by the "dirtiest" utilities) in parks in Hawaii (served by oil-fired generation and rubber tire furnaces), California and Nevada (particularly Parks served by Southern California Edison (SCE), Pacific Gas & Electric (PG&E) and Nevada Energy). By contrast, MTCO2E volumes for Parks in the PNW are very low because of the high concentration of hydroelectric generation (with the exception of parks served by PacificCorp, which still relies on coal-fired generation). Steve noted that this approach to directing NPS investment has limited accuracy, in that it only considers utility–owned generation. Many utilities serving the parks rely on purchase power contracts to meet a portion of their load requirements (where the source of generation is not factored in). This limitation notwithstanding, Steve believes the parks can mitigate (reduce) their carbon footprint by employing "peak shaving" measures.

The mission of NPS is to preserve the National Parks for future generations. NPS scientists "connected the dots" between environmental change from carbon emissions and the related impacts on park resources. This awareness is enables the parks to make better management decisions. "What do you call Glacier National Park when there are no more glaciers? (Steve noted that climate studies predict this could occur by the year 2025.) He thinks the disappearance of the

glaciers is a “poster child“- type issue that captivates the mind, and serves as an environmental “call to arms”.

The NPS also recognizes and leverages the public education aspects of the parks, and the ability of the parks to serve as a showcase for EE and renewable energy technologies. The PWR recently installed 1.8 MW of renewable energy within the region. He also cited a 672-kW solar system at El Portal (Yosemite National Park) that resulted in a 12-fold increase in renewable generation in the park and essentially doubled the PWR region’s renewable energy capability.

When asked to comment on the PWR’s emphasis on EE relative to renewable energy, Steve mentioned that “time is the enemy when it comes to resource management”, and the “time dimension” is critical in resource preservation (“choose the remedy that can be implemented in the least amount of time”). In terms of protecting and preserving park resources, “chipping away” at EE improvements takes relatively more time to achieve the same results when compared to large-scale mitigation of Scope 2 emissions from using renewable energy technologies. Steve cited a California law that allows parks, if served by the same utility, to install up to 1 MW of “distributed” (i.e., renewable) generation at a single location. Previously, renewable energy generation had to be “behind the meter”.

Currently, one of the top priorities for PWR is to get rid of “constant-run” onsite generators (such as those that operate 24/7 during the period the Sunrise Visitor Center at Mount Rainier National Park is open). Steve mentioned a pump storage technology might also be a promising local mitigation approach for some PWR parks.

PWR recently secured ARRA funding to perform new “ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) Level-2” audits of the 11 top energy consuming parks in the region. These audits will encompass approximately 90% of the energy consumed by these parks. In addition, in Hawaii, all the parks are being audited using NPS-appropriated funds under an interagency agreement with NREL (six EE audits and two renewable energy audits).

PWR has a "carbon neutrality" goal. Steve cited the Arizona Memorial (at Pearl Harbor) being totally rebuilt to Leadership in Energy and Environmental Design (LEED) Platinum standards, but thinks LEEDs is "not good enough". The ultimate goal is preserving park resources by achieving carbon neutrality. He thinks it is feasible for all energy growth in PWR to be mitigated. As examples, he cited new construction like the "zero net energy" house in John Day Fossil Beds National Monument, PWR using ARRA funding to trade out 50 park vehicles for hybrids, and the recent purchase of two diesel hybrid buses at Yosemite National Park.

In response to the market assessment interview questions regarding barriers to EE and renewables, Steve thinks there are fewer barriers than in the past because PWR has connected EE and renewables to the NPS mission (PWR has "institutionalized" EE and renewables). For PWR, it is not just about "checking off a box" in a document; it is about addressing sustainability principles. He did note that EE is paid out of discretionary park funds rather than "line-item funded", and that EE is not as "sexy" or as visible, compared to renewable energy projects.

He believes EE needs have changed over time. The new MTCO2E metric is difficult and time consuming to measure. Federal sites could use help from FEMP in the form of tools and calculators to measure the MTCO2E reduction from implementing EE measures (example: chiller replacement or recharge).

Steve thinks the Federal agencies that are most successful in achieving their EE goals own their own buildings. Federal agencies in leased buildings typically do not have staff dedicated to dealing with EE or renewables.

He believes EE best practices are transferable to other agencies, and the most effective way to do this is to use interagency detail assignments and other forms of "personnel exchanges" ("groom energy champions by having them work with other energy champions").

In terms of specific actions FEMP can undertake, Steve suggested the following:

- Shift away from LCC analysis to analysis of environmental impacts

- Create more awareness of the impacts of agency decisions to continue to operate old and inefficient equipment.
- Utilize social media communication techniques to get the message out to the younger generation of employees ("tweet" EE and renewables).
- Change name from "Federal Energy Management program" to "Federal Carbon Emissions Mitigation program" ("focus on the end result, not the means").

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

The PWR of the National Park Service appears to be on the leading edge of Federal agency efforts to institutionalize energy efficiency, renewable energy and carbon mitigation goals.

As the PWR energy manager, Steve has demonstrated a lot of ingenuity and creativity. He is the quintessential model of a Federal energy champion.

The "climate action scorecard" provides a holistic approach and a comprehensive structure for tracking progress toward meeting EE, renewable energy and carbon reduction targets. This type of scorecard could be adapted for use by other Federal agencies, particularly those agencies with multiple facilities served by multiple utility service providers.

Recommendations

FEMP should consider developing and marketing a similar "climate action scorecard" template (modeled after the PWR version) to other agencies. The template could also be made available through the FEMP website.

It is also recommend that FEMP give full consideration to Steve's other suggestions for moving beyond LCC analysis and adapting new forms of social media techniques to get the EE and renewables message out to younger Federal employees.

Summary of Meeting Notes from Interview with Chris Drury (Regional Energy Program Manager), Navy Region NW (6/23/10)

Attendees

Chris Drury, regional energy program manager, Naval Facilities Engineering Command, NW

Skip Schick, BPA Federal program consultant

Tim Scanlon, PNNL subcontractor

Location

BPA Seattle Office

Background

The Navy Region Northwest (NRNW) includes Naval Station Everett, Naval Station Bremerton, Submarine Base Bangor, Naval Air Station Whidbey Island and other U.S. Navy commands, facilities and operations in Washington, Oregon, Idaho and Alaska.

NRNW provides coordination of base operating support functions for operating forces throughout the region. NRNW is responsible for facilities and land management, housing, environmental, security, and logistical concerns for the thousands of Navy members and their families in the NW. Primary areas of responsibility are facilities located in the Puget Sound Region. Puget Sound is the U.S. Navy's third largest fleet concentration area. Region installations and facilities occupy more than 28,000 acres of land. The Department of the Navy spends about $2.8 billion annually in the region, which is home to approximately 26,000 active duty members, 16,000 civilian employees, 6,000 reservists, 80,000 family members, and 45,000 Navy retirees.

In February 1999, the Navy consolidated base operations in the Pacific Northwest to operate more efficiently. In its 2005 Base Re-Alignment and Closure (BRAC) recommendations, DOD recommended to consolidate the Navy Reserve Command's installation management function with NRNW at Submarine Base Bangor, WA and two other installations. The consolidation of the Navy Reserve

Command installation management functions with other Navy regional organizations was part of the Department of the Navy efforts to streamline regional management structure and to institute consistent business practices.

Naval Facilities Command Northwest (NAVFAC NW) separated from NAVFAC SW over 3 years ago. A new organization (Energy Program Management Office or EPMO) was created in 2010 to combine and consolidate energy management and utility operations. Chris thinks NRNW will now be able to focus on energy (including fleet energy and sustainability initiatives) in a "more coordinated and less fragmented manner". They are ramping up staffing levels and are in the process of filling three new positions.

The Navy spends between $22 and $25 million in energy costs at Bremerton and Bangor. NRNW combined facilities represent one of the largest Federal energy loads in the NW, and a significant portion of the remaining energy efficiency market potential at Federal sites in the region.

Interview Highlights

At the time of the interview, Chris had just completed a draft of the 20-year NRNW Strategic Energy Plan (2030). The plan summarizes all the energy reduction and renewable energy Executive Order goals and NRNW accomplishments, extrapolated to the year 2030 .

Navy Region NW is on track to achieve its 2015 target of 3% energy savings per year (30% overall energy reduction).

Renewables are the key focus of the 2030 Strategic Plan. Achieving the 2020 renewables goal (50% renewable energy by 2020) is the biggest challenge. He noted that the 50% renewable goal is set by the Secretary of the Navy (rather than a DOD goal).

Chris thinks there will be a major shortfall in the renewable goal achievement, as the Navy has set goals that are unattainable at the local facility level. Chris concludes that NRNW "can't get there from here". Chris thinks large-scale renewable projects make sense, but there are "Admiral-Level" issues to resolve.

Chris mentioned NRNW historically has been spending over $15 million on EE and $6 million for renewables. Realizing the renewables goal would, at a minimum, require a doubling of renewable funding over the next 10 years. Additional funding would be required for engineering design and support, and additional staffing would also be needed to implement the renewable projects.

With respect to the renewables goal, he cited a recent study to examine wind and photovoltaic potential at the Boardman Bombing Range (owned by Whidbey Island). Over 100 aMW of renewable energy potential was identified, and BPA transmission lines are close by so wheeling would not be a problem. This is a very controversial project. In addition to "mission concerns" about the use of the Bombing Range for this purpose, the Bombing Range Operations Office would severely constrain the size and location of a wind farm and has expressed concerns about the "reflectivity" of a photovoltaic project. Generation-scale renewable energy in the form of tidal and wave energy also face major environmental and NEPA obstacles and lots of local resistance.

To use Energy Conservation Investment Program (ECIP) funds (appropriated funds for military construction) for renewable (solar hot water and geothermal) projects, the savings-to-investment ratio must be greater than 1. NRNW was not able to successfully compete for renewable ECIP funding because these types of renewable projects are not as cost-effective in the region. By contrast, Chris noted that the Navy geothermal project at China Lake, California, actually generates revenue for the Navy, and this revenue is used to fund other renewable projects, staff costs and travel. He is hoping to be able to tap into these funds to pay for construction and design support from the Facility Engineering and Acquisition Department (FEAD).

NRNW has used its conservation and renewables discount to purchase renewable energy credits from BPA, put this will be phased out after 2011. Chris also noted that it is Navy policy not to count renewable energy credits toward the 2020 renewables goal.

The interview shifted to discussion of NRNW's very significant historical accomplishments in EE (30% energy reduction over the past decade), and the

reasons for their success. Chris acknowledged NRNW has been very successful in securing different funding sources, and that access to funding was critical to their success, given the relatively low cost of electricity in the NW.

Chris gives a lot of credit to the multi-year interagency agreements between NRNW and BPA, referred to as a basic ordering agreement (BOA). Chris "could not say enough good things about Michael Huber" (the BPA Federal program manager for NRNW).

Two of the largest and most energy-intensive Navy installations in the Puget Sound area (Naval Station Bremerton and Submarine Base Bangor) are direct-served utility customers of BPA. The BOA with BPA has been in place since the mid-1990s and NRNW has relied extensively on the BPA Federal program for EE project support. The BOA with BPA enabled the Navy to capture "a lot of low hanging fruit in the beginning". The BOA has been used for a lot of lighting upgrades (three different lighting retrofit cycles have already been implemented under the BOA).

NRNW has issued $17 million in task orders under the current BOA with BPA (the limit on the BOA is $30 million). Chris thinks the current BOA will be the first time NRNW will hit the BOA funding cap before the BOA expires. In the past, all EE projects were subject to a 10-year payback requirement, and repayment on project financing could not exceed 15% of the total utility budget. This is no longer a constraint. Now the rule is "it must be a good business decision". EE projects can be financed over the "economic life" of the technologies and equipment" included in the project, rather than subjected to a 10-year cap.

BPA also provides ongoing, onsite EE project management (using a BPA contractor). Chris described BPA lighting incentives as "generous", and also noted that NRNW currently has a balance of over $1.5 million in "earned project incentives" held by BPA, available to fund additional EE projects.

In the past, the BOA with BPA has also been used to hire a resource efficiency manager (REM). When Chris started at NRNW, there were only three REMs (one at Whidbey Island and two at Bremerton). Today the Navy spends over $1.4

million per year on eight REM positions. This time around NRNW will procure REMs through a GSA support services contract. NRNW contracting officers are now “very narrow and rigid” in interpreting the statutory regulations pertaining to UESC, and will no longer allow a REM to be hired through the BOA with BPA.

Chris discussed other problems Navy contracting officers have with the BPA BOA regarding the level of competition BPA requires in the selection of contractors. The prior CO of the BOA (Ed Thibido) caught heat for this, even though the problem was not EE project related (i.e., the “no-bid contracts between the Federal Government and Halliburton). Now a separate justification and authorization (approved at the NAVFAC Command Level) is required for all EE projects with a funding level of $5 million or more.

Over the past decade, NRNW has also leveraged the BOA for multiple BPA-facilitated private source financings to fund the Navy share of EE project costs (net of utility incentives). Getting the authority to use the BOA for financing was a real challenge. The Navy had to get NAVFAC legal support for this. It was hard to get Navy contracting officers to take on this kind of perceived risk.

The Navy has relied on BPA-facilitated private-source financing more than any other agency in the region. NRNW has done four financings to date (the latest financing was for $7 million). Chris is currently working on a “fifth phase” of EE projects under the BOA with BPA, and is planning to do at least three more phases.

A portion of the last financing (4% of the $7 million) has been set aside to fund engineering design support from the Facility Engineering and Acquisition Department (FEAD). While Chris values the assistance he receives from FEAD, he noted that BPA provides the kind of EE smarts that are not available in-house. FEAD is also pressured to do both EE and mission-related projects, and Chris noted Submarine Base Bangor has several major construction projects underway that are mission related (not EE) projects.

Chris is concerned that he may not be able to rely as much on BPA-facilitated financings in the future because of limitations on the amount of remaining

electric savings available from “bundling” electric and gas ECMs. He noted that this is a limitation imposed by BPA. BPA requires that, in order to use BPA-facilitated financing and BPA EE project support, a significant portion of the project energy savings must be electric energy savings.

He is working under these “BPA rules” but is struggling to bundle gas and electric measures. Recent audit results have identified major EE savings potential from gas-fired steam projects at Bremerton and Whidbey Island. He is hoping that BPA will allow a smaller component of electric savings as “a workaround of the BPA rule”. Bremerton represents about half of the Navy’s energy consumption in the NW, and steam plants make up a significant portion (which is generally outside BPA’s scope).

Chris said: “without BPA financing, we would be dead in the water”. If the Navy loses the ability to finance projects through BPA, their only other option is the ESPC route (and working with Port Hueneme). Chris thinks the ESPC option may work well for some types of large projects, but ESPC is expensive.

Other than BPA, there is no UESC option available to NRNW.

Snohomish County PUD (SNOPUD) serves Everett Naval Station and Keyport. SNOPUD does not provide third party financing, and the NRNW – SNOPUD BOA has expired. SNOPUD “is getting back in the game”, but will only provide project incentives for qualifying ECMs.

Chris noted that NRNW also has a BOA with Puget Sound Energy (PSE), the IOU that provides gas and a portion of the electric service to some of the local Navy installations. PSE does not provide EE project financing. The PSE program manager (Jeff Petersen) informed Chris that PSE is also getting out of the construction management role. PSE wants to limit their EE project support to offering grants and utility incentives.

Navy facilities at Whidbey Island, Keyport and Indian Island therefore cannot benefit from BPA facilitation of private source financing. Chris is planning to use an ESPC for project work at Keyport. In terms of current EE priorities, he is

focusing on major equipment change outs (including chillers and evaporative coolers).

The Navy is undertaking a big smart metering project ($34 million in ARRA funds), installing 1340 meters. Chris wants to sync up the smart meters with the direct digital controls (DDC) systems to better monitor facility energy use. Several buildings have already had DDC upgrades over the past 2 years, but his biggest problem is that there is no funding for maintenance, and contractors don't keep the equipment, systems and controls on track. He cannot use the BOA with BPA for meters, because there is no energy savings.

Chris mentioned there is a new Navy program funding source that NAVFAC is developing referred to as "Sustainable Renewable Maintenance" funding. The Navy will also roll out new analytical tools and use a new metric. "EE ROI" expands life-cycle cost analysis to include a measurement and verification component. The intent of this planning tool is to include proof that the planned energy savings are actually realized. There is a big push inside the Navy to do this, in response to recent audit results.

Chris is also working with a NRNW Project Execution Group, and trying to take advantage of BPA review of NRNW new construction projects. BPA is currently offering incentives of $0.27/kWh for new construction electric energy savings above ASHRAE 90.1 requirements.

Chris thinks project management and access to low cost project financing are the most valuable types of EE project support. He highly values the EE expertise provided by BPA and is very pleased with BPA facilitation of financing. He noted no other utility service providers in the NW region offer any form of project financing. He acknowledged that the Navy has imposed a lot more requirements on BPA project management. "BPA has its challenges, but the biggest problem is on the Navy's side."

Chris is aware of the Regional Dialogue Meetings BPA is holding about the future of BPA EE programs post 2011, but he thinks the BPA EE Federal program is not the focus of the Regional Dialogue discussions. When asked, Chris said he

thought NRNW would be open to consideration of using BPA for financing and an alternative EE service provider (USACE or an ESCO) for EE project management and implementation.

When asked what FEMP can do to assist his efforts, Chris noted that he has "not used FEMP as much as I could or should". He said there is "a lot of "excellent stuff" available on the FEMP website.

He thinks FEMP can help Federal agencies by doing more research on renewables: "what works best and where". He thinks NREL may be well-positioned to do this.

He also thinks FEMP could help with interagency coordination at a regional level. He cited the FEMP-funded study on renewables potential at the Umatilla Army Depot prepared by Rich Wilson (USACE) and PNNL. In the BRAC land use assessment, no one asked if the bunkers and land could be used for renewables. He thinks the BRAC planning process should include explicit consideration of renewables.

NRNW is mandated (under EISA 2007) to audit one-quarter of all major energy consuming buildings (top 75% of energy use). In the past, utility service providers did the audits. He also thinks FEMP could help with funding and staff for the audits required. There is a big demand for audits, but this is an unfunded mandate.

He also thinks FEMP can help develop a NEPA compliance template for renewable generation projects, and identify up front all the studies that are needed. There is no NEPA funding to do this, and a full-scale environmental assessment will be required (the Navy cannot rely on categorical exclusions).

He noted that the Defense Utility Energy Systems (DUER) Report structure has not as yet been adapted to capture the renewable metrics. Fortunately the Navy Pollution Prevention and Air Quality Group already use these metrics, and he is able to get help from them. FEMP helped develop the CO^2 measurement and reduction calculators he used when submitting his FEMP award applications.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Of all the Federal sites included in this, Navy Region NW is by far the most successful in terms of achievement of EE goals (30% energy use reduction over the past decade).

There are a number of factors that have contributed to this success, including (but not limited to):

- Large-scale, long-term (multi-year) "EE program" planning via the BOA with BPA.
- Access to low-cost capital to fund NRNW's share of EE project costs (net of utility incentives).
- Effective leveraging of the BPA BOA for over $30 million in BPA-facilitated private-source financing.
- Effective leveraging BPA and other local utility incentive program offerings.
- Extensive and ongoing EE project support (from the BPA program manager and BPA onsite contractors).
- Expanded use of REMs to identify and develop EE projects.

Unfortunately, other than the expanded use of REMs, many of the factors that have contributed to past EE success may not be as available or as effective in the future:

- Navy CO concerns regarding BPA competition in contractor selection and BPA supply chain staffing limitations are likely to impede the pace of project implementation.
- Gas efficiency improvements are a large part of the remaining EE market potential at NRNW facilities, but BPA "rules" now require bundling of electric and gas ECMs, and a "significant proportion" of the project must be electric energy savings.
- Although NRNW is a direct-served customer of BPA, it is unclear what level of BPA project support will be provided in the future, given BPA's recent

decision to rely on utilities to implement EE projects with Federal agencies after 2011.

- It is also unclear whether and to what extent BPA will continue to facilitate private source financing for Federal sites in the NW.

Recommendations

FEMP needs to take on more of an advocate role with BPA to:

- sustain the level of EE project support BPA provides to NRNW
- continue to enable private-source financing as requested by NRNW (and advocate that BPA extend private source financing to other NRNW sites that are currently excluded)
- allow greater flexibility in the bundling of gas and electric measures so that NRNW can meet its 2015 energy reduction goals.

FEMP also needs to engage the PSE Conservation program director (Bob Stolarski). In a separate interview for this assessment, Bob explained that PSE's decision to phase out of construction management (at JBLM and NRNW) was due, in large part, to the recognition that the BPA Federal EE program was already providing "turnkey" EE project support to NRNW (and JBLM) sites. Bob thinks a single utility service provider (BPA) is the most efficient way to provide EE project support to these sites. That said, he was open to revisiting the level of EE project support PSE provides. BPA's decision to reduce its direct project support to NW Federal sites may be a good entre for re-engaging PSE. FEMP could play an advocacy role here, and encourage PSE to once again offer a UESC option to their Federal customers. There are also other possibilities for optimizing/ complementing the types of support both PSE and BPA could provide to these sites. For example, BPA could focus on less staff-intensive elements of EE project support (i.e., financing facilitation) and reduce or eliminate the current restrictions on bundling gas and electric ECMs.

PSE is unlikely to provide project financing, but might be persuaded to provide some level of EE project management, particularly if the projects under consideration involve primarily gas ECMs.

FEMP should also give full consideration to Chris Drury's suggestions to:

- help with interagency coordination at the regional level (a la the PNNL renewables study)
- develop a NEPA compliance template for renewable generation projects sited on Federal property
- conduct and publish more research on renewables (what works best and where)
- provide funding and staffing support for the audits mandated by EISA 2007.

Summary of Teleconference Meeting Notes from Interview with Cheri Sayer, EE Point of Contact, GSA Northwest/Arctic Region, Auburn WA (July 16, 2010)

Attendees

Cheri Sayer, GSA Region 10 EE point of contact
Skip Schick, BPA Federal program consultant
Tim Scanlon, PNNL subcontractor

Background

The GSA Northwest Arctic Region (Region 10) covers the states of Alaska, Idaho, Oregon and Washington. The Region 10 Public Buildings Service is responsible for managing a portfolio of 15 million square feet of floor space in 647 owned and leased buildings, with a total annual budget of more than $462 million.

The Region 10 Public Buildings Service designs, constructs and manages a portfolio of Federal office buildings, courthouses, border stations, warehouses and laboratories. Federal agency clients can access GSA for real estate services, property management, new construction, renovations, and facility repairs. Region 10 also negotiates leases for agencies residing in private lease space.

Over the past 15 years, Region 10 has received EE project support under a series of multi-year interagency agreements (IA) with the BPA Federal program. The pace of EE activity under the IA with BPA has declined over the past few years.

Interview Highlights

Cheri Sayer (who retired shortly after this interview was conducted) works in the Public Buildings Service Office of GSA's Northwest/Arctic Region headquarters in Auburn, Washington. She serves as the primary point of contact on EE activities in GSA facilities. Cheri has worked extensively with BPA on the BPA Federal program, and other regional utilities implementing EE projects in Region 10.

Cheri explained that most of her EE activities involve new construction or major renovations implemented through prime contracts Region 10 holds with architectural and engineering (A&E) firms. She wants to work with A&Es who

really focus on EE, know utility EE program requirements, and their incentive offerings.

She very rarely relies on other types of EE service providers. She noted that working with design-build contractors is much more challenging, and EE project experience with the latter is “hit and miss”.

Cheri indicated GSA property managers have differing views on the importance of EE. “Everybody does their own thing. There are no consistent EE standards. Value engineering may go by the wayside”.

Over the next 3-year period, GSA will have “more money than ever”, but now all building projects must be “green” or “high performance”. Even with more money, the challenge will be to hire staff.

She cited major project work underway at the Gus Solomon Courthouse in Portland, and the Union Station in Tacoma. The former requires lots of pneumatic upgrades and the latter needs extensive building automation. However, the return-to-investment for these upgrades will not score as high as EE improvements.

In terms of renewable projects, Cheri identified six photovoltaic (PV) projects installed by BPA (under the BPA Federal program). Two more PV projects are planned with BPA. The Federal goal is 5%, but GSA’s goal is to have 10% of their energy supplied by renewables. (GSA Region 10 was able to make the EPA “top 10” list using renewable energy credits.)

She noted that GSA’s EE project support needs have changed over time and continue to evolve. She has lots of small projects, mostly tenant “build outs” in both GSA-owned and GSA-leased facilities. There are no EE standards in place for build outs or even minimal lighting efficiency requirements. As a consequence, Cheri thinks a lot of the GSA facilities are “totally over lit”.

GSA performs “technical evaluation” of new equipment purchases, but this has little practical effect if the equipment is not specified in the GSA contract. The actual selection of equipment is usually the contractors’ decision. She cited one

example of having to replace all five new boilers at the Jackson Federal building (in downtown Seattle) because the boilers were not properly commissioned at the time of equipment start up. GSA ended up "taking the hit" and had to use ARRA funds to replace the boilers. Cheri noted that now the Jackson Federal building must meet strict kWh/sqft targets and energy savings are measured up to 1 full year after the equipment is installed.

Cheri values the BPA Federal program. As funding becomes available, Cheri will turn to BPA. "BPA has the EE ethic" and GSA has "give and take" on the contractor BPA selects.

She noted her budget for EE is a very small percentage of what GSA spends on a new construction or major retrofit project. Her biggest problem with BPA is that she has "narrower and narrower" access to BPA EE project support. In the past, Region 10 could access BPA for projects in Alaska. Now BPA limits its EE Federal project support to public utility service areas in the region. She is no longer able to access BPA for EE projects in IOU service areas (like Portland General Electric).

She believes that the availability of EE project support from BPA is also "getting more constricted". There are fewer BPA Federal EE project managers and less BPA supply chain staff to provide procurement support. As an example, she cited the fact that it took over 18 months to implement the last GSA Region 10 EE task order with BPA. Nonetheless, she appreciates that BPA "spends a lot of upfront time to come up with the best EE approach". She is also aware that GSA is competing with other agencies for increasingly limited BPA EE Federal project support.

She noted that DOE has been encouraging GSA to pull in more external EE technical expertise, but GSA is very resistant to bringing in outside expertise. Cheri is in a different GSA Division and is functionally separate from GSA Project Managers. She is considered an "outsider" by the latter group.

She noted that GSA Region 10 operations and maintenance staff has similar EE reduction goals, but the GSA Region 10 Design and Construction Division staff does not have these EE goals in their performance standards.

When asked about a role for FEMP to help accelerate EE projects in the region. Cheri indicated she did not see a role for FEMP ("FEMP helps agencies, not contractors"). She suggested that EE mandates should be placed on contractors who work with agencies.

She does see a role for FEMP in offering a simple online "green procurement"/ EE project certification program, where agencies like GSA could improve on their EE contract specifications ("on time, on budget, and sustainable "). She noted the movement toward sustainability is making inroads, but very slowly. She thinks FEMP could accelerate this.

She praised the new FEMP webcast series, but criticized the level of FEMP outreach efforts ("I have not gotten a call from FEMP in the last 5 years"). Cheri thinks there is value in tailoring training to agencies in the region ("what you learn from other agencies in your region can be very valuable".)

Cheri retired from GSA later that week. There is a vacancy announcement to fill behind her. She has also heard that GSA may be able to hire REMs off a vacancy announcement. She thinks REMS can work well within GSA Region 10. She noted that her supervisor (Michael Okuro) intends on hiring a lot of new people.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Of most immediate concern is the impact of BPA's recent decision to rely on its public utility customers to implement EE projects with Federal agencies. Cheri spoke in detail of how much her access to BPA Federal project support has already been constricted.

No utilities in the region appear willing or able to provide the same type and level of EE Federal project support that BPA currently provides. GSA and other agencies (like NPS, USFS and the Coast Guard) with facilities in multiple utility service areas will be disproportionally affected by further reduction or elimination of BPA EE project support to agencies in the region.

The pace of EE activity at GSA Region 10 appears to have declined over time. Interviews with EE program staff at different utilities (most notably Puget Sound Energy, Avista and ETO) all independently commented on the lack of GSA participation in their commercial program offerings.

Recommendations

FEMP should increase its presence in the region, and consider staffing a "circuit rider" position to establish ongoing relationships with GSA Region 10 (and other agencies in the region) to function as a catalyst and facilitator of EE and renewable energy projects. [Note: to maximize effectiveness, the individual serving in this capacity should have prior EE project experience working with agencies and private EE service providers, and be knowledgeable of NW utility EE program offerings.] FEMP should establish a MOA with GSA Region 10 to jointly support achievement of EPACT and E.O. mandates for EE and renewables.

FEMP should consider Cheri's suggestions for simple online EE certification program and for tailoring FEMP training to agencies in the region.

Summary of Onsite Interview and Follow Up Teleconference with Joint Base Lewis-McChord (JBLM) - (July 12, 2010/August 3, 2010)

Attendees

Eric Waehling, acting energy manager, Joint Base Lewis McChord (JBLM)
Skip Schick, BPA Federal program consultant
Tim Scanlon, PNNL subcontractor

The initial interview was held on July 12, 2010 at Ft. Lewis in the office of Eric Waehling, "acting" energy manager. A follow up conference call was held on August 3, 2010. The onsite interview and follow up call was conducted in collaboration with Skip Schick, a private consultant hired by BPA to review the BPA Federal Agency program.

Background Information and Observations from Initial Interview

Fort Lewis was recently merged with McChord Air Force. With over 25 million square feet of building floor space, Joint Base Lewis-McChord (JBLM) is one of the largest Federal sites in the Northwest, and the largest single Federal site in terms of the amount of remaining energy efficiency market potential. Recent audit data from 20 "representative" buildings indicates potential for over 27% of total energy use savings basewide, at an initial estimated cost of $39 million.

Relative to market potential for energy savings, JBLM appears to be severely staff constrained in terms of in-house energy management capability. According to Eric, adding REM positions at JBLM is highly unlikely. REMs (even though they are contractors) would be treated as part of JBLM's head count. Ft. Lewis and McChord Air Force Base are already being combined to obtain staff economies. Right now there is no person at McChord to champion energy efficiency. Eric is actually a contractor serving as acting energy manager. As such, he is essentially a "one man shop" with overall responsibility for managing the multi-year EE program for the Base. Receiving project management support from BPA is viewed as essential.

Despite the staffing constraints, Eric noted the Base has a track record for management support on sustainability and credits the former and current Base Commanders for advocating energy efficiency and supporting getting the IA in place with BPA.

At present, JBLM is fully dependent upon BPA to implement the entire scope of multi-year energy efficiency program. Previously, energy efficiency projects were implemented under an ESPC with Johnson Controls. Eric indicated that the prior ESPC "was not a good experience".

The IA with BPA is perceived to have significant advantages relative to ESPC in terms of cost, timeliness and risk. BPA is viewed by the Base as another agency. This "fed-to-fed partnership" with BPA for energy efficiency project implementation is perceived to be superior to what can be provided by private sector ESCOs or their serving utilities (Tacoma Public Utilities and Puget Sound Energy).

Note: During the course of the first interview Eric referred to the agreement between the Base and BPA as a "UESC agreement". The term "UESC" (utility energy services contract) in this context is somewhat of a misnomer because this term normally applies to an agreement for utility services (i.e., energy efficiency project support) between the serving utility and the Federal site. The Base is not a direct served customer of BPA. JBLM is actually a retail customer receiving gas service from Puget Sound Energy (PSE) and electric service from Tacoma Public Utilities (TPU). Although JBLM is the largest retail customer served by TPU, in actuality all energy efficiency project support is provided directly by BPA (and BPA contractors) and implemented under an interagency agreement between JBLM and BPA (which includes BPA facilitation of third party private financing). On behalf of JBLM, BPA also applies for project incentives for qualifying gas saving measures from PSE. Under a separate agreement with BPA, TPU reviews and "approves" all project incentives, and is able to credit JBLM electric energy savings toward TPU's own utility conservation goals. The key distinction is that TPU does not provide utility financing, use utility funds for project incentives, or dedicate in-

house staff for EE project support to JBLM. Similarly, PSE credits the gas savings toward achievement of its EE program targets. This arrangement is perceived as a "win-win" for all parties. As a result, both TPU and PSE are fully supportive of BPA providing all EE project support to the Base.}

The Base started working with BPA to establish an interagency agreement in 2007. It took over 1 year to get the IA in place. Concurrently, (in accordance with EPACT mandates) a number of audits were undertaken to estimate overall energy savings potential (27% reduction in total Base energy use) and expected costs ($39 million). In late 2008, the IA was used to secure $18 million (JBLM's share of total expected costs) via BPA-facilitated private source financing. JBLM expects to receive an additional $21 million in utility incentive funding for qualifying gas and electric saving measures. At the time of the initial interview (July, 2010), over $14.5 million in delivery orders have already been issued to BPA under the IA.

Eric indicated achievement of Executive Order mandate (i.e., 30% total energy reduction by 2015) "would be tight". He had originally expected a much faster pace of project implementation under the IA. In addition to the long lead time to get the IA approved by the Department of the Army, it took over 1 year for BPA to award the contract for the first delivery order (a building controls upgrade). Eric has been recently informed by BPA to expect a minimum timeframe of 9 months to award contracts for delivery orders in excess of $1 million.

The extended timeframe on contract awards was unforeseen. As noted previously, JBLM secured the entire $18 million financing in late 2008, on the expectation that energy savings would soon result in utility bill savings sufficient to cover debt service on the financing. At the time of the initial interview, the Base was paying approximately $2000 per day on the $18 million financing, and was in the process of refinancing the $18 million (from 6.41 % to 4.85%).

<u>Summary of Follow-Up Conference Call with Eric and Skip</u>

A follow up conference call with Skip and Eric was held on 8/3/10, at Eric's request, to discuss his three suggestions concerning a "UESC Concept". His ideas for streamlining the IA process and accelerating energy efficiency project

implementation are drawn from his recent experience with the BPA interagency agreement.

Establish UESCs between the Department of the Army and the four Power Marketing Administrations

It took over 1 year for the Base to finally get an interagency agreement in place with BPA. Eric thinks a preferred approach for the future would be to have **model IAs** (or model UESCs, to use his terminology) established between the Department of Army (DA) and the power marketing agencies (PMA) {*note: this concept could also potentially apply to some other "aggregating entity" like FEMP*}. A model UESC agreement either executed by or approved by the DA would avoid having to invent the agreement for each Base or installation, streamline the IA process, and send a message to the Bases that the IA mechanism is a viable way to meet energy efficiency goals. This would speed things along and reduce the perceived risk to Base Commanders.

Note: The idea has real merit, but also it was explained to Eric that each PMA may have different "charters" and capabilities with respect to providing energy efficiency project support to other agencies. In particular, BPA (unlike other PMAs) has a very specific mandate from Congress to "foster and promote energy efficiency" and treat energy efficiency as the priority resource for meeting electric load growth in the PNW (under the Northwest Power Planning and Conservation Act of December, 1980). That said, FEMP should consider filling the role of " EE project catalyst and facilitator" if: (1) BPA elects to curtail or transition away from providing direct project support to Federal sites; (2) other PMAs are not mandated or otherwise inclined to provide direct EE project support to Federal sites.

Administer Alternative Financing at the Department of Army (DA) Level

Advantages include greater economies of scale and reduction of risk and workloads at the installation level. Establishing the ability to repay financing at the Base level and getting clearance from DA to use the Base public works budget was a brand new and very time consuming process, requiring top management support to put in place. As an alternative, creating the capability to manage financing payments at the DA level would enable administrative efficiencies, and

the DA could simply withhold the amount of financing repayments from the installation's (Base's) J account (utility budget) allocation. In addition to economies of scale, managing all installation financing at the DA level has other advantages. This includes the ability to aggregate project financing needs across multiple installations, resulting in more favorable financing terms relative to individual financing actions. Centralizing financing at the DA level would also help institutionalize use of alternative financing mechanisms to fund the Federal agency share of total project costs.

Note: This idea also has considerable merit. Based on previous experience, many Federal sites have struggled to make timely payments on their energy project financings. Most sites have little or no experience with debt service payments (or coordinating with DFAS to make payments on their behalf). As a result, BPA has had to modify its policies to ensure the payment mechanism is in place at the site in advance of securing project financing. In addition, BPA now requires more frequent payments (quarterly or monthly financing repayment schedules) to "routinize" financing payment at the site.

<u>Use Job Order Contracting</u>

Project manager capabilities could be leveraged through job order contracting (JOC) improvements. Eric suggests soliciting contractor capabilities in advance of the actual work, and establishing pricing for projects based on the Means Materials Cost Index, plus an agreed upon multiplier. This could significantly speed the bid and contract award process. The Army already uses the Means Index as the basis for estimating costs. This approach would significantly reduce the workload of project managers, and allow a prequalified contactor to quickly "cost" a project with a defined scope of work. The preselected contractor can directly implement the project or act as a prime contractor and subcontract the work for specialty projects.

Note: Use of JOC has broader application than just the JBLM – BPA IA. Limitations on the number of contracting actions that can currently be implemented by BPA supply chain is a major factor contributing to the large backlog of contracting actions BPA is currently experiencing in its Federal Agency program. Another

important consideration is that adoption of a more standardized JOC approach could also facilitate transition of EE project support from BPA to other Federal agencies (e.g., Army Corps of Engineers and GSA AAS for simple procurement actions) for EE project support. This approach would require buy-in from BPA supply chain to implement.

The meter is running and JBLM is struggling to meet its energy reduction goals. The slower than expected pace of project implementation is a serious problem. The Base elected to borrow the full $18 million in advance of the start of project construction. The Base is already paying the debt service on the entire amount financed for their multi-year EE program without (as yet) achieving utility bill reductions to offset the financing repayments. The large backlog of BPA contract actions further compounds the situation. Eric understands the dilemma and is very open to serving as a pilot site to test new project support partnerships and new energy efficiency project delivery options. The Army Corps of Engineers is very active at JBLM and is already onsite and responsible for new construction (MILCON) projects on the Base (refer to USACE Work Done for Others (WDFO) meeting summary for additional discussion of this new partnership opportunity.

Summary of Meeting Notes from Onsite Interview with Randy Krekel, Joe Escamillo and Bill Sandusky at PNNL Office, Richland WA (July 13, 2010)

Attendees

Randy Krekel, DOE-Richland Operations Office (DOE RL), point of contact for EE activities for Environmental Management activities

Joe Escamillo, DOE-Pacific Northwest Site Office (PNSO), point of contact on PNNL energy infrastructure

Bill Sandusky, PNNL Federal Energy Management program lead – lead for Federal market assessment project

Tim Scanlon, PNNL subcontractor

Background

DOE Richland (DOE RL) is one of the largest civilian Federal sites in the region in terms of total floor space and EE conservation potential. Construction of the new, electric-intensive waste treatment plant at DOE RL may constitute the largest single source of new lost opportunity conservation potential of any Federal site in the region.

DOE RL is a direct-served power sales customer of BPA and has historically relied on interagency agreements with BPA for EE project support. The pace of EE activity at DOE RL has declined over the past few years.

A majority of the Pacific Northwest National Laboratory (PNNL) office facilities are primarily located in the service area of the City of Richland (a public utility and power sales customer of BPA). PNNL has also implemented EE projects using in-house staff with project development funding provided directly by the BPA EE Federal program, and EE utility incentive funds from the City of Richland.

Interview Highlights

On July 13, 2010, a joint onsite interview was held with Randy Krekel (DOE RL, responsible for electric utilities and the individual responsible for leveraging BPA EE funding and project support, Joe Escamillo PNSO (DOE Office of Science) , responsible for PNNL energy infrastructure, and for identifying what PNNL needs

to do to meet E.O. energy reduction requirements). Bill Sandusky (PNNL Project Lead for this NW Federal Market Assessment) organized and hosted the meeting.

Bill kicked off the meeting by providing Randy and Joe an overview of the objectives of the market assessment project with emphasis on DOE. Bill wants the assessment to showcase the region and DOE accomplishments, identify opportunities for EE at NW Federal sites, and determine what types of assistance are needed to accelerate EE projects. Randy asked about gas utilities, and whether they are included in the study. Bill encouraged Joe and Randy to think as broadly as possible.

Randy noted that DOE will not get "all greens" in all facilities. Different sites have different missions and capabilities. In the past, DOE RL has met energy reduction goals by shutting down facilities. Now DOE RL is re-baselined to the 2003 consumption levels. DOE RL has not used building exclusions. All DOE RL buildings are included in the 2003 baseline. He noted WTP (the waste treatment plant at DOE RL) is a very energy intensive process. The latter is still in the construction phase, and is therefore not yet represented in the Federal facilities database. Randy suggested the energy efficiency focus should be on support facilities for the WTP).

WTP is a group of buildings tied to a single meter at the substation. It is important to address sub-metering while the project is still under construction. Bill noted FEMP will have funding available for advanced metering. Randy noted the primary objective for installing submetering is to appropriately allocate BPA electric costs to the different tenant facilities.

Randy mentioned there is a new site support contractor (Mission Support Alliance) on board. The latter is involved with utilities, land management and everything other than the cleanup of nuclear waste. Energy management is also within the scope of this contractor. Jerry Bosley is the energy manager. This organization is in its nascence, but will want to move from status quo to be more proactive. Randy could see this evolving into a REM role, possibly partnering initially with BPA. Randy noted that Tom Osborn (a BPA EE project engineer) has had prior contacts with the DOE Office of River Protection. Randy suggested

someone should contact Tom about what he has been doing for PNNL and DOE RL.

Randy is trying to pursue good ideas, but is challenged to find the time to develop EE project proposals. It would be helpful to have a 2-3 page EE project proposal template to use.

In the period 2002 – 2004, Randy was able to secure over $1 million in BPA EE project incentives for a broad mix of EE measures. Working with EMP2 (a local EE project support contractor), Randy was able to capture a lot of EE "low hanging fruit". Since then, this effort "ran out of steam" due to a lack of energy and time.

Bill noted that PNNL has been able to recently secure funding from BPA for project development at PNNL facilities, using PNNL in-house staff.

Randy recommends BPA and DOE management, along with the contractor, sit at the table and work with EMP2 (or a REM) to develop and implement energy efficiency projects. This approach has been successful in the past. Randy recalled the rate mitigation agreement (for a 10% electric energy reduction) put in place between BPA and DOE RL over a decade ago. This agreement pushed the contractors to identify and mobilize on EE project opportunities.

Randy wonders if FEMP can apply this same type of pressure on DOE sites to get contractors to identify and implement energy efficiency measures. Randy thinks, this time around, it will take more than EMP2 to get projects started. It will take a DOE commitment. Contractors must buy in and be an active participant in EE. Contractors do not like having other contractors in "their buildings". DOE tells the Contractor they are the landlord, they are responsible. He thinks onsite Contractors must be incentivized by DOE to take on EE. This will require new performance incentives for contractors. None of the cleanup contractors have any EE performance incentives built into their contracts.

Randy provided additional clarification regarding the onsite contractors and areas of responsibility. He provided the following information:]

- Mission Support Alliance (MSA) is new, replaced part of the previous contractor mission related to site support services, not involved in clean-up activities.
- Plateau Remediation Contractor (PRC) is responsible for tank waste located in both the 200 East and 200 West areas and the vitrification plant)
- Washington Closure Contractor (WCH) is the contractor for clean-up of the river corridor.
- If successful PRC and WCH will "work their way out of business"
- The tank waste contractor and vitrification plant are under the DOE Office of River Protection (DOE ORP)
- DOE RL and DOE ORP will be merged at some point.

When asked what type of EE project support is most needed, Joe Escamillo indicated that PNNL has enough internal technical resources to implement EE. Randy stated that DOE RL relies on MSA (Jerry Bosley) for EE project support. Other onsite contractors are also looking to MSA to take the lead on EE. In the past, Randy has relied on Tom Osborn (BPA) because he has "the eyes to see the EE opportunities". Randy would also be open to working with another entity on EE project development.

Randy pointed out that Steve Burnam is the individual responsible for reporting on both DOE ORP and DOE RL compliance with EE and renewable energy goals. (Note: Steve Burnam was invited, but unable to participate in this onsite interview.) It was noted that DOE ORP had recently been going through a series of changes in management ("musical chairs").

Randy said he takes these goals very personally and is very committed to EE. He has competed for FEMP funds without success and this is very disheartening. The situation has not improved and it is getting even worse. "There are more things to do with less money". Randy forwards FEMP training opportunities to others at the site, but there is not enough extra time to carve out "nice to do" things.

When asked about renewables, Joe indicated that a 120-kW photovoltaic project was considered by the DOE Pacific Northwest Site Office (PNSO), which manages the PNNL contract, but there are no funds available for renewable onsite generation at this time. In the past, PNNL has used renewable energy credits (RECs) to meet renewable energy targets.

Randy explained that DOE RL has been purchasing environmentally preferred power (EPP) from BPA since FY 2001, starting at 2.0 aMW, now purchasing 2.6 aMW for FY 2010 – FY 2011. Randy was able to increase DOE RL EPP purchases an additional 30% through FY 2016 in the new power sales contract with BPA. After that, "EPP disappears" (melded into the BPA Tier 1 power product).

Randy is already in discussions with Larry Feldman (BPA power sales account executive) and other BPA Federal agency A&Es to consider an aggregate purchase of a portion of the output of a "generation scale" renewable energy plant. There is a local initiative underway to leverage the land and infrastructure (Mid-Columbia Energy Park Initiative). Randy needs help getting authorization for this in Energy Appropriation Bills, and funding to work with DOE to support the placement of the project in Richland (and offset the cost to the local community).

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

There appears to be significant new and remaining cost effective EE opportunities at DOE RL, but there are also significant barriers and challenges to accelerating EE projects at this site. More work needs to be undertaken to generate and align onsite management and contractor buy-in for a comprehensive multi-year EE program effort. The first step is to get "all the right people in the right room". Presumably this meeting would include (at a minimum) Steve Burnham (ORP) and Jerry Bosley (MSA) Randy, Bill and Joe to frame an EE action plan, clarify organizational roles and responsibilities, and identify next steps.

One of the major EE "pinch points" at DOE RL is developing projects in the EE pipeline so that BPA incentive funds can be accessed. It was recommend FEMP consider funding (or cost-sharing) placement of a REM at DOE RL to assist Randy in developing EE projects, in the same manner that FEMP and BPA previously co-

funded the EMP2 contract for DOE RL project development over a decade ago. This prior effort resulted in over $1 million in EE projects. Alternatively, PNNL could consider using FEMP funds for PNNL in-house staff to assist Randy in developing projects. Another alternative is for PNNL and Randy to seek additional project development funding from BPA (i.e., beyond the current level BPA is providing to PNNL for EE project development at PNNL's own facilities) to extend PNNL project development into DOE RL facilities. These project development options may be well suited to BPA's stated intention to allocate EE funding to direct served Federal sites post FY 2011 (in lieu of providing EE project support through the Federal EE program).

The new waste treatment plant (WTP) will substantially increase the electric load at this site, and represents a major source of "lost opportunity EE potential" (if EE improvements are not fully incorporated at the time the WTP is designed and constructed). Capturing lost opportunity conservation potential from WTP should be one of the centerpieces of the EE action plan.

In addition to EE project development, rather than waiting for appropriated funds for implementing EE projects, FEMP should assist DOE RL in obtaining BPA - facilitated private source financing to fund the DOE RL share of project costs, net of BPA EE project incentives.

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Summary of Meeting Notes from Onsite Interview with Bill Turner (Energy Manager) and Jeff Cook-Coyle (REM), Fairchild Air Force Base (July 19, 2010)

Attendees**:**

Bill Turner, Fairchild Air Force Base energy manager

Jeff Cook-Coyle, REM

Tim Scanlon**,** PNNL subcontractor

Interview Highlights

An onsite interview was conducted with Bill and Jeff at the Public Works office on July 19, 2010. Fairchild Air Force Base (FAFB), located outside of Spokane WA, is one of the largest Air Force Bases in the Region, containing more than 4.8 million square feet of floor space. The Washington Air National Guard (WANG) also has facilities co-located at this site. Despite repeated attempts to schedule an interview with the WANG Commander, no calls or emails were returned.

The majority of the buildings on Base are heated by natural gas. FAFB purchases their gas directly from the Defense Energy Supply Center. Natural gas purchases constitute over 70% of the FAFB annual energy costs. Reducing consumption of natural gas is therefore the most significant focus for FAFB to realize mandated energy reduction goals. To that end, in 2002 FAFB used the ESPC option with Honeywell to eliminate their gas-fired central steam plant. Last fall, FAFB completed a large new project with Johnson Controls using ECIP funds (this was not an ESPC project as there was no performance guarantee).

At the time of the interview, Bill Turner indicated FAFB had bought out the super ESPC contract with Honeywell, and the Base was not interested in pursuing other ESPC or super ESPC projects at that time.

FAFB is a direct-served electric customer of BPA. In addition to prior EE project work with Johnson Controls and Honeywell, FAFB has previously relied on the BPA

Federal EE program for “turnkey” EE project support under a 10-year MOA with BPA (1996 -2006). Bill referred to the contract with BPA as an UESC.

Several large-scale hanger lighting retrofit projects were implemented under the IA with BPA, starting in the mid-1990s. Under the structure of the original IA, BPA direct- funded 100% of the EE project costs, and FAFB repaid all project costs via a series of energy service charges added to the BPA monthly electric bill.

Over a decade ago, the BPA Federal EE program discontinued use of internal BPA financing and energy service charges for cost-recovery, in favor of BPA-facilitated third party financing. FAFB was one of the first Federal sites in the NW to utilize this BPA external financing option to pay off the balance of EE project costs.

As far as EE activity going forward, Bill stated that all EE activities will be “centrally managed” by the Air Force Civil Engineering Support Agency (AFCESA). The AF has recently hired 88 Resource Efficiency Manager (REM) positions, one REM for each AF base. Contractor positions are easier to fill and redeploy, if needed. Bill mentioned the AF plans to conduct a desk audit of this approach in October, 2010.

Jeff Cook-Cole was hired for the REM position at FAFB in May 2010. He is required to report EE accomplishments and identify EE opportunities on a monthly basis. The goal is to achieve a savings-to-investment ratio that is 3 times the cost of the REM contract (in aggregate). REM focus is restricted to AF facilities (no AFEES facilities are included).

FAFB will also focus on water conservation opportunities via a “smart irrigation” pilot program. If the latter is successful, this might be undertaken on a broader scale. The Base may compete for water conservation funds now that the AF has established a central funding source for this purpose. The site has a water reduction goal of 20% by 2020. FAFB is currently paying market rates to Avista for water pumping. The annual Avista power bill for water pumping is over $200,000 (compared to $1.1 million annual electric power bill from BPA for the main Base). Bill noted significant water savings potential for the five large pumps serving the

Base. In addition, wastewater treatment is a major component of utility costs. According to Jeff, FAFB paid more in sewer charges than electricity in 2009.

The pace of lighting retrofits and other EE improvements has slowed in recent years, because of a number of recent developments:

- Most of the planned lighting retrofits for many of the hangers have been placed on "long-term hold", pending the final selection of the new generation of Air Force refueling tankers. FAFB expects to be one of the first three Air Bases to operate and house the new generation of tankers. The number, type and configuration of hanger buildings will be dependent upon the tanker selected.

- FAFB is still doing a limited number of lighting upgrades, using in-house shop labor (to the extent that the shop takes ownership of the lighting project) and BPA EE lighting incentive funds. Bill acknowledged this limited effort will not produce the amount of energy savings that would be realized by a comprehensive, Base-wide lighting retrofit program.

- Other building retrofits will only be considered if the equipment being replaced can be re-installed at another location (example: energy management control systems (EMCS) and sensors).

- There is a perceived lack of remaining cost-effective EE opportunities. Bill thinks quite a bit of EE has already been accomplished using the IA with BPA. "Flying airplanes (not EE) is the Air Forces' business."

- According to Bill, the biggest barrier to achieving the E.O energy reduction goal is low electric rates (2.26 cents per kWh, with 1.76 cents as the energy component). While it is still possible to find projects that meet the life-cycle cost, 10-year simple payback requirement and realize a savings-to-investment ratio of 1.2 or greater, FAFB must still compete for limited funding for EE retrofits with all the other AF bases. By contrast, Bill noted the AF has been good at providing ECIP funds for new construction.

- The FAFB Civil Engineering Command is no longer responsible for Base housing. BPA now only provides electric service to the main Base facilities. Base housing has been privatized and is currently served by Avista. FAFB is in the process of changing out master metering on Base housing to individual

meters. If the individual utility bill is higher than the average, the difference is paid directly by the resident.

- Bill noted that EE project incentives from Avista "are not as generous" as those provided by BPA
- While currently operating and reporting separately, WANG and FAFB facility operations are moving on "a parallel path" as part of a "total force integration" initiative.

The primary EE focus at FAFB today is an advanced metering initiative and a comprehensive audit program.

- FAFB plans to meter all buildings larger than 35,000 square feet, all remodeled facilities over $200,000, and all new construction.
- Trend analysis (based on metered consumption data) will be used to identify EE opportunities (mostly HVAC equipment, air exchangers and vent dampers).
- Bill is looking at alternative ways to get funding for HVAC upgrades, including Sustainment, Restoration and Modernization funds. Bill cited a $2.7 million building automation budget and believes the AF sees the value of energy management control systems.
- He mentioned an infrastructure assessment will be performed at FAFB over the summer of 2010. Because FAFB has already eliminated the central steam plant, the focus now will be on replacing HVAC at the "end of useful life" (with EE as a beneficial bi-product). He noted many of the older HVAC systems are poorly zoned, and will show up "red" in the infrastructure assessment. He is hoping this effort will trigger many new EE opportunities.
- Over 1 million square feet of FAFB facilities were audited in FY 2010. By the end of FY 2011, FAFB plans to audit an additional 2 million square feet of buildings.
- FAFB will not use Avista for audits. The FAFB audit program is being "centrally managed" by AFCESA. The last round of audits was performed by SAIC. Bill noted there are a lot of appropriated funds for the audits, and FAFB will not seek local funding for audits from BPA or Avista.

- Bill noted that the audits underway "need a lot of refinement to get to investment grade". "It is not possible to do an investment grade audit in 7 days onsite on Base. It is not implementable as presented". There are "lots of holes to fill" to "beef up cost estimates". Audit results are really more like an "initial proposal" than "investment ready".

Bill described in detail the difficulties FAFB is experiencing in meeting the EE and renewable energy E.O. goals.

- Elimination of the central steam plant in 2002 made the 2003 energy use baseline very low. 2003 was also a very warm winter, and the baseline is not adjusted or normalized for weather conditions. Compared to the 2003 baseline, current energy use (including data from October through May, 2010) has only been reduced by 7.14% over the past 7 years. Bill pointed out the winter was unusually warm in 2010, and the amount of EE reductions are therefore artificially low, because the Base has very little cooling load. Bill thinks achieving a 3% annual reduction in energy use at FAFB is not realistic, and the mandated energy reduction goal will not be met.
- Same for the renewable energy goal. FAFB had previously used their entire conservation and renewable rate discount from BPA for renewable energy purchases (buying Environmentally Preferred Power (EPP) from BPA). By 2012 FAFB will phase out all green power purchases.
- Bill stated it "does not make sense" to develop onsite renewables at FAFB. He cited a recent draft PNNL study that confirmed that wind and solar energy systems are not life-cycle cost effective at FAFB.
- Bill does not think FAFB will be held accountable for achievement of the renewable energy goal. He noted that, when renewable energy is purchased by the Air Force, a portion of it is allocated to the individual Bases.

When asked about FEMP and what FEMP can do to help accelerate EE and renewable energy projects, Bill said "FEMP does a lot of training, but they are more in the background". The AF has hired a lot of contractors that could benefit from the training.

When asked if FEMP could assist in refining audit results, Bill does not see a role for FEMP to do this.

Bill likes the FEMP webinars and GovEnergy, and always plans to attend this event, but the "coverage is more superficial than in-depth". He would like to have access to more technical expertise for specific applications, such as hangar lighting).

He thinks effective operation of EMCS and HVAC systems is very esoteric and requires specialized knowledge. He cited examples of using EMCS programming to increase energy efficiency: "this is not about selling new equipment; therefore, there is no profit motive for manufacturers to provide this kind of support." He thinks it would be helpful if FEMP were set up to provide access to "resident experts" in the form of a "Federal Extension Service" established for this purpose.

He thinks having access to vendors and equipment manufacturer representatives as an adjunct to conferences would also be beneficial.

He also suggested FEMP release a weekly electronic newsletter to let the Federal sites know what FEMP has available.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

FAFB is unlikely to achieve either the 30% energy reduction or renewable energy goal. Of even more concern is the onsite energy managers' apparent abdication of any responsibility for achieving these targets. In the course of the onsite interview, Bill repeatedly stated that, going forward, all EE activity at FAFB will be "centrally managed" (presumably by AFCESA). The extended delay in the AF final selection of refueling tankers has also created a major disruption in the pace of EE activity on the Base.

FEMP should leverage its relationships AFCESA to gain a better understanding of the AF plan to centralize management of base-level EE project activity. In addition, FEMP could engage AFCESA on the subject of the centrally-funded comprehensive audit initiative and the deployment of the 88 REMs. There may be a vital and value-added role for FEMP to provide more in depth training to REMs to enable REMs to convert audit recommendations into "investment ready" EE projects.

Also, Bills' suggestions regarding Federal Extension Service and FEMP weekly electronic newsletters merit further consideration.

Summary of Meeting Notes from Onsite Interview with Terry Kent, Program Manager, Bureau of Reclamation, BOR Regional Office, Boise, Idaho (8/24/10)

Attendees**:**

Terry Kent, program manager

Tim Scanlon**,** PNNL subcontractor

Background

The Bureau of Reclamation (BOR) is part of the US Department of the Interior. The mission of the BOR is to manage, develop, and protect water and related resources in "an environmentally and economically sound manner".

The Pacific Northwest Region of the BOR encompasses roughly the same geographic region as the BPA legally defined service area (the Columbia River Basin, including the states of Idaho, Washington, most of Oregon and parts of Montana and Wyoming).

BOR programs in the Pacific Northwest Region are managed from three offices based in Yakima and Grand Coulee, Washington and Boise, Idaho, with support and oversight from a regional office in Boise, Idaho.

The BOR supplies water from 54 reservoirs in the region, with a total active capacity of approximately 18 million acre feet. The Bureau also owns and operates some of the largest hydro power production facilities in the world, including Grand Coulee Dam.

Grand Coulee Dam is the largest hydro power producer in the United States with a total generating capacity of 6,809 megawatts. Grand Coulee Dam's power plants produce an average of 21 billion kilowatt-hours of electricity each year (about 11% of the total power requirements of the Pacific Northwest). BPA sells this electricity to repay expenses of building and maintaining the project.

Of the 12 pumps at Grand Coulee Dam, 6 are also generating units that can reverse the direction water flows. Water is lifted uphill for irrigation storage, and

when additional electricity is needed, water is returned downhill to produce electricity.

Grand Coulee Dam is also part of the Columbia Basin Project, irrigating more than 600,000 acres, and is the cornerstone for water control on the Columbia River. The Columbia Basin Project includes 330 miles of main canals, 1,990 miles of smaller canals, and 3,500 miles of drains and waste ways served by more than 240 pumping plants that carry water to some 10,000 farms.

In addition to storing and carrying water for irrigation, producing electricity, controlling floods, providing recreation, and regulating stream flow, the Columbia Basin Project also provides water for cities, industries, navigation, and endangered species.

The BOR also operates some of the world's largest pumps to lift water from Franklin D. Roosevelt Lake (the lake behind Grand Coulee) into a feeder canal and Banks Lake. The water is used to irrigate more than 670,000 acres of cropland. Seven small hydroelectric plants built by the irrigation districts help finance conservation and capital improvement projects.

The BOR is unique in terms of market potential for energy efficiency. While most Federal agency EE opportunities are primarily limited to buildings, there is significant EE and water savings market potential in the NW from resizing and replacing old and oversized BOR pumps, and from hydro system efficiency improvements at BOR dams.

The BOR does share the Department of Interior energy reduction goals for their buildings, but hydro system efficiency improvements at BOR dams are categorically excluded from the energy reduction goal. It is less clear whether and to what extent the energy savings potential of BOR-owned pumps are part of the BOR baseline for total energy use. (Terry Kent (BOR program manager) thinks that the pumps are excluded.) Although the BOR owns the pumps, BOR agreements with irrigation districts (IDs) place responsibility for O&M and replacement of pumps with the IDs.

Under a direct funding agreement with BPA, the BOR has been able to realize an average of 3 to 5% improvements in hydro efficiency annually. There is currently no similar agreement for capturing water and energy savings from BOR-owned pumps, and the energy efficiency potential remains largely untapped. BPA internal estimates suggest as much as 20% of the BPA Federal program energy savings target (approximately 10 aMW) could be realized from reducing pumping loads and other efficiency improvements at Federal irrigation districts.

The issues surrounding barriers and challenges to tapping the energy and water savings from pumping loads at Federal irrigation districts was a principle focus of the BOR interview.

Interview Highlights

The interview with Terry Kent (BOR program manager) was held at the BOR Regional Office in Boise, Idaho on August 24, 2010.

Terry Kent is responsible for all structures and buildings budgeted under the Joint operating agreement between the BOR and BPA. He is also the BOR point of contact for any EE initiatives with BPA.

Terry acknowledged in the interview that E.O. goals are addressed in BOR buildings, but not at BOR dams or BOR pumps at Federal irrigation districts.

With respect to BOR buildings, Terry thinks the BOR is “on track” to meet the EO energy reduction goals.

The BOR has a property management group in Boise that works on EE at BOR-owned buildings, and works with GSA on BOR-leased facilities. The BOR also has in-house staff at the Denver BOR Office to develop and implement EE projects. Like GSA, the BOR relies on job order contracting for EE projects using pre-competed “contractor pools“(primarily architectural and engineering firms).

Terry also noted his interaction with NW utility service providers is very limited, and only to the extent that some BOR facilities are served by local utilities.

Terry has worked with the BPA Federal EE program to conduct building audits of BOR facilities in Yakima, WA. The BOR is also planning a new "green building" construction project for a BOR Office in Burley, Idaho.

Over the past 15 years, BPA has worked closely with the BOR to implement lighting retrofits and HVAC change outs at BOR dams. BPA pays 100% of the project cost for any reduction in station service at the BOR dams (including BOR offices located at Grand Coulee). Any EE improvements at BOR dams frees up power that can then be sold by BPA on the power grid.

There is no similar arrangement in place between BPA and the BOR to address EE potential within the IDs.

Terry noted that "BPA has jumped in with both feet" to provide assistance to the IDs, and has sent out EE project engineers (including Tom Osborn and Dick Stroh) to identify energy and water savings opportunities.

Terry has also held discussions with Curt Nichols (BPA Federal Market Lead) and is working with Curt on a joint MOU to be sent to the IDs in an effort to encourage IDs to undertake energy and water efficiency improvements.

Terry confirmed there is no incentive for the BOR to take on the responsibility for EE improvements at the IDs. He did note that there are "water savings incentives for the BOR" for improving fish mitigation, navigation and recreational uses from the freed up water.

The IDs are responsible for all O&M and pump replacements. Part of the problem is the way the BOR contracts with IDs are currently structured. Under the current terms of the contract, if the BOR were to replace the pumps, the IDs would be required to repay the US Treasury for the entire cost of pump replacement because of the language in the original Congressional authorization. The only way BOR could replace the pumps without charging the IDs is for Congress to provide appropriated funds to the BOR for EE pump replacement without requiring the IDs to repay BOR.

The BOR has charged the IDs for some major pump upgrades at Grand Coulee. The BOR does not use appropriated funds for this purpose. The IDs must direct fund the pump upgrades in advance. IDs are state-chartered institutions (similar to a municipality). Terry thinks IDs already have access to state funding (to the extent that states are willing to float bonds for major pump upgrades or replacements).

Although IDs are responsible for O&M and pump replacement, it is not usually cost effective for the IDs to do this. Many of the IDs receive very low cost (approximately $0.003/kWh) "reserve power" from Grand Coulee and Chief Joseph Dams. Even though there is substantial energy savings from replacement of old, inefficient and oversized pumps, the electricity cost savings is not sufficient to cover the high capital cost of replacing the pumps.

As a result, many farmers focus solely on end-use water and energy savings measures rather than pump replacement. Many of the BOR-owned pumps are over 50 years old, and it is common practice for the IDs to wait for failure or projected failure before any pumps are replaced.

IDs can apply to the BOR for water conservation funds for irrigation canal relining or replacing canals with pipelines, but Terry indicated "funding for this is drying up". IDs must have matching funds to qualify to receive this type of BOR funding. Some IDs are able to secure state matching funds for this purpose.

Any BOR-funded water conservation savings are given back to the BOR (the IDs cannot increase their use of water). The BOR uses the water savings primarily for fish mitigation (the BOR spends over $36 million annually on fish mitigation).

For the Upper Columbia area, Terry explained that there are forums for the BOR, the states and local IDs to address EE and water savings opportunities, but "the states and IDs drive these forums". The BOR (and States) place measurement and verification requirements on these water conservation programs.

The BOR also hosts annual meetings with the ID reserve power customers, and Dick Stroh (BPA EE project engineer) attends some of these meetings and speaks to the IDs about BPA incentives for end use efficiency improvements. Terry noted

that BPA is willing to pay for more efficient pumps and some of the pump replacement costs.

Some of the large IDs have significant energy costs (over $1 million annually) for deep well pumps. Two of the largest IDs in Idaho have over 100 deep well pumps and pay $1.9 cents per kWh for reserve power.

Even in these circumstances, Terry does not think there will be “early replacement of pumps” unless the states provide their own funding for water and energy conservation.

Terry thinks the single biggest obstacle to meeting the EO energy reduction goals is cost effectiveness. At some point, remaining energy efficiency options are not economic to pursue. “We still have lots of cost-effective options now, but at some point, this will run out. Then the only way to do energy efficiency will be to ignore cost effectiveness entirely”.

He noted that hydro system efficiency improvements at Grand Coulee were only economically justified because the BOR was already planning a major O&M project at the dam.

He also believes “water savings will trump energy efficiency” as motivator for doing efficiency projects in the future. *{Note: based on prior communication with BPA staff, it appears that BPA is beginning to recognize the value of water savings, and is now willing to pay higher incentives for EE projects that produce ancillary water savings. Any water conserved can be used to generate additional power and can be sold by BPA at the BPA priority firm rate.}*

When asked what FEMP could do to assist his efforts, Terry noted the existence of a joint BOR/USACE/DOE MOU that includes reference to EE, but he has no interaction with FEMP, other than EE annual reporting. He has “sufficient in-house staff”, and does not see any need for any assistance from FEMP to meet his energy reduction goals.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

There is very large and untapped EE and water savings potential from BOR-owned pumps at Federal irrigation districts, but several institutional barriers inhibit the realization of this savings potential.

This issue was previously discussed in follow up meetings with the BPA Federal Market Lead. At that time, Curt Nichols indicated he was willing to consider funding (or cost sharing) a REM position for the BOR to work with the IDs. Unfortunately, Terry Kent does not think it is the responsibility of the BOR to improve the efficiency of BOR-owned pumps at Federal irrigation districts, and the BOR will not request REM funding from BPA for this purpose.

Recommendations

FEMP should take on more of an advocacy role with BPA to capture this energy savings potential. Regardless of whether energy savings from BOR pumps or hydro system efficiency improvements are credited toward the BOR mandated energy reduction goals, BPA has already captured substantial, low-cost energy savings from efficiency improvements at BOR hydro projects, and has used those savings to achieve the BPA regional EE targets. Pursuing BOR pump replacement is a logical extension of this earlier effort.

There is additional value from the resulting water savings for the regional Federal power grid, and BPAs own internal assessments indicate savings from efficiency improvements at Federal irrigation districts represent approximately 20% of the identified remaining EE market potential at Federal sites in the region. Access to low cost capital is needed to make pump replacement economic. BPA's ability to facilitate private source financing is one of the keys to unlock this savings potential.

FEMP should consider providing funding (or share the cost) for a more comprehensive assessment of this particular energy efficiency opportunity. This more in-depth assessment could address all the institutional barriers and identify

the most viable options for moving forward (including use of REMs for project development and leveraging of BPA private source financing).

Summary of Meeting Notes from Onsite Interview with Chris Ischay and Ernie Fossum, DOE Idaho National Laboratory (INL), Idaho Falls, Idaho (8/25/10)

Attendees

Chris Ischay, INL Sustainability program manager

Ernie Fossum, INL Site energy manager

Tim Scanlon, PNNL subcontractor

Background

INL encompasses an 890-square-mile section of desert in southeast Idaho (typically referred to as the "site"), along with laboratories and administrative buildings located approximately 30 miles east in the city of Idaho Falls.

Idaho Power (an investor-owned utility) is the electric utility service provider for the INL site. Idaho Falls Power (a municipal public utility power sales customer of BPA) is the electric utility service provider for the laboratories and administrative offices.

INL spends over $11 million in annual energy costs.. The desert site accounts for roughly two-thirds of INL annual energy use. Buildings located in the Idaho Falls Power service area account for the remaining one-third.

In terms of remaining EE market potential, Idaho National Laboratory (INL) is one the largest Federal sites in the region, and the largest Federal site outside the State of Washington.

Interview Highlights

In his role as INL Sustainability program manager, Chris Ischay is directly involved in the implementation of all INL efforts related to energy reduction, renewable energy, water conservation and a host of other sustainability initiatives.

Chris is "incentivized by contract" to focus on the 3% annual energy reduction and 2% annual water reduction goals. For the last 3 years, his performance contract

includes “award fees” for achievement of these goals. Chris referred to these two goals as “award fee items”.

Chris noted that his focus has been increasing, broadened by the various sustainability, energy reduction and environmental performance measures (including greenhouse gas (GHG) management) required by E.O.13514.

“Sustainability is about more than just recycling; it is about quality of life. It makes the workplace more enjoyable and comfortable. It is the right thing to do, but it must also prove out financially.”

He recited a long list of current responsibilities, including (but not limited to):

- Mentoring interns
- Reporting to DOE
- Meeting with ‘stakeholders’
- Reviewing contract deliverables (all facility-related contract deliverables come through his office for review)
- LEED certification
- Communications and outreach.

Chris engages in a lot of “outreach efforts” to promote sustainable practices within INL. He noted INL “is not yet there” in terms of institutionalizing sustainability, but he believes INL has made major inroads in this area. Chris said he has a high level of support for his efforts from top management at INL, but he needs more “middle management support”.

According to Chris, the “younger group” (mostly under 25 years of age) of INL employees relate to the sustainability vision, but the “older group” has a totally different mindset and tends to view sustainability as “just political”. “If it is not in their (performance) contract, they won’t do it”, or they “revert to the minimum”.

It has been a slow process to convert the latter group, although the DOE orders have helped bring a focus to sustainability. Some INL program and project managers have taken training on this subject. Most of those that have received the training are less likely to oppose what he is trying to accomplish.

Meeting the GHG goals and gathering the data for this is a real challenge. Chris recently completed the draft GHG baseline for all INL facilities. He noted that responding to DOE and FEMP reporting requirements is very tedious, especially the first time through. The information requirements kept changing and/or needed to be presented in different formats. Now he is dealing with the FEMP Central ARRA Reporting System.

Ernie Fossum is the INL site energy manager. He has been in this position for the last 3 years, and has been working on EE for the past 15 years. There has been an energy management program underway at INL for many years. He noted that a significant amount of EE has already been achieved at INL (approximately 45% cumulative reduction in energy use at the site since the first Executive Order energy reduction goal was established).

Ernie works with Chris "very interactively, on a daily basis". Prior to Chris being appointed to the position of Sustainability Manager, energy management functioned as a separate program, now the INL energy management program is melded into the sustainability program.

Reducing INL's carbon footprint is a top priority. Nuclear reactors at the desert site require both primary and continuous back-up power. Approximately one-half of the power supplied to the desert site is from a coal-fired power plant (Jim Bridger). In addition, diesel-fired generators (operating 24 hours a day, 7 days a week) are currently being used to provide back-up power to the nuclear reactors at the site.

By comparison, the power supplied to INL at the labs and administrative buildings located in the City of Idaho Falls is primarily hydro power (in addition to power purchases from BPA, Idaho Falls Power is able to supply 30% of its load through its own hydro generation).

Chris and Ernie want to bring in separate power lines to the INL desert site to supply offsite power and replace the diesel generators. The economics are a real challenge. INL currently pays Idaho Power 1.9 cents per kWh for electricity to the site (INL gets a very low electric rate because the peak electric load at the site

does not coincide with the Idaho Power system peak). Alternative purchase power costs delivered to the site would be much higher.

INL currently pays Idaho Falls Power 5.5 cents per kWh for electricity to the laboratories and administrative offices located in the City of Idaho Falls.

INL participates in the EE programs offered by both utilities. INL does not have a UESC option available at this site. Idaho Power has a commercial and industrial program (Note: Randy Thorn the EE point of contact (POC) from Idaho Power was also interviewed for this market assessment) .The program offers EE equipment incentives and custom project incentives ($0.20 cents per kWh). Chris and Ernie compare program offerings and look for the highest incentives.

Idaho Power provides incentives and "some" technical assistance, but it is more like "bring us a project". Idaho Power will not come out to develop and implement a project at the site.

INL also participates in commercial programs offered by Idaho Falls Power, but Ernie noted the incentives were usually lower.

BPA paid for a $250K EE assessment on INL facilities recently performed by McClure Engineering. Ernie noted INL plans to install a lot of smart meters as a result of this study (Van Ashton, the Idaho Falls Power Conservation Manager, was aware of and approved of this study).

When asked to identify their most significant barriers to EE, Ernie and Chris mentioned (1) access to funding; (2) competing priorities; and (3) systemic bureaucratic processes and delays.

With respect to the latter, they described a recent internal DOE review on an ESPC project as a "bring me a rock exercise". "We ended up with a better document but it resulted in a 6-month delay on a huge project". Ernie noted ESPCs are a good option, but "we are mortgaged out many years". He concluded that the ESPC project was a still a "win-win-win".

One of INL's other EE challenges is that the largest INL "in-town" facilities are leased, rather than owned facilities (including the INL Supercomputing Center and

INL Research Center, a 10-building complex that includes the largest INL lab in town, along with offices and radiological facilities). INL cannot commit to EE projects with longer paybacks in leased facilities. Ernie has to develop two separate EE packages, one for INL- leased and one for INL-owned facilities.

Ernie has had discussions with Dick Stroh (BPA EE project manager) regarding use of the BPA "UESC". Ernie wants to use BPA for financing (he was quoted a financing rate of 5%) and project incentives ($0.20/kWh) based on the energy savings identified by McClure Engineering. INL will do the construction and EE project management in-house ("We know the systems").

Ernie pointed out that some projects have very long paybacks that make them unsuitable for either UESC or ESPC. He thinks this applies to some types of water and renewable projects.

There are generation-scale renewable opportunities at the site. Ernie noted a recent study identified over 20 aMW of wind energy potential. INL is also implementing a solar water heating project.

INL is currently buying renewable energy credits (RECs) to count toward their 7.5% renewables target, "but we can't count RECs as a reduction in energy use."

When asked what FEMP could do to assist INL, Chris replied that "FEMP uses us more than we use them". Aside from his recent success in securing ARRA funding, Chris would like to do more to get funding from FEMP.

INL is hoping to be able to host an onsite FEMP ESPC training if he can get this approved through INL's procurement process.

Both Ernie and Chris like the FEMP webinars. Ernie thinks 90-minute webinars are the right length.

Topics they would like to see addressed in webinars include:

- How to get the money
- Things that are not "on the shelf" (example: "cool roofs"; what does it mean? How does it work? Who does it?)

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

INL has set a great example in effectively melding energy management, environmental performance measures and sustainability.

Chris and Ernie share a very high level of awareness of and commitment to achieving EO goals and DOE Orders. INL is the only Federal site interviewed that is actually incentivizing energy reduction goal achievements in performance contracts.

Like the National Park Service, INL is primarily focused on GHG measurement and managing their carbon footprint. It is clear that reducing GHG at the INL desert site is their highest priority.

Similar to other NW Federal sites interviewed, INL staff do not think the renewables goal can be achieved at INL without a large funding increase and line-item appropriations

Chris and Ernie have a solid grasp of the EE opportunities at INL, although they face real challenges in terms of developing and funding EE projects.

INL is one of the few large, energy-intensive Federal sites in the NW in which the majority of the electric load is not served by a public utility or direct served by BPA. INL is trying to leverage all options for EE project support (including ESPC), but it cannot rely on either serving utility for EE project development or project financing. INL's interest in pursuing a "UESC" with BPA may be ill-timed, given BPA's recent decision to limit EE Federal project support.

FEMP needs to take on more of an advocate role on behalf of INL to ensure that BPA enables INL to use the IA with BPA for EE project development and private-source project financing.

Both BPA and INL are part of DOE, and there is an argument to be made that BPA should give special consideration to DOE sites. In this instance, BPA should not limit private source financing exclusively to the INL facilities served by Idaho Falls Power. This suggestion was made to Curt Nichols (BPA Federal Market Lead), and he indicated he is willing to consider a more expansive scope of financing at INL.

In addition, FEMP needs increase its presence in the region, and consider staffing a “circuit rider” position to function as a catalyst and facilitator of EE and renewable energy projects at INL. In the interview with Randy Thorn (EE POC at Idaho Power), he indicated Idaho Power would be open to an annual meeting with INL to review their EE plans. This annual meeting should be encouraged. The FEMP circuit rider could facilitate this meeting.

FEMP should give consideration to Chris and Ernie’s suggestions concerning: (1) onsite ESPC training at INL; (2) 90 minute FEMP webinars; and (3) including new topics in the FEMP webinars (how to access EE and renewable project funding, and exposure to new technologies (like cool roofs).

Summary of Meeting Notes from Telephone Interview with Gerry Johnson (REM) Malmstrom Air Force Base, Montana (9/14/10)

Background

Home to the 341st Missile Wing, Malmstrom Air Force Base (MAFB) is located in Eastern Montana (the closest city is Great Falls). MAFB is the largest employer in the area (7000 to 8000 employed on Base), with an annual civilian and military payroll of $210 million and $115 million in construction, services and materials contracts (based on FY 2008 data).

The Base is sited on 28,000 acres of Federal land, with "on-Base" facilities located on 3500 to 4000 acres, primarily on the west side of the Base. MAFB manages over 1000 buildings (approximately 800 facilities are "on Base"). MALB spends over $10 million annually on utilities. In FY 2008, electricity use represented 60% of annual energy costs, followed by 20% for heating fuel and 15% for coal.

MAFB receives electric service from Northwest Energy, headquartered in Butte, Montana (Note: Deb Young, the point-of-contact for EE programs at Northwest Energy was also interviewed for this market assessment).

Energy West (formerly Great Falls Gas) provides gas service to the Base. Energy West is a very small gas distribution company, and is not set up to provide any type of UESC or other EE project support to MAFB. Northwest Energy is the default service provider.

MAFB is located east of the Continental Divide, outside the boundary of BPA's legally defined service area. As a result, under current BPA policy, the Base is not eligible to receive either EE project incentives or EE project support from the BPA Federal program.

Interview Highlights

Gerry Johnson is the REM for MAFB (he was hired by Sain Engineering Associates in March 2007, under a subcontract with Northrup Grumman). He reports his activities to SAIN on a monthly basis. He works closely with Kent Seaton

(kent.seaton@malmstrom.af.mil), the Base energy manager. (Kent is also the MAFB Utilities Manager.)

Gerry is very challenged to implement an effective energy management program at the site. He noted that, depending on the type and size of the project, he is required to get authorizations from the Squadron Commander and approval by AFCESA.

A key barrier is how EE projects are funded. Gerry described this as a "color of money" issue. Different rules apply for different funding sources. Money is allocated by the Air Force to the AF bases every year, and some AF bases receive EE project funding from direct, line-item appropriations in the Congressional Budget.

ECIP (military construction funding) is the first and best funding source, but MAFB must compete with other Air Force projects on a financial and economic basis (using building life-cycle cost analysis). Projects are ranked based on savings-to-investment ratios (SIR). To compete, projects must have a SIR of 1.5 or greater. Gerry notes there are plenty of opportunities to save energy on the Base, but electric and gas rates are very low and project materials costs (especially shipping costs) are much higher: "Montana is at the end of the line". As a result of these two factors, MAFB does not compete well for ECIP funds for EE projects.

Back in 2007, after he was hired as the REM for MAFB, Gerry met with representatives of Northwest Energy to explore a UESC. He described this as a "bait and switch exercise", as Northwest Energy opted out.

Malmstrom pays a universal system benefit (USB) charge of $0.09 cents per kWh on their energy power bill. The USB funding for FY 2009 amounts to less than $60,000.

Northwest Energy offers some EE programs, but large customers can elect not to participate in the utilities' EE programs and instead apply for a rebate of the USB charge and spend it on qualifying EE measures. Virtually all large customers of the utility, including MAFB, have elected the rebate option. Gerry thinks having the flexibility to direct the funds is working well. The only requirement is that MAFB

must provide proof that spending on EE projects implemented on the Base is at least equal to the amount of the USB charge.

Some of the Base housing (200 homes) is now on individual meters. (Northwest Energy paid for the transmission and distribution lines.) MAFB still pays the utility costs for Base housing. Now they get 200 separate bills.

Gerry has used the USB funds to establish a "self-help store" on Base. He does his own procurement of EE equipment out of the Base Contracting Office. People residing in Base housing can pick up CFLs at no cost. Gerry is also trying to eliminate "milk house heaters" (1500 watt electric resistance heaters with fans) and replace them with radiant panel heaters (170 watts). Base residents can exchange their heaters at no cost and save $135 per year on electricity (less than a 1-year payback measure for MAFB).

Gerry noted that Northwest Energy also provides low income energy assistance to some of the Base residents who qualify, and there are other USB funds allocated by Northwest Energy to other customer groups.

He attended the last GovEnergy Conference, and was encouraged to again pursue a UESC or an ESPC option.

He thinks ESPC projects are increasingly harder for Federal agencies to self-fund. In late 2008, he spent 18 months pursuing a DOE ESPC project, but got caught in a switchover of DOE contractors. He "wasted lots of time and energy" on this. He tried to sole-source the project under a new contract, but AFCESA required that the project be competed. AFCESA gave him authorization to proceed under the old contract, but the Base Contracting Office required more time than the deadline allowed. "If the Base CO had signed off on Phase two, we would have been good to go, but we were too meticulous." Gerry does not think ESPC projects should take so long to develop and implement. He criticizes the internal review process: "paperwork sits on desks too long".

Gerry would like to see the coal-fired boilers on Base replaced by another system that could use other types of coal or biomass. The current high-temperature boilers require a special type of coal that is in very limited supply. This year, he

expects the price of that quality of coal delivered to the site to go up to $184 per ton. As a comparison, a local “stoker” from Utah or Colorado is approximately $70/ton.

The energy management controls system (EMCS) was installed in the 1980s. It has no meter reading or controls capability, and its only real function is alarming for HVAC shutdown. Gerry has been trying for the past 3.5 years to replace it with a state-of-art EMCS system. He is working through AFCESA on the design and the estimated replacement costs.

When the EMCS contract was put out, the lowest bid was over 180% of the original cost estimate. Now the system must be totally redesigned and re-bid. The Base knew what the contractor was considering (new backbone system/new network infrastructure), and the Base also wanted to convert to direct digital controls. The problem was a detailed (building by building) assessment was never performed. Instead templates were used for individual buildings, and the bidders “jacked up the bids”.

The Base already has lots of meters, but “there is no one out there to read them”. Gerry sees the value in having “time series data to spot problems and identify EE opportunities”. This requires data acquisition from automatic meter reading and he needs the EMCS upgrade. A new EMCS system will require a new fiber optic network, but this runs afoul of Base security.

Gerry notes that a lot of energy could be saved by “taking control away from the building occupants”, and the Base is not taking advantage of night time setbacks on air conditioning.

Gerry thinks he could save between 20 and 30 % with a new EMCS system. $480K has already been spent on the design. He is hoping AFCESA will provide the funding to implement the new EMCS upgrade.

Gerry also described problems related to a recent contractor designed ground-source heat pump (GSHP) demonstration project. The original contractor for the GSHP project was one on a list of contractors pre-selected by AFCESA. Although AFCESA provided the Base with the list of contractors, it did not inform the Base

about which contractors had GSHP experience. The original contractor was not qualified, and the original design was not adequate. The entire project had to be totally redesigned by a different contractor.

Despite these project setbacks and the lack of EE project support from Northwest Energy, MAFB appears to be on track to meet the 3% annual energy reduction goal. By his calculation, MAFB has realized a 20.9% cumulative reduction in energy use over the past 5 years (5% more than the goal). While the Base has done quite a bit of lighting retrofits over this period, the primary contributor to the energy reduction is from replacing old, inefficient Base housing with more efficient new construction.

Gerry noted that MAFB is in the process of privatizing the Base housing, and this will affect the energy reduction baseline 2 to 3 years out. He thinks this will have a significant adverse effect on achievement of the overall 30% energy reduction goal. ”Every percent reduction in energy use will be tough from here on out.”

He is currently awaiting recent audit results to identify and develop new EE projects. AFCESA provided funding for 130 building audits on Base in 2010, but Gerry is still awaiting the report.

An ESPC contractor previously audited 60 buildings on Base, but Gerry has never seen those audit results. They are treated as proprietary and are only provided if the Base decides to go with the ESPC project.

Gerry would have done more audits himself, but he “did not want to step on the ESPC auditor’s toes”. He also referred to this as “poaching on the low hanging fruit”. Gerry commented that “ethics are important, and you must follow the rules”.

Gerry does work with local vendors for lighting projects and helps with putting together the vendor bids. As a REM, he is “not supposed to manage the project”.

He is also planning a bulk purchase of CFLs and T-8s for 13 dormitory buildings on Base.

He mentioned a recent eight-building lighting retrofit project, and noted that the project was “very time intensive”. High security and contractor access was a real problem. It took five separate attempts to get the lighting vendor into the buildings. Over 30% of the contractor’s labor time was spent trying to gain access to the high security weapons storage area. Even the Commanding Officer of the Facility needed to get involved. Base security is managed by an entirely separate Squadron Command.

Gerry noted the new Wing Commander will emphasize EE. He thinks there needs to be a “prioritization on energy efficiency, otherwise the mission will always trump any other objectives”. Unfortunately Gerry has only had three meetings with the Wing Commander in the last 3.5 years. (Gerry thinks these meetings should be held at least on a quarterly basis.)

When asked what FEMP can do to assist his EE and renewable efforts, Gerry noted the following items:

- Work to speed up the EE and renewable funding process
- Work on establishing EE priorities with AFCESA
- Do more to get “the EE message out” to Base residents
- Provide more updated material on the FEMP website.

Gerry has “done one or two” FEMP webinars and got a lot out of them. He also looks at what FEMP has available online and uses this material for “Energy Tips” articles in the Base newspaper (he has to fight with the Base Public Affairs Office to get these articles placed).

He does not think the EE message is getting through to the rank and file, or the residents in Base housing. He mentioned global warming while doing an environmental presentation at the Base elementary school on Earth Day. One of the kids said: “Global warming is liberal crap. We don’t need to conserve energy. We live on Base and the Air Force pays for it.” Based on this reaction, Gerry wants to focus more on EE information and education to Base residents.

Gerry wants to see a “bigger buy-in from top management”, otherwise “EE will languish”.

He noted there are no EE reduction goals in his contract: “there are no repercussions right now for not meeting the energy reduction target; there is no stick”.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

There appears to be a significant amount of remaining EE market potential at MAFB, but the Base is very disadvantaged in terms of access to EE project support. MAFB is outside the BPA service area, and serving utilities do not provide assistance to identify and develop EE projects.

The annual level of EE funding from the USB charge is very limited and insufficient for meeting the MAFB EE target. That said, Gerry deserves a lot of credit for using the USB funds to establish the “self-help store” for distributing free CFLs and swapping out inefficient portable electric resistance heaters.

Gerry demonstrated a good grasp of the energy reduction goals and appears to have a good handle on his EE opportunities. He expressed a lot of frustration with the internal process, and the lack of funding for EE.

As was evident from the interview with Fairchild AFB, all major EE activities on Base appear to be centrally managed by AFCESA. There appears to be no empowerment at the Base level to pursue any EE initiatives, and there are no performance awards or penalties for failing to meet the energy reduction goals.

Conspicuously absent from the interview was any mention or reference by Gerry of either the renewable energy goals or greenhouse gas (GHG) management required by E.O. 13514. A significant amount of Base annual energy costs (20%) are for coal purchases for high temperature boilers. Coal costs are increasing, and switching to a renewable fuel source (like biomass) would provide a prime opportunity to reduce the MAFB carbon footprint.

Recommendations

FEMP should increase its presence in the region, and consider staffing a "circuit rider" position to establish ongoing relationships with MAFB to function as a catalyst and facilitator of EE and renewable energy projects. One of the first areas of potential collaboration could be instituting an "energy scorecard" or other goal tracking system (similar to that used by the National Park Service).

It would also be helpful if FEMP leveraged its relationship with AFCESA to advocate on behalf of both MAFB and FAFB (to expedite EE and renewable energy project development and implementation of the new EMCS upgrade). Both Bases could benefit from more responsiveness and prioritization from AFCESA. MAFB is particularly disadvantaged in that, unlike FAFB, it cannot turn to BPA for assistance or receive BPA incentives.

FEMP should give full consideration to Gerry's suggestions regarding updating the materials on the FEMP website, and providing more assistance on EE information and outreach to Base residents.

Summary of Telephone Interview with Jane Kipp, Region 1 Energy Manager, U.S. Forest Service (October 14, 2010)

Background and Interview Highlights

Region 1 of the U.S. Forest Service (USFS) comprises the entire state of Montana, the northern half of Idaho, the northwest corner of South Dakota, and the entire state of North Dakota. Jane noted that her Region contains "more structures than employees".

There are approximately 4500 buildings in Region 1, but only a small fraction (approximately 1/10th) are of the size, energy load and level of occupancy to merit EE improvements. A significant amount of prescreening is required to identify viable EE opportunities. As of August 2010, Jane is currently working with an ESPC contractor to further winnow down the subset of 450 buildings and conduct "investment-grade audits".

Jane Kipp is an architect, serving in the ancillary role of "unofficial" energy manager for Region 1. She must submit annual EE activity reports to the USFS D.C. Office, but none of the USFS facility managers in Region 1 report EE activities to her. There is also no coordinated EE planning done within Region 1. Her supervisor has recently requested that Jane "write an energy plan".

Jane indicated there is very limited internal funding available for implementing EE projects. Region 1 has a "mini-grant" program limited to $125,000 per project.

Jane could use help with software and analysis of utility bills. She just discovered the existence of utility bill spreadsheets 2 years ago (with 2007 data). Accessing data out of the USFS D.C. Office is very difficult. She cannot access utility accounts directly from the serving utility. The serving utilities restrict access, and Jane cannot even identify who in USFS has authority to access utility account information.

She is cognizant of the Executive Order 30% energy reduction goals, but stated that the U.S. Department of Agriculture (USDA) and the USFS do not really address these goals at the regional level. Her understanding is that the USDA has

reported it is on track to meet the EO goals, but no one in the USFS knows or worries about achieving these goals. She noted that the USFS has a large number of buildings, but most are substandard.

In addition to EE challenges, water conservation is a major problem in Region 1. She described two large water systems with over 1 million gallons of leakage that took over 1 year to identify and correct.

Another inherent complexity is that many of the structures in Region 1 are leased facilities (all USFS offices in North Dakota are leased facilities). Jane is not sure whether leased facilities are even included in the baseline for Executive Order energy reduction goals.

Every lease is different, in terms of tenant and landlord responsibility and opportunity to make EE improvements. Even though Jane acts in the role of Energy Manager for Region 1, she has no involvement with leasing. Although leased facilities represent a very large number of buildings and lots of energy use, in Region 1, there is no clear delineation of responsibility for energy use in leased facilities. Leasing is handled through an entirely different office [contact Jim Thompson, Acquisition Management Office (406-329-3580) for more information on how EE is addressed in leased facilities].

As an aside, Jane noted that the USFS was previously committed to a minimum of LEED Certified Silver standard for new construction over 2,500 square feet. The USFS has "dismantled" the work of her predecessor on LEEDs. Now there is no proponent within USFS, and the threshold for requiring the LEED Silver certification is new construction over 10,000 square feet. There is only one LEED Gold Certified building in Region 1 (located in Sand Point, Idaho). There are no LEED Certified building requirements for leased facilities. In the past, Jane had developed LEED specifications for a leased facility, but these EE specifications are now outdated.

Current USFS policy is to lease facilities (rather than build, own and manage facilities). Leasing is preferred over building ownership because it is easier for USFS to get appropriated funds for leased facilities than appropriations for new

construction. Current USFS policy is to sell an existing building (conveyance) before a new building can be constructed. The recent sharp decline in property values further inhibits USFS from pursuing new construction projects.

Jane spoke in great detail regarding the challenges she faces in getting a handle on EE opportunities in her region. She described the existing data on buildings and summary usage as "not very meaningful". Utility account level detail is not matched to specific buildings in most cases (she cited an example of one 100,000 square foot building running off a single electric meter). She has been recently engaged in an advanced metering initiative, and is currently in the process of trying to reconstruct a "map of meter locations" and identify the top five energy consuming buildings in Region 1. This is an arduous task; only two Facility Managers have expressed any interest in energy use. This problem is exacerbated by the fact that USFS policy is for all utility bills to be paid via the USDA National Finance Center in New Orleans, with an annual chargeback to each region. This creates a major disconnect, as utility bills are never sent to (or reviewed by) Facility Managers in individual facilities.

This policy has inhibited analysis and identification of even the most rudimentary errors in utility billings. Jane cited numerous examples, including:

- A facility manager discovering USFS was paying for meters that were not connected to USFS buildings, and USFS continuing to paying utility bills for buildings that the USFS no longer owned (in this example, the buildings were sold/conveyed to a County government). Jane noted that the USFS employees responsible for selling and conveying buildings are not the employees responsible for paying utilities or improving EE.
- A building conveyed in the 1940s was still billed to the USFS up until the last year (this example was from a different USFS Region).

Jane now makes it a point to investigate and ask questions when she reviews utility bills. She recently discovered two meters being billed at $30 per month even though neither of these meters was drawing any electricity. She is also trying to locate and shut off a "mystery meter". Her challenge is to find the meter, and then find someone in a position of authority within USFS Region 1 to take action.

Jane suspects that problems detecting and correcting errors in utility bills is an "agency-wide problem".

The USFS does not have mechanical or electrical engineers on staff. Jane is an architect by training; "there is no one to talk to" within USFS. "Even when problems are found, I have not been able to correct them".

Jane cited another related problem with advanced meters in a USFS Office in South Dakota. Over $21,000 was spent on the advanced meters, but there is no one to read the data. When Jane inquired, she was told a position would be created for this purpose, but this has not happened yet. She has also heard that USFS is seeking to get an "energy czar" position established at the Headquarters Office in D.C., but there is no one currently at the USFS Executive level responsible for energy efficiency.

Jane noted that most of the energy savings potential in Region 1 still remains largely untapped: "We are not doing anything today we could not have done 40 years ago. We still have many buildings with single-pane glass, and the government will always pay the energy bill."

The largest single energy consuming facility in Region 1 is the USFS Nursery in Coeur d' Alene, Idaho. Over the last 6 years, Jane has worked with BPA under the BPA Federal EE program to implement a comprehensive EE project at this site. BPA facilitated a third-party financing to partially fund the USFS share of project costs, and Region 1 provided an additional $500,000 out of their capital improvement budget to get the project payback under 10 years.

To date, the Nursery has realized an 80% efficiency improvement, but Jane indicated "BPA did not finish the project", and the site is still paying over $3000 per month in energy bills. The project was supposed to include heat pump retrofits and address other heating and cooling efficiency opportunities in other facilities. USFS Nursery facility staff have expressed frustration about the delay. At the time of this interview Jane was currently working through Sue Majewski (a BPA Federal EE program contractor) to solicit bid quotes from vendors for the remaining work.

In terms of other EE activities, Jane is working through a major ESPC project scoping with Honeywell (a DOE ESPC contractor). A total of 20 separate measures have been identified to date, including furnace retrofits, infiltration measures and additional lighting retrofits. She thinks the ESPC approach is particularly well-suited for changing out electric furnaces with high efficiency propane systems, and for water conservation measures. Apparently, Honeywell was surprised at how much energy savings potential still remains within the Nursery facilities.

Jane is also involved in conducting investment-grade audits of Region 1 facilities in West Yellowstone. She described an ongoing 10-year effort to get Fall River Electric Cooperative (a BPA customer utility) to provide EE incentive funds from BPA. To date the utility has only provided limited rebates for qualifying energy efficient refrigerators at the time of replacement.

Jane thinks there is potential for millions of dollars in appliance rebate opportunities in region 1. She does not think the "trickle down" of EE awareness is working in her Region. She cited an example of a maintenance person in Clearwater Forest who did not know he should be buying Energy Star rated appliances at the time of replacement. She thinks someone should put together a spreadsheet with all appliances that could qualify for rebates. She needs to have staff from the USFS Grants and Agreements Office to develop a side agreement just to get appliance rebates from the serving utility.

Jane cited numerous other USFS institutional barriers to achieving EE. According to Jane, the only EE contracting mechanism "that works" is the multi-year, repetitive task order structure contained in the USFS Region 1 – BPA interagency agreement.

She cited the IA with BPA as the mechanism that allows facility managers to get small projects done. BPA audits performed by Rick Jones (a BPA contractor with the EE Federal program) identified lots of cost effective lighting and appliance retrofits. Jane reviews the audit recommendations with facility managers and adjusts for physical barriers. She cited this type audit assistance as "exactly the kind of help I can use". She also relies on EE lighting incentives from BPA, and

BPA's ability to hold the incentives, make EE purchases and pay EE contractors on behalf of USFS.

She has been trying to get this type of EE project support from other serving utilities (like Avista), but so far with limited success. She is aware that Avista offers EE rebates similar to BPA's, but in the past, she has had problems meeting Avista program requirements, resulting in the withdrawal of utility incentives. There are lots of USFS buildings in her region that are located within the Avista service area. Jane has spoken with Matt Dillon at Avista about the possibility of creating a "earned incentive " fund held by the utility. [Note: In a separate interview with Matt Dillon, it is clear that Avista is not interested in offering the UESC option to Federal sites in their service area, or holding earned incentives on behalf of the Federal site.]

She cited turnover of contracting officers (COs) as a chronic problem. "USFS Contracting Officers agree to things, then they get in trouble later on; then the CO does not want to move forward." Her prior CO wanted DOE to create a brand new separate ESPC agreement rather than use the DOE-created ESPC template. She now has a new CO who is willing to use the DOE ESPC template. That said, the ESPC option has limited application in Region 1; ESPC will not address leased facilities where the lease is less than 25 years, and the typical USFS lease is 15 years.

Region 1 is just now starting to pursue new task orders under a multi-year interagency agreement with BPA. She noted it took over 18 months to get the USFS to sign off on the Coeur d' Alene Nursery project 6 years ago.

When asked about Region 1 activities related to renewable energy goals, Jane indicated she is not the person responsible for renewable energy projects, and there are no funds set aside in the region's budget for this purpose. She knows that the USDA/USFS are supposed to deal with carbon mitigation and renewables, but she has not received any agency directives on this.

She noted the abundance of biofuels in her region and that development of biofuels is consistent with the mission of the USFS. However, a biofuel plant

would require a large upfront capital commitment and would have a long payback period. She mentioned that Honeywell wants an interview on this subject with USFS, but she thinks this is a non-starter, because Honeywell would require up to a 20-year commitment. USFS will not enter into or guarantee such a long-term commitment.

When asked what FEMP might be able to do to help meet Region 1 EE goals or accelerate EE project implementation, Jane acknowledged using the FEMP website, but primarily relies on BPA and the ESPC option for EE project support.

As an architect, Jane is responsible for safety and health of the building occupants. She likes the comprehensive approach embodied by LEED and is very interested in EE. Going forward, she would like FEMP to provide the same type of EE project support that BPA has historically provided. In particular, she wants to tap FEMP for assistance with EE project development and advanced metering expertise. She has the mandate to do EE but she needs to rely on others with knowledge of how to successfully implement projects. Jane specifically wants software to download utility information ("the data is there, but what good is it if it is not analyzed and used to control energy?").

Her biggest obstacle is access to funds for EE. Jane indicated she needs an alternative source of EE project funding (other than loans or money freed up from utility bill reductions from energy savings). To that end, she has requested $50,000 out of the Region 1 capital improvement budget for BPA-implemented projects. Jane is also seeking USFS audit funds (she noted Rick Jones was able to provide comprehensive audits for less than $5000). "Unfortunately the only dedicated budget is for paying utility bills, there is no dedicated money for EE."

In closing, Jane noted she is depending upon DOE oversight of ESPCs. She values BPA's ability to "work across (public) utility boundaries", and cited Sue Majewski (a BPA contractor) as a "real resource and problem solver".

In contrast, Jane noted it was very difficult to implement EE projects with Northwest Energy (an IOU serving most of Montana) because of USFS internal

procedures. (USFS procurement rules require a minimum of three bids, and required Northwest Energy to get another contractor bid.)

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Of all the NW Federal agencies interviewed, US Forest Service Region 1 appears to be the most challenged in terms of its ability to meet the EE, renewable energy and carbon mitigation goals.

At this time, it is not possible to estimate the remaining market potential for energy efficiency and renewable energy in Region 1. Jane does not yet have a solid grasp on where the remaining cost effective EE opportunities are in her region. She needs immediate assistance with software and analysis of utility bills, and "course screening" for EE project opportunities.

Other than Jane serving in the ancillary role of "acting energy manager", Region 1 does not appear to have any formally structured energy management program or centralized energy planning. There appears to be no in-house capability to develop and implement EE projects.

Jane receives little, if any, EE project support from local serving utilities (Avista and Northwest Energy). Jane is trying to leverage as much ESPC support as possible, but other than a few large facilities (like the Coeur d' Alene Nursery) most of the EE opportunities in Region 1 are diffused across many, relatively modest sized buildings in a very large geographic area, making the ESPC option less viable.

Region 1 is heavily reliant on the IA with BPA to perform low-cost audits, and to develop and implement small EE projects and provide incentives for ECMs. Of most immediate concern is the impact of BPA's recent decision to rely on its public utility customers to implement EE projects with Federal sites. USFS and other Federal agencies with facilities in multiple utility service areas (like GSA, NPS and the US Coast Guard) will be disproportionally affected by further reduction or elimination of the EE project support currently provided by BPA.

Recommendations

One of the first areas of potential collaboration with FEMP would be to provide assistance with analysis of utility bills and course screening of EE project opportunities. Also it is recommended that FEMP design a template and provide support for instituting an "energy scorecard" or other goal tracking system (similar to that used by the National Park Service).

FEMP needs to determine if anyone in USFS Region 1 has been assigned responsibility for renewable energy and carbon mitigation initiatives.

FEMP should give full consideration to Jane's request to provide assistance in identifying and securing appliance rebates, and provide assistance with EE information and outreach efforts to Region 1 facility managers and maintenance staff.

APPENDIX B:

EE Service Provider Interview Notes, Observations and Recommendations

Summary of Meeting Notes from Onsite Group Interview with BPA EE Federal Program Staff (Seattle Office), (06/11/10)

Attendees

Frank Brown, Federal energy efficiency (EE) program manager (now reassigned to Smart Grid Team)

Michael Huber, EE project engineer (account manager for Navy Region NW BOA)

Katherine (Kate) Patton, Federal EE program support contractor

Tim Scanlon, PNNL subcontractor

Background

The purpose of this meeting was to get firsthand insights from key BPA staff directly involved in the day-to-day implementation of the BPA EE Federal program. Primary topics included: (1) internal BPA challenges, barriers and solutions for delivering EE project support to Federal customers; and (2) external challenges impacting Federal agency accomplishment of energy reduction and renewable energy goals.

According to Frank, the biggest problem facing the BPA Federal program is "too many Federal agencies wanting BPA to spend too much money".

At the time of this interview (June 2010), the program was maintaining a $60 million "pipeline" of future Federal EE projects. That was expected to include about $40 million of Federal agency funding commitments and $20 million of BPA incentives.

Interestingly, each of the BPA program team included in this interview, have somewhat different ideas regarding the solution to the backlog problem. Frank thinks the Federal program must be redesigned so that BPA staff are no longer functioning as a general contractor. "BPA must stop building stuff. We can no longer deal with construction responsibilities." Michael thinks most of the problems can be alleviated by hiring more BPA Contracting Officers. Kate thinks the Federal agencies should implement their own EE projects, and BPA should

limit its role to serving as a catalyst, facilitating financing and providing project incentives.

Several reasons were cited for the slow implementation of Federal projects:

- Tightening of BPA contract procedures/supply chain staffing constraints
- Getting EE project managers assigned to do Federal projects
- Getting assigned EE project managers to complete task orders on schedule
- Inconsistencies in EE project manager reporting.

In addition to issues with completing Federal EE projects already in the pipeline, the program staff is also experiencing problems getting new interagency agreements in place and renewing existing agreements as they expire: “both the Federal agency and BPA legal get involved” and “there is no one to push through the paper”. One recent task order took over 6 months to get signed. The slowdown is occurring on “both sides of the process”.

The program relies on another part of the BPA organization (BPA supply chain, hereafter referred to as SC) to complete the necessary contract actions (procurement of EE equipment and service providers).

Staff described the SC process as “broken”, and “going from bad to worse”. “It takes double the time or more, relative to prior years” to complete the contract actions. In the past, BPA was able to rely on SC to contract $20 to $30 million of new Federal EE projects annually at a “steady state” of contracting activity. The SC organization is no longer able to keep pace with the higher demands by Federal agencies for BPA EE project support. “We are seeing a negative feedback loop, and contractors are getting seriously hurt.”

Part of the problem is that the SC group is responding to higher priority work for the EE organization, and BPA Contracting Officers are “stuck in meetings instead of processing contract requisitions”.

Contributing factors to the slowdown were major changes in the way BPA was able to use master agreements with EE support service contractors. A formal complaint from a lighting contractor led to a complete reworking of master

agreements. During this same timeframe, three critical SC audits (not involving EE contract requisitions) were “deemed improper”. This resulted in new contracting procedures and more competitive bidding requirements.

Prior to 2009, these contracts were more “open-ended”, and contract releases could be made up to the contract ceiling “or even bump up the contract ceiling”. Now every task order for every EE project BPA is managing must be separately bid. “Every contractor must bid on every lighting project.” In the past, BPA had one master agreement for each large DOD facility (example: NW Edison for Navy NW); now BPA SC requires a minimum of three bids for each project at the Base).

In addition to the elimination of “not to exceed” contract dollar ceilings for master agreements with EE service contractors, BPA SC is now expecting that the projects be fully predesigned before they go out for bids

BPA SC has interpreted the contracting split between “design” and “build” to prohibit the contractor that performed the audit from bidding on the implementation of the measures identified in the audit. Program staff noted this is a real problem for EE lighting contractors because conducting audits is viewed as “lead generation” for these companies, and the only way they really make money is from lighting installations.

A third change imposed by BPA SC was to treat “field modifications” to EE task orders as a change to the “scope“ and require a new task order to be put in place. In the past, if there was a miscount in the number of lighting fixtures identified in an audit, a “field modification” could be used to correct the task order amount while the lighting installer was still out at the site.

A fourth change, caused by a deficiency identified in the SC audit of 2009, is that all SC contracts above $100K must be independently reviewed by another SC Contracting Officer to ensure the contract selection process was performed correctly, and there is sufficient documentation to support an “audit trail”.

The cumulative effect of all four SC contract tightening measures has resulted in a major reduction in the total number of contract actions and projects that the BPA Federal program can complete.

This slowdown is further compounded by the fact that there are fewer SC Contracting Officers, and the BPA Federal program must compete with other EE program priorities (including Technology Innovation, redesign of the EE industrial program and re-competition of the Energy Smart Grocer program). "The SC organization is getting a lot of contracting requests from the other EE organizations, and it seems that the Federal program is now a lower priority."

"The key is to reduce demands on the BPA SC organization." To do this requires a better defined approach that "maximizes kWh *[savings]* for the effort involved."

Overcoming the variety of barriers will take a new delivery approach. Some of the program staff in the Seattle Office conclude that the only solution to reducing the current backlog is to "outsource" EE project implementation to other "EE delivery agents" (like the US Army Corps of Engineers or some other entity).

Frank thinks the recent redesign of the BPA EE Industrial program may also serve as a model. (BPA recently outsourced the Industrial program to Cascade Engineering under a $10 million annual performance contract.) This is a capital funded program where the fees paid to Cascade Engineering are linked to the delivery of kWh. This type of outsourcing, once put in place, requires minimal SC effort to maintain.

Frank is not sure that all agencies currently relying on BPA for EE project support will be accepting of BPA outsourcing the Federal program under a master agreement with a single EE service provider (a la the "Cascade model"). Some agencies require BPA to "compete EE projects among EE service providers" and would object to the master agreement approach. Some agency contracting officers will not use BPA contracts with EE service providers because BPA SC does not "follow the Federal Acquisition Regulations (FAR)." (BPA is exempt from the FAR's Competition in Contracting Act.)

When asked about external challenges to accelerating EE projects at Federal sites in the region, Frank offered the following observations:

- EE priorities are being supplanted by renewable energy Executive Orders and EISA; specifically the mandate to produce 5% of electricity needs from onsite

renewable projects. (Frank noted the Navy was able to meet their target via the geothermal generating plant at China Lake, California.)

- Renewable projects are “flashy” and “easier to showcase”. Everyone wants a “piece of green”. “ I don’t care what it costs, I just need a renewable project”

- It is Frank’s understanding that, by 2014, the top 75% of energy consuming facilities of every Federal agency must receive a comprehensive ASHRAE Level II audit (which includes water, all fuels and renewable energy opportunities). The key focus for many Federal agencies is whether they are on pace to complete 25% of the audits every year, rather than worrying about meeting the energy reduction goals.

- The Executive Order (E.O. 13514) signed by President Obama requires sustainability plans for all agencies. “This is a very broad and prescriptive approach” (the E.O. also addresses recycling, water use and fleet efficiency). “There is a very small focus on energy efficiency.” This is having a big impact on the agency energy and facility managers. “They are being pulled off to write sustainability plans, and their focus is shifting away from producing energy savings.”

- “Most of the ARRA funding going to agencies is for sustainability projects. NPS got ARRA funding for renewables. Only GSA got ARRA funds for energy efficiency.”

- Frank also thinks agencies are also getting less appropriated funds for energy efficiency.

- He thinks it will be harder for agencies to get past the 30% energy reduction level in their facilities.

Despite these challenges, Frank thinks the BPA Federal program could have “at least 5 more good years” of EE project work. BPA incentive levels are now up to $0.40 per kWh, and agencies can roll over earned incentives to implement new EE projects. {It should be noted that the BPA Federal program lead has subsequently indicated that the BPA incentive level may be limited to $0.25 per kWh in the future.}

Frank provided an internal assessment of the remaining EE market potential for the Federal program. He thinks there is at least 50 aMW of remaining potential at sites in the BPA service area available over the next 5 years.

He believes there is approximately 20 aMW of EE market potential in Federal irrigation districts (IDs), but it will take a "large, multi-year effort" to capture the energy savings. Steve Wright (BPA Administrator) wants to make sure the IDs are not left out of BPA EE programs.

Frank noted that IDs in the Snake River Drainage in Idaho are looking at system redesigns to reduce or eliminate pumping loads. He thinks this opportunity alone would yield energy savings of at least 2 aMW at a cost of $5 million. He thinks there is no shortage of cost effective EE projects from IDs. The key is for BPA to be able to facilitate private source financing. He noted that the states require the IDs to undertake comprehensive planning, and they get cooperation from regional conservation and development commissions to help with studies.

BPA is trying to work directly with some of the IDs, but one of the obstacles is access to capital to fund large scale pump replacements. Even though the Bureau of Reclamation (BOR) owns the pumps, the IDs are "state-chartered entities responsible for operating and managing Federal property", and the states are operating at the limit of their bonding authority. The IDs themselves often pay only a minimal amount for electricity and water, but they are "politically driven" to save water and energy.

Frank thinks what is needed is some type of "breakthrough to enable BPA to facilitate private source financing", and have the debt service repaid by ID members. This would require a buy in from the BOR. Frank described the BOR contracting practices as inflexible and "from the 50s.

In terms of other potential EE opportunities at NW Federal sites, Frank noted that DOE RL is "lagging behind". DOE RL has an annual work plan that DOE will not deviate from. The work plan will not be modified to capture audit-identified energy savings.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

The BPA Federal program is inherently different from the other BPA EE programs implemented through BPA customer utilities or outsourced to private EE service providers. In the program, BPA is typically the direct EE delivery agent and Federal sites are the clients.

Over the past 15 years, BPA has been very successful in delivering energy savings from Federal sites, primarily using multi-year "fed-to-fed" interagency agreements. BPA is in some ways a victim of its own success, and Federal sites have placed more reliance on BPA to meet their energy reduction targets.

The current design of the program is not sustainable, as evidenced by the growing turn-around on Federal projects under contract. A major shift, away from the current SC contracting approach and BPA onsite construction management, will be required to speed up project implementation. The challenge will be to preserve the essential, unique and less BPA staff-intensive elements of the Progam (such as multi-year interagency agreements, facilitation of private source financing, and the provision of and holding of EE project incentive funds on behalf of Federal sites) while simultaneously transitioning EE onsite project management to other qualified delivery agents (like USACE).

Recommendations

FEMP should encourage BPA to sustain the essential and unique elements of their program for Federal sites. FEMP can start by instituting a new MOA between FEMP and BPA (patterned after the MOAs put in place between US DOE EERE and BPA over a decade ago). The centerpiece of the MOA should be "that BPA and FEMP mutually support achievement of the E.O. energy reduction goals as the highest priority activity under the MOA". This will also require FEMP to maintain a more active and direct presence in the region. In exchange for BPA support of the energy reduction goals, FEMP can also assist BPA by increasing the receptivity of Federal sites to transition from BPA to other EE delivery agents.

Summary of Meeting Notes from Onsite Group Interview with BPA EE Federal Program Staff (Portland Office), (06/14/10)

Attendees

Curt Nichols, BPA Energy Smart Federal Partnership lead

Tim Steele, BPA EE engineer/ Federal account manager

Chris Nielson, BPA contracting officer, BPA contract management

Tim Scanlon, PNNL subcontractor

Background

The purpose of this meeting was to: (1) discuss the objectives of the FEMP-sponsored market assessment of Federal sites in the region with Curt; (2) solicit the views of Curt, Tim and Chris about current EE barriers and challenges to accelerating EE projects at Federal sites; and (3) identify possible roles for FEMP in assisting BPA and Federal sites in meeting the energy reduction goals.

Curt started the meeting by stating he is looking forward to the results of the market assessment. He is hoping it will provide insights on who the Federal agencies are and who serves the sites. He wants to know how much the sites in the region know about their energy use. He noted that many local sites do not pay their own utility bills and may not "have a clue" about what the EE opportunities are at their site.

Curt thinks the current level of knowledge regarding sites in the NW is incomplete. Existing information sources lack vital data, and there is no single repository for this kind of information. He is wondering if PNNL will set up a database that includes the information that will be captured in the market Assessment. He envisions a role for FEMP in tracking and maintaining this type of information, and providing agencies and EE service providers with access to this information.

Tim Steele has extensive experience with Federal projects and lots of direct experience working with GSA. Tim observed that GSA facility managers are mostly

concerned with “reducing occupant complaints” and “want to make it easy”. “They would not be doing EE if it was not imposed by their parent agency”.

Curt commented that, for GSA portfolio managers, “it is all about cash flow”. One would think they would have a strong motivation to cut energy costs, “but they don’t”. “The purpose of the equipment is to provide an amenity, not to save energy.” In situations where office lighting is already below the standard, there are few good options left for getting additional energy savings. Lighting levels are already low, and the next level of reduction is sub-optimal.

Chris Nielson (the BPA contracting officer with the most experience implementing contract actions for the BPA Federal program) wonders if some of the sites are really focused on EE. As an example, he cited an experience with an EE project at a Air Force Base. The contractor and Chris were onsite at the Base, but no one from the AFB participated in the project walk-through.

Chris volunteered the observation that the BPA supply chain (SC) organization “is over extended”. The Federal Acquisition Regulations (FARs) other Federal agencies must follow “may be less efficient”, but there really is “no magic” in what the BPA SC does.

Tim thinks BPA SC contracting is much more flexible than the regular government procurement approach. Other agencies (subject to the FAR) must do “full and open competition”, and this requires greater specificity in the statement of work. By contrast, BPA only needs to ensure “adequate competition”, and BPA can limit the number of bidders required on a project.

Tim also noted that when agencies transfer funds to BPA for EE project implementation, it provides a way to get past the normal fiscal year constraints on spending the funds: “fiscal year funds can become ‘no year’ funds.”

Chris thinks FEMP should provide training in EE procurement “how tos”, and also provide sample specifications for EE equipment. He noted that the GSA Supply Schedule has a single price, whereas the actual price of the same equipment can vary by location.

Curt suggested FEMP should be given the ability to provide loan guarantees for EE and renewable energy project financing.

Chris also pointed out the Federal government does not have a "government-wide database on contractor performance"; having this could be very helpful.

Tim thinks that one of the keys that has made the BPA Federal program successful is the relationship BPA has with the contractors. "It is all about relationships." BPA SC has enabled BPA Project Managers to "work as partners with the contractor".

Chris noted that the SC organization "is tightening". Many of the new BPA Contracting Officers are "steeped in the FAR", and not likely to grant ($5K to $10K) field modification authority to BPA Project Managers (as has been done in the past).

Chris talked at length about the "bad internal and Inspector General (IG) audits" in 2009. "Now we are focused on following the Bonneville purchase instructions to the letter."

There is now full time equivalent (FTE) ceiling on SC staffing, and this is a "huge limitation". "Everyone in BPA has bigger budgets and needs more contracting support. This is driving SC to do more master agreements and "strategic sourcing" (i.e., fewer and larger contract actions).

SC has a much higher aversion to risk as a result of the IG audits. "Every contract action over $100K must be independently reviewed by another BPA Contracting Officer (the independent reviews are "optional" for contract actions under $100K). He also cited the strategy panel risk assessment process that is now mandatory for all large contract awards.

Chris sees what he refers to as an "organizational conflict of interest" between the current strict adherence to the Bonneville purchase instructions and the kind of contracting flexibility the EE Federal program has utilized in the past. As an example, he cited the government-wide prohibition now in place that restricts bidders from bidding on projects they designed. "It is OK to contract for design-build, but not design only then bid."

At the end of the meeting Chris was asked if he thought the SC would support the idea of outsourcing the BPA Federal project implementation to a third party delivery agent (similar to the Energy Smart Grocer program and the Industrial program redesign. Chris said yes. He did not see any reason SC would object. "SC will do what the EE Vice President (EE VP) asks us to do."

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Chris confirmed all the issues and problems regarding the SC tightening identified by the BPA Federal program staff in Seattle. It appears inevitable that BPA will have to change the way it provides EE contracting support to other Federal agencies, particularly BPA onsite construction management.

The BPA Federal program has been in existence over 17 years without any major change in the delivery approach. It is time that the program is redesigned in light of the current realities and internal BPA constraints.

It appears that BPA SC will do whatever is ultimately requested by the EE VP in terms of a redesign of the Federal program. The fact that BPA has already outsourced the BPA industrial program and Energy Smart program to a third party delivery agent indicates that BPA EE and the BPA SC organizations are more than capable of making whatever program design changes are needed.

A wholesale outsourcing could come as a real blow to the agencies that are currently relying on BPA to assist them in meeting their energy reduction goals. BPA could benefit from assistance from FEMP in facilitating the transition of onsite support to other EE delivery providers.

The challenge will be for BPA to preserve the essential, unique and less BPA staff-intensive elements of the program (such as multi-year interagency agreements, facilitation of private source financing, and the provision of and holding of EE project incentive funds on behalf of NW Federal sites) while simultaneously transitioning EE onsite project management to other qualified delivery agents (like USACE or a private energy service provider).

Recommendations

As noted in the recommendations from the BPA Seattle interview, FEMP should act as an advocate for EE at sites in the region, and do everything it can to encourage BPA to find a timely solution to the "backlog" problem, but sustain the essential and unique elements of the program (cited above). One of the first steps is for FEMP to initiate a new MOA with BPA (patterned after the MOAs put in place between USDOE EERE and BPA over a decade ago). To do this, FEMP will also need to re-establish an ongoing physical presence in the NW, and use this presence to help facilitate the transition from BPA to other EE delivery agents at NW Federal sites.

FEMP should give consideration to: (1) Curt's suggestion to establish loan guarantees for EE and renewable energy projects; and (2) Chris Nielson's suggestions for FEMP to provide EE equipment procurement training and product specifications, and establishing a government-wide database on EE contractor performance.

Summary of Meeting Notes from Telephone Interview with Spencer Moersfelder, Commercial Program Manager, Energy Trust of Oregon (7/26/10)

Background

The Energy Trust of Oregon (ETO) is headquartered in Portland, Oregon. ETO is the system benefit charge administrator for EE programs in all IOU service areas (Portland General Electric, Pacific Power, Northwest Natural or Cascade Natural Gas) in the state of Oregon. Qualifying customers in NW Natural Gas service area (primarily Vancouver, WA) are also eligible to participate in ETO programs.

ETO has no program offerings specifically tailored to Federal agencies, but agencies are eligible to participate in ETO program offerings if the Federal site pays a "public purpose charge "on their electric or gas bill.

Energy Trust of Oregon offers incentives for commercial, agricultural and institutional customers. ETO treats public agencies (including Federal sites that pay a public purpose energy charge on their power bills) as commercial or institutional customers.

ETO offers two basic types of program offerings for this group; one for existing buildings and one for new construction.

Business Energy Efficiency Rebate Program for Existing Buildings

The standard incentive program provides prescriptive rebates for the retrofit of electric motors, insulation, water heaters, lighting equipment, and HVAC equipment, as well as equipment specific to data centers, grocery stores, and the food service and lodging industries. For more information on incentives specific to different industries, see the Energy Trust website (http://energytrust.org/business/). Projects must be pre-approved before making equipment purchases or initiating work.

Business customers retrofitting existing buildings through measures not covered under the standard incentive program can still receive financial assistance from Energy Trust through the custom incentive program. To qualify for a custom incentive, the energy savings must be at least 25% of the current energy use for

lighting equipment and 10% for all other equipment and measures. Approved custom lighting efficiency projects are eligible for incentives up to 35% of the total approved cost not to exceed $0.17/annual kilowatt-hours (kWh) saved. Custom incentives for projects involving non-lighting equipment or measures are approved up to 35% of the total approved cost not to exceed $0.25/annual kWh saved and $1/therm saved.

Both custom and prescriptive incentives for existing buildings are capped at $500,000 per site per year.

Business Energy Efficiency Rebate Program for New Buildings

ETO offers a variety of ways to receive funding for new building construction or major renovation projects that utilize energy efficient equipment and design standards. Incentives are available on four separate tracks. (Refer to the ETO website for complete details: (http://energytrust.org/business/incentives/other-businesses/new-construction/)

The Standard track provides up to $500,000 for approved energy efficient measures including lighting and lighting controls, motors, variable speed drives, air conditioning, heat pumps, air-to-air heat exchangers, demand control ventilation, chillers and natural-gas-powered water heaters, kitchen equipment and heating equipment. Each unit of equipment has a minimum efficiency and/or physical configuration requirement associated with it. When equipment meeting these requirements is purchased, installed, operable, and all program documentation is complete, the incentive will be paid.

Projects with a total potential incentive of more than $5,000 are eligible to apply for a technical assistance incentive of $500 to assist in assessing which energy efficiency measures will qualify for the Standard Track equipment incentives. The technical assistance incentive is then deducted from the final project incentive.

The Custom track provides up to $500,000 for approved projects. The incentive is based on the difference between the expected energy use of a building of its size based on the Oregon Energy Code, and the actual energy use of the building after 1 year. The incentive for new construction is priced at $0.10 per kilowatt hour

(kWh) and $0.80 per therm for the first year's annual savings over the benchmark value. Custom track incentives may be combined with commissioning incentives and technical assistance incentives for a total incentive of $565,000.

The LEED track awards up to $500,000 in incentives to new construction projects that achieve LEED NC or LEED CS. Incentive amounts are $0.10/kWh or $0.80/therm. Generally these incentives are calculated using the estimated energy savings submitted to the US Green Building Council, but they can also be calculated based on the number of energy and atmosphere credit points the project receives, or other criteria. Incentives will also differ depending on whether the project is new construction or a major renovation. There are additional incentives of up to $40,000 available for enhanced commissioning, measurement, and verification.

The Energy Star track offers incentives to eligible new building projects that achieve the Energy Star building performance certification from the U.S. Environmental Protection Agency (EPA). Energy Star incentives provide $2,000 to $30,000 per project. Facilities that meet certain criteria and achieve a rating of 75 or higher are eligible to apply for the Energy Star incentive option through Energy Trust. Projects that have completed the Standard Track are eligible to participate in the Energy Star track. Custom and LEED projects are not eligible for the Energy Star track.

Interview Highlights

A telephone interview was held with Spencer Moersfelder (ETO commercial programs manager) on July 26, 2010.

To facilitate discussion, a list of interview questions was provided electronically in advance of the interview.

Spencer indicated he wants to do more public agency outreach to increase participation in EE programs. ETO recently hired Ed Wales for this position. (Ed can be reached at 503-445-2954.)

When asked about the level of EE project support ETO was willing to provide to Federal sites, Spencer indicated ETO does provide some level of technical assistance, including free walk-through audits for smaller buildings and more comprehensive technical support under certain conditions. The way ETO determines the level of technical support is ask a series of "screening questions" at the outset when someone inquires about ETO program offerings (for example, does the facility have capital available to fund EE improvements?).

Spencer wants to ensure the Federal facilities have a solid understanding of all the options and opportunities of the ETO programs (both prescriptive rebates and custom program options).

He thinks that most agencies would place greater value on a comprehensive package of EE project support. He mentioned the Oregon Business Energy Tax Credit (BETC) available through the Oregon Department of Energy (ODOE). Sometimes ETO provides assistance with the energy savings calculations for the BETC application. He also noted that public agencies (including Federal sites) that have no tax liability can pass through the BETC to the EE contractor to offset total EE project costs.

While ETO may provide assistance with the supporting energy calculations, ETO assumes no responsibility or provides no assurance of receiving the BETC from ODOE. He did mention that many of the energy service contractors participating in ETO commercial custom track program offerings are willing to work out this type of arrangement for the BETC.

One potential complication is that ETO and the ODOE BETC each use a different baseline for calculating energy savings. For ETO, the baseline is the "existing condition" (i.e., the current efficiency level of the equipment being replaced). The BETC baseline assumes the equipment will be replaced by more efficient equipment available at the time of replacement, and only credits the savings for higher efficiency equipment.

When asked what he thought were the biggest barriers to EE at Federal sites, Spencer mentioned "access to capital" and "the amount of funds available for

EE". He also thinks incentives earned by Federal sites typically "go to the general fund and provide less benefit for the site". He thinks the latter results in less motivation for sites to pursue EE improvements. He mentioned that ETO was planning to run a pilot program for "on bill financing" for residential measures, but ETO had not yet developed an analogue of this for their commercial program offerings.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

ETO appears interested in expanding its program outreach to include more public agencies (including Federal sites). ETO has established a new position within ETO for this purpose.

Unlike many other utility service providers in the region, ETO also provides some additional technical assistance for EE project development.

In addition to accessing ETO for project incentives and technical assistance, sites could potentially benefit from the ability to pass through the ODOE BETC to an EE contractor to offset EE project costs. (BPA may have used the BETC in this manner for qualifying EE projects at some of its own facilities.)

Recommendations

Spencer and Ed should be encouraged to participate in networking opportunities with Federal representatives at the Federal Utility Partnership Working Group (FUPWG) meeting.

Summary of Onsite Interview and Follow Up Meeting with US Army Corps of Engineers, Federal Center South (Seattle) - (8/13 and 9/10/2010)

Attendees (Initial Interview)

Richard Wilson, USACE (onsite)
Matt Allen, USACE (by phone)
Skip Schick, BPA Federal program consultant (by phone)
Tim Scanlon, PNNL subcontractor (onsite)

An initial onsite interview was held with Richard Wilson and Matt Allen at the USACE Office in Federal Center South (Seattle) on August 13, 2010. Rob Frazier, the Branch Manager for the Work Done for Others (WDFO) program, was also scheduled but unable to attend. Skip Schick (BPA Federal EE program consultant) participated by phone. An onsite follow up meeting was held with Rob Frazier on September 10, 2010.

Background and Observations from Initial Onsite Interview

Richard and Matt were able to provide a very detailed description of the type of project support USACE provides for other agencies, but neither of them have authorization to enter into IAs with other agencies. As Branch Manager, Rob Frazier has signature authority for the Seattle District WDFO program. The purpose of the follow up (one-on-one) onsite meeting with Rob was to directly confirm his willingness and level of interest in taking on an expanded EE project support role.

The Army Corps of Engineers (USACE) operates a robust WDFO program, focused primarily on agency new construction and public works. While not their primary historical focus, EE project implementation is within the scope of WDFO construction management and engineering capabilities.

Much like BPA, WDFO provides a full range of project support at the request of the agency. Project support is provided under interagency agreements on a fee for service basis (percentage of total project costs). Rather than advancing project funding, requesting agencies specify their budget authorization in the funding agreement section of the IA, and USACE bills the agency as work is performed.

Typical fees for major construction projects are 10 to 11%, split between onsite construction management (6%) and design work (4%). Fees for smaller projects are proportionately higher due to fixed costs. Also similar to BPA, the WDFO program relies on a mix of in-house staff and outsourcing to a pre-selected pool of qualified contractors.

WDFO is divided into two components: A small projects program and a major projects program. The small projects program could be used for single projects of a more limited scale (like lighting retrofits, design reviews, etc.). The major projects program is used mostly for large-scale, multi-year projects (like the new construction projects at JBLM). The small projects program may be well suited for the type of EE project support needed by the Border Patrol, NPS, USFS, and the Coast Guard. The major projects program is already actively used for large-scale projects, primarily at DOD sites (JBLM, Navy) and VA facilities.

The North Pacific Division of USACE and BPA serve essentially the same geographic area in the Northwest region. The Division regional headquarters is located in Portland, with District Offices in Seattle, Walla Walla, and Portland. Primary responsibility for the WDFO program resides with the District Offices. The Seattle District appears to have the most active WDFO program, and is currently managing between $40 and $70 million dollars in project work for other agencies. At present, Matt Allen (WDFO Small Projects program manager) indicated the WDFO program was operating at full capacity, and 90% of the Seattle Office workload is for other agencies. However, WDFO is very open to additional agency project support requests, and indicated that WDFO was adept at drawing in additional resources from other Divisions if needed.

WDFO interagency agreements are flexible and signature authority primarily resides at the District level. Their contracting process appears well suited for EE projects, and smaller EE projects could be implemented under the “smaller projects” process. Similar to BPA, the WDFO project lead is typically an engineer. Most WDFO small projects usually involve no more than three people from start to finish [the project manager, contractor, and a project inspector (for quality

assurance)]. Major projects are more staff-intensive and require more elaborate project management processes.

Note: during an earlier interview, BPA Federal EE program staff in Seattle cited a negative prior experience working with the USACE WDFO program in the 2001-2003 timeframe. Primary concerns were the relatively high project support costs, and "process-heavy" approach. However, BPA staff expressed interest in re-testing WDFO capability on one or two projects. There have had recent discussions with the Seattle District WDFO management, and BPA staff were told that the WDFO program has significantly improved over the past decade and is now very customer-responsive, efficient and a good value.

During the course of WDFO interview, Matt and Richard expressed a clear interest in working with BPA to do more energy efficiency projects. Richard cited his current work with FEMP on the NW Renewable Energy Initiative as another opportunity to partner with BPA. Matt thinks focusing on military installations is a good place to start, as they are the largest energy consumers. He cited NPS as a great agency to " showcase" EE projects, but with the exception of NPS, he thinks civilian agencies tend to be more challenged in meeting their energy reduction goals due to mission and budget concerns. He cited his recent experience with the Border Patrol Stations in Blaine, WA, where energy efficiency measures were the first items cut from the construction budget.

Matt thinks teaming up with BPA would the best way to provide EE project support to other Federal agencies. He is willing to look at what BPA wants and how best to engage. He suggested the possibility of entering into an IA directly with BPA, or alternatively, have BPA refer (and/or act as a facilitator) on EE project opportunities with other Federal agencies.

Summary of (9/10/10) Onsite Follow Up Meeting with Rob Frazier (WDFO branch manager)

Rob Frazier affirmed his interest in providing EE project support, but "is not looking to take the place of BPA". He believes it would be best to start with a "local initiative" involving DOD installations; a pilot project where USACE already has boots on the ground doing engineering, contracting and construction oversight. His idea is to prove the partnering approach, then extend it to other (non DOD) Federal agencies.

He views EE project work as a natural extension of what the District is already providing. USACE already goes "over and beyond" the building envelope to look at energy systems on the base. He also noted a tie-in between energy efficiency, onsite renewable energy generation and energy security issues. He discussed the "island concept" wherein a military installation could sustain itself for a period of time without the outside assistance of the serving utility.

Rob thinks there is a clear linkage between the DOD Installation energy policy goals (using renewable energy to supply 25% of installation energy demand by 2025) and Federal agency energy reduction goals (to reduce energy demand 30% by 2015). He also mentioned the NW Renewable Energy Initiative, but acknowledged they are still in the process of fleshing out this concept. He thinks USACE could operate renewable energy farms in the same manner that the USACE currently operates hydroelectric dams.

He views USACE as the Nation's "premiere construction manager" and believes Congress should direct other agencies to use USACE. He thinks most agencies like VA are not well served by doing their own construction and contract management. This is not their forte or primary mission. By contrast, USACE is already geared up to take on both renewable energy construction and energy efficiency projects.

Rob was asked to share his thoughts on exactly how a partnering arrangement could be worked out between BPA and his Division in providing EE project support to JBLM. He believes this could be a very straightforward arrangement. Rob

already has an IA in place with JBLM, and Rob is the designated IA manager for BPA for all other side projects (other than hydroelectric dam operations). He would be willing to accept EE project support requests from either JBLM or BPA. All IA activities are subject to the Economy Act, so there needs to be coordination between all three agencies. The key element is the acceptance of funds. If the requesting agency is not the owner of the property (or equipment), USACE would still need to get a buyoff from the agency that owns the property. Hypothetically, BPA could provide the EE project funding under an IA with USACE, and JBLM simply needs to "green light" the request to perform the project at its site.

Rob noted that USACE is funded by reimbursable work and is therefore not subject to hiring freezes like other agencies. This gives him the ability to increase capacity to take on EE projects, which is part of his long term business plan.

At the end of the meeting Rob reiterated his desire to "prove the partnering concept" at DOD sites first, before this concept is extended to civilian Federal agencies. "Sell new products to existing customers before you sell new products to new customers."

{Summary Comments: USACE is very well positioned and both staff and management have expressed a real interest and appetite to take on an expanded EE project support role. The acting energy manager at JBLM (Eric Waehling) is very receptive to having JBLM serve as the pilot DOD site to test this partnering arrangement. The process mechanics appear to be very straightforward. BPA would need to take the first step. A role for FEMP would be to serve as a catalyst and facilitator to get the three parties to the table at the earliest opportunity to work out the arrangements for a pilot project at JBLM.}

Summary of Teleconference Interview and Follow Up Teleconference with GSA Assisted Acquisition Services (GSA AAS) - (August 30, 2010/August 31, 2010)

Tim Scanlon conducted an initial teleconference interview with Glenda Sorger on August 30, 2010 (refer to background and observations from initial interview, below).

Tim then hosted a follow up conference call with Glenda, Tony Stevens (AAS Branch Manager, Tucson Office) and Skip Schick (BPA Federal Agency program consultant) on August 31, 2010

Background Information and Observations from Initial Interview with Glenda Sorger

All 10 GSA regions have an AAS Office, with the exception of Region 10 (GSA Northwest Arctic Region). Glenda Sorger (actually a GSA Region 9 employee) is the Region 10 point of contact for AAS, stationed in Port Orchard, WA, at a GSA purchasing office located in Kitsap County. It should be noted that the AAS program is functionally separate and apart from the Region 10 Office in Auburn, WA. Any GSA purchasing actions for other Federal agencies in Washington, Oregon or Idaho would be implemented by Glenda. Federal agencies in Montana would be serviced out of the AAS Office in Livingston, MT.

GSA Assisted Acquisition Services (AAS) makes pools of pre-competed, pre-priced, GSA contractors available to other agencies. To access contractors, GSA requires an interagency agreement with the agency, and charges service fees based on the size, complexity and total cost. AAS does not provide on-sight project management or contractor oversight. AA's role in providing energy efficiency project support to other agencies is limited to managing the procurement of contractors. Typically, three bids are solicited from the appropriate prequalified contractor pool. The client agency reviews the bids to determine their preferences and GSA AAS executes the contract. It is possible to have an "open market bid" for the work, but it is a much more difficult and lengthy process.

At the time of the interview, the GSA (871) Schedule contains the following ten contractor pools for energy efficiency-related professional services:

871 202 Energy Management Planning and Strategies
871 203 Training on Energy Management
871 204 Metering Services
871 205 Energy Program Support Services
871 206 Building Commissioning Services
871 207 Energy Audit Services
871 208 Resources Efficiency Management (REM)
871 209 Innovations in Energy
871 210 Water Conservation
871 299 New Services for Energy Solutions.

According to BPA staff, several contractors on the GSA Schedules listed above are also in the BPA technical services providers (TSP) pools, and others are contractors that the EE Federal Agency program regularly uses to implement projects. While BPA and GSA negotiated contractor prices may vary, in general, the prices for the same contractor services are about the same.

Glenda indicated AAS has primarily been providing IT contract support (10 years) and most recently, telecom contract support (3 years), to other agencies. To date few (if any) NW Federal agencies in the region have relied on AAS to procure energy efficiency project support off the 871 Schedule.

Curiously, GSA Region 10 does not to use AAS for its own facilities, and (with the exception of BPA) other Federal agencies interviewed in this market assessment appear largely unaware of their ability to access the energy efficiency professional services AAS offers.

At the time of the interview with BPA Federal program staff in Seattle (June 2010) there was mention of preliminary discussions to possibly work with the Navy and Glenda to use the GSA AAS option to make the next set of Navy REM procurements. At that time, BPA's intention was to gain experience using AAS through an actual Navy purchasing initiative. In prior years, the Navy relied on

BPA to procure REMs. At the time of the initial GSA AAS interview (August 30, 2010), Glenda was aware of BPA's interest in potentially partnering with GSA, but her office had yet to receive a single request from any Federal site in the region to access energy efficiency professional services contractors on the GSA 871 Schedule.

There appears to be a significant uncertainty regarding the types of EE project support AAS will allow under the GSA 871 Schedule.

According to BPA staff, GSA does not allow use of Assisted Acquisition for construction and project implementation. They believe the pools of pre-competed GSA contractors are not available for that purpose (even though the wording used for some of the pools describes the provision of "project implementation", "project management" and similar services). BPA staff indicated the GSA pools are only available to BPA (if allowed by BPA supply chain) for energy audits, engineering design and development, modeling, M&V, and similar technical and professional services. Even under this very strict and narrow interpretation, BPA access to the GSA 871 Schedule could still be helpful in terms of reducing supply chain work load.

At the time of the initial interview, Glenda insisted that "project management" can be accessed via the 871 Schedule. The 871 professional services Schedule was developed in response to other agencies that approached GSA requesting this type of EE professional services. That said, Glenda also affirmed that AAS does not allow these schedules to be used for "construction or renovation".

A question was asked if a lighting retrofit project would be considered as a "renovation". Glenda admitted that her background was primarily in the area of IT, and she did not have much experience with EE projects. She has been told that GSA views construction projects as "too risky", and GSA already has a Public Buildings Division that deals with construction. The purpose of the 871 Schedule is "not to build buildings". Glenda agreed to discuss this issue her boss (Tony Stevens), so a follow up conference call was requested with both Glenda and Tony.

Summary of Follow Up Teleconference with Glenda Sorger and Tony Stevens

Tim Scanlon participated in a follow up conference call with Glenda Sorger, Tony Stevens (GSA AAS branch manager, Tucson Office) along with Skip Schick (BPA Federal Agency program consultant) on August 31, 2010.

The key issue under discussion was the perceived limitations on the type of EE projects GSA AAS would allow under the 871 professional services schedule. While it was clear that the schedule could not be used for "new construction", does GSA consider a lighting retrofit a type of construction? Is a lighting retrofit considered an installation of equipment or an alteration of the building?

Tony acknowledged that construction is a thorny issue, and reiterated that AAS would have a problem allowing the 871 Schedule to be used for any form of construction. He is not sure if lighting retrofits would be considered as a type of construction. He has no direct experience writing the specifications for the 871 Schedule, but believes that GSA AAS intention is to not allow use of the 871 Schedule if the preponderance of work is "construction related".

Note: As evidenced by the preceding discussion, there is a lot of confusion as to what EE projects GSA AAS will allow the 871 Schedule to be used for. There is a wide range of possible interpretations. What is needed is a thorough vetting of the issues and a definitive ruling from GSA AAS. This clarification is needed up front before GSA AAS can be effectively marketed to other Federal agencies. FEMP appears to be well positioned to work with GSA AAS to more clearly define the scope of EE project work that can be performed under the 871 Schedule.

Despite the lack of clarity on allowable EE projects, Tony thinks GSA AAS can "meet BPAs needs". He stated that working with BPA would be "a feather in the AAS cap" and "very valuable to us". He stressed that the GSA Administrator "wants AAS to move into this arena" (i.e., EE project support). To that end, Tony is willing to arrange a trip to BPA and will bring Kenton (a GSA AAS contracting officer) and Glenda to the meeting.

{Summary Comment: BPA or FEMP should take Tony up on his offer. FEMP can take a role to advocate for the broadest interpretation possible regarding the type of EE projects AAS will allow under the 871 Schedule. Regardless of the outcome of these discussions, accessing the professional services offered under the 871 Schedule could help reduce the backlog of BPA contract actions.}

Summary of Meeting Notes from Telephone Interview with Bob Stolarski, Conservation Programs Manager, Puget Sound Energy (11/03/10)

Background

Puget Sound Energy (PSE) is the largest investor-owned utility in the state of Washington. PSE serves more than 1 million electric customers and approximately 750 thousand natural gas customers. The PSE service area covers over 6 thousand square miles within 11 Washington counties, from South Puget Sound north to the Canadian border, and from Central Washington's Kittitas Valley west to the Olympic Peninsula.

PSE shares at least one service area boundary with 26 different public utilities in the state of Washington. Many of the largest Federal sites in the state (including JBLM, and Naval Station Bremerton) receive electric or gas service from PSE. Over the past 30 years, PSE has operated very robust energy efficiency and renewable energy programs (conserving more than 2 billion kWhs of electricity).

PSE has very aggressive EE targets; between 2008 and 2009 PSE has spent over $150 million on energy efficiency programs. Over the next 20-year planning horizon, PSE estimates there is enough EE market potential in its service area to save 440 aMWs of electricity and 70 million therms of natural gas.

PSE is one of the few investor-owned utilities in the region to have previously offered a UESC option to Federal sites in their service area. PSE has recently decided to no longer provide onsite construction management for EE projects (refer to Navy Region NW and JBLM interview notes for additional information on this subject).

PSE offers incentives for both electricity and gas saving measures (subject to meeting program requirements). Federal sites in the PSE service area are eligible to participate in PSE commercial program offerings, including grants (up to 70% of project costs), incentives for EE lighting fixtures and controls, HVAC, motors, and boilers, building retrofits and EE design in new construction.

PSE also provides access to energy usage profiles (in 15 minute intervals), and offers “tune ups” for HVAC and boiler equipment.

PSE also operates the largest RCM (resource conservation manager) program in the United States. PSE provides funding and support to customers who hire a RCM. The role of an RCM is to increase efficiency by focusing on improvements to operations and maintenance practices, and instituting best practices for resource usage (e.g., electricity, natural gas, water and sewer, solid waste and recycling). PSE asserts that most organizations can reduce annual costs between 10% and 15% over a 3-year period.

The RCM program is available to any public-sector government agency, with the focus on larger customers with multiple facilities. For qualifying organizations, PSE will pay a cash incentive determined as a percentage of the typical RCM salary (typically, PSE will fund 25% of the first year salary) to help get the RCM program started. PSE also provides assistance with initial set-up of utility database and program organization and ongoing RCM training opportunities.

Interview Highlights

A telephone interview was held with Bob Stolarski (PSE Energy Efficiency programs manager) on November 3, 2010. Bob is the manager for both gas and electric EE programs.

PSE spends approximately 70% of its EE program budget on electric incentives and 30% on gas incentives. Bob noted that for some natural gas customers, PSE is simply the delivery agent. The customer must be on a retail gas tariff to be eligible to receive incentives for gas ECMs.

Bob oversees a very robust RCM program, with over 130 RCMs working with over 130 different customers (some of the smaller cities and towns in the PSE service area have joined together to form “the critical mass” to make an RCM position viable). Typically the customer hires the RCM. (Lori Moen (425 426 3274) is the contact person for the PSE RCM program). Note that in the Federal sector, the RCM is designated as a REM, showing the difference between commercial and Federal applications. In reality, they both perform the same function.

PSE also provides an RCM training series with 15 different courses. Bob describes the RCM training series as “tremendously successful”.

PSE also offers incentives for onsite renewable energy projects. There are no rebates for equipment, but PSE provides incentives based on the output of the equipment (up to $0.54 per kWh, subject to meeting renewable energy program requirements, refer to application information at pse.com).

Other than providing EE and renewable energy incentives, PSE has made a conscious decision to scale back the level of EE onsite project support to Federal sites in its service area. Bob noted that PSE recently decided not to renew the BOA with Navy Region NW as “work load was falling off and BPA was picking up the slack”. Bob thinks it makes more sense to have a single EE service provider at sites. Having both PSE and BPA in the same role “is redundant”. Bob did indicate he is willing to revisit this decision if the current situation changes.

Most of the other Federal EE activity is done on a “project by project” basis (GSA is a good example, but Bob mentioned he is somewhat surprised by the small number of GSA projects in his service area).

There are no special programs for Federal agencies, but the large Federal sites served by PSE also have a “major account team”. Bob thinks the latter is another path for revisiting the level of PSE project support provided to the sites.

Bob also supports a recommendation to encourage Federal sites to request an annual meeting with the major account team to address EE opportunities at the site. He thinks that without an annual review, the site may miss opportunities for EE incentives. Annual reviews also provide an opportunity for the site to learn about EE program changes and new PSE program offerings.

PSE provides “walk through” audits, which Bob described as “course screening to identify potentially cost effective project opportunities”. Bob has a PSE team that reviews project proposals and energy savings calculations for determining the amount of utility incentives.

PSE does not provide any form of financing for the customer's share of total project cost (net of incentives). Bob noted that PSE used to provide financing under the BOA with the Navy.

Bob indicated he would be open to consideration of on-bill financing, but the current PSE billing system is not set up to handle this, and PSE would need to make a major investment in a new customer billing system. He thinks this capability might be in place at some point (maybe 3 years). In the interim, he thinks it might be possible to construct an on-bill financing arrangement if the individual customer bills could be customized.

PSE is one of the few utilities in the region to have some experience implementing the ESPC option, having originally partnered with the Bentley Company (then ENRON). He believes the ESPC option can be very effective, as "energy efficiency should pay for itself".

"For IOUs serving Federal sites, lost revenues (from reduced kWh sales from EE improvements) are a real problem". He noted that both Avista and Washington Natural Gas have instituted revenue decoupling to address this problem (revenue decoupling is a type of retail rate design where the utilities' revenue recovery is not tied to kWh sales). He thinks the IOU regulatory model "must change", and the Federal government should work with the state Public Utility Commissions (including Washington State) on revenue decoupling and other "model regulations."

With respect to the remaining market potential for EE in the region, Bob thinks the higher utility avoided costs (for new resources to serve load) has created many more cost effective EE opportunities. He also recognizes that "EE project paybacks are still longer in this region" and that financing should be made available to sites ("financing makes sense for feds"). He noted that other types of commercial customers have easier access to financing than Federal sites.

He also believes RCMs (REMs) can play a key role in advancing EE at Federal sites, along with designating a site Eeergy champion and developing a strategic energy management plan (SEMP).

When asked what he thought FEMP could do to advance EE at Federal sites, Bob offered the following suggestions

- Promote energy benchmarking (as part of establishing specific metrics for RCMs)
- Provide incentives for achieving EE goals by incorporating an EE performance element into the Federal employee's annual performance contract.
- Incorporate EE procurement specifications in both equipment purchase and O&M agreements.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

PSE is scaling up its EE and renewable energy spending and raising its incentives in response to very aggressive targets for EE and renewables over their next 20-year planning horizon.

Unfortunately, PSE is currently in the process of scaling back their onsite construction management for EE projects at Federal sites. PSE's decision to scale back is in direct response to the level of turnkey project support BPA has been providing to JBLM and the Navy.

This is bad timing in light of BPA's recent decision to also scale back its EE Federal project support. The combined effect is likely to have a very adverse impact on the pace of EE project activity and energy reduction goal achievement at the largest sites in the NW region (JBLM and the Navy). Thankfully, Bob is open to revisiting PSE's decision.

PSE has a very successful RCM (REM) program. Not all sites in the PSE service area take advantage of this.

PSE has an account management team for JBLM and the Navy, and an annual account review provides another entre for addressing EE support needs at these sites.

Bob understands the importance of agencies having access to low cost financing. He is open to further exploration of on-bill financing options.

Recommendations

FEMP should be an advocate on behalf of JBLM and the Navy Region NW, and encourage PSE to revisit their recent decision to scale down Federal EE onsite support.

FEMP can also play a vital role in engaging both BPA and PSE to ensure a timely transition of EE project support to these sites to avoid a deceleration in the pace of EE activity.

FEMP should investigate the feasibility of a shared RCM (REM) position for smaller Federal agencies with multiple sites in the PSE service area (for example, GSA, USCG, USFS, NPS). FEMP should also engage the Navy Region NW to ensure the Navy is aware of the free RCM training courses PSE is offering.

FEMP should give full consideration to Bob's suggestion for FEMP to: (1) encourage energy benchmarking; (2) incentivize EE goal attainment in Federal employee performance contracts; and (3) incorporate EE procurement specifications for equipment purchases and O&M contracts.

Summary of Meeting Notes from Telephone Interview with Mike Dillon, Commercial Programs Project Engineer, Avista Energy Company (11/05/10)

Background

Avista Corp (formerly Washington Water Power) is an investor-owned utility headquartered in Spokane, Washington. Avista provides electricity to nearly 340,000 customers and natural gas to about 300,000 customers. The Avista primary service area covers more than 30,000 square miles in eastern Washington (Spokane area) and Northern Idaho. Avista also provides gas service to southern and eastern Oregon (See Figure 1).

Figure 1: Avista Service Areas

Avista offers a variety of energy management tools and services for commercial and industrial customers in Washington and Idaho who receive retail electric and natural gas distribution from Avista. Services include technical assistance, design review and utility incentives. To be eligible to participate, Federal sites must be Avista retail electric customers served under a tariff with a public purpose rider.

Avista has an extensive list of incentives for a prescriptive lighting program and rebates for various types of commercial equipment, including variable frequency drives, demand controlled ventilation, natural gas HVAC, and premium motors (refer to avistautilities.com/business/rebates for more details). Avista also offers building commissioning and retro-commissioning programs.

Avista operates a site-specific (custom) incentives program for energy efficiency projects that fall outside the parameters of the Avista prescriptive rebate programs. Cash incentives are available for hard-wired improvements that result in verifiable energy savings. The incentive is based on the first year energy savings (either in kilowatt-hours or therms) based upon the simple payback of the measure prior to the application of an incentive, as calculated by Avista staff. Incentive tiers apply to measures with energy savings lasting 10 years or longer that meet or exceed the higher of the current energy code or industry practice (whichever is applicable to the project). Fuel-conversion incentives are available only for conversion to natural gas with an end-use efficiency of 44% or greater. All incentives are capped at 50% of incremental project cost.

Interview Highlights

A telephone interview was held with Mike Dillon, P.E. (Avista commercial program engineer) on November 5, 2010.

Mike Dillon confirmed that Avista has no tailored programs for Federal agencies. Federal sites are subject to the same rules as all other eligible customers. Mike indicated Federal customers interact with Avista account executives, and this may be one way to generate new EE project leads.

Mike is not aware of any UESC ever being offered by Avista, and Avista has no intention of offering a UESC to Federal sites now.

Avista has both gas and electric EE programs. The total annual EE program budget is approximately $30 million. The budget is split 75% electric/25% gas programs.

All site-specific custom projects have some level of engagement of an Avista program engineer (Mike is one of the commercial program engineers). Avista has four in-house program engineers; two for commercial projects, two for industrial projects. Services provided include billing analysis, walk-through audits, equipment installation and verification. Avista wants to retain its in-house capabilities, but is willing to seek outside expertise when needed. If necessary

based on program demand they may outsource to PECI (Portland Energy Conservation, Inc.). PECI is also managing Avista's Energy Smart Grocer program.

Avista will provide scoping (as opposed to investment grade) audits, free to customers upon request.

Renewable projects are eligible to receive performance based incentives (incentives are based on metered performance results). Mike noted that the incentives Avista provides for renewables are usually small relative to the tax incentives that are offered. Washington State also offers additional incentives up to $0.54 cents credit per kWh if the equipment is manufactured in the State of Washington.

No financing is offered for the customer's share of total project cost (net of utility incentives). Mike also expressed an interest in being able to offer "on bill" financing. This is not currently available. The current customer billing system is 20 years old and a major inhibitor to being able to offer on bill financing. There is a plan in place to update and replace the current billing system.

Mike believes another inhibitor to Avista providing financing to Federal customers is the extra "rules and regulations" and the risk of default on project financing.

Mike noted that GSA works with ESCOs, and there are a lot of ESCOs working in Washington State. Avista does not see a gap in this arena. Mike does not see a lot of GSA projects. He has seen lots of new construction projects for the Forest Service. Avista has common service area boundaries with 15 or 20 public utilities. Mike said Avista may try to coordinate with BPA on providing gas incentives.

During the West Coast energy crisis Avista implemented a very active resource conservation manager (RCM) program within and outside of its service area. According to Mike, Avista was looking at offering RCMs as a new business line. Avista took a financial hit due to the economic recession, and this has led to some program cut backs. Mike noted they are just now beginning to scale up RCM activities. He has only one "official" RCM now, but is looking at adding 5 or 6 new RCM positions. Mike confirmed that Federal customers served under Avista retail tariffs will be eligible to participate in the RCM program offering.

The Avista RCM program appears to be patterned similar to one being implemented by PSE. Avista wants to leverage ARRA funds through Washington State for this program. Smaller public agencies (like school districts, county and city government facilities) could share a single RCM and pay a proportionate share of the RCM salary. Avista would provide a portion of the salaries (to be negotiated) for the first 2 years. For large commercial customers and private institutions, Avista would fully fund the salary of the RCM for the first year, and then be reimbursed on a fixed payment schedule based on estimated energy savings. Mike described this as: "the utility is acting as an ESCO, in the sense they are providing up front capital".

Avista account executives are set up on a regional (geographic basis), rather than on the size of the customer's average energy demand. According to Mike, there are no major Federal accounts in Avista's service area other than gas service provided to Fairchild AFB.

Only the retail gas customers (served under a tariff with a rider for public purposes funding) are eligible to receive incentives for gas ECMs. This also applies to Federal sites access to the RCM program previously described.

Mike spoke about the "need for quantitative analysis to support the projects". Even though there is much more interest in EE today, agencies have "a much longer timeline and a more bureaucratic process". He cited this as one of the obstacles to accelerating EE project implementation at sites.

On the up side, "public customers" (Federal sites) are "not as sensitive" to longer project paybacks as some of his national account customers. The latter are subject to strict return on investment (ROI) criteria, while public agencies base their EE investment decisions on life-cycle costs. "ROI is a much higher hurdle rate".

Mike thinks the "missing component" is optimizing operations at the facility. He thinks FEMP should therefore also focus on optimal operation of equipment rather than just capital improvements. "Focus on building operations" (i.e., improved O&M).

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Mike indicated that there are no "major" Federal accounts in the Avista service area (other than natural gas service to Fairchild AFB). Avista program offerings, especially the RCM, prescriptive rebates and custom program appear well-suited to the needs of the smaller sites. Like PSE, Mike indicated that Avista may coordinate with BPA on providing gas incentives to sites receiving retail gas service from Avista.

Other than new construction projects at US Forest Service facilities, there appears to be very limited participation by sites in Avista program offerings. Mike mentioned that GSA rarely (if ever) participates in Avista program offerings. PSE and Idaho Power also made similar comments about the surprising lack of GSA participation in their program offerings.

More research is needed to: (1) determine exactly which sites are eligible, but not participating, and why; and (2) which sites are eligible to receive incentives for gas ECMs. Like all the other IOUs interviewed for this study, Avista does not offer a UESC option or any form of EE project financing. This may partially explain the reasons sites have limited participation.

Recommendations

If FEMP adopts the recommendation to hire a circuit rider to serve as a catalyst and facilitator of EE projects, that individual should also develop an ongoing working relationship with Mike Dillon. The FEMP circuit rider could also engage Bill Turner at Fairchild and facility managers from other Federal sites in the Avista service area (including the Forest Service and National Park Service) to facilitate discussions with Mike to ensure these Federal sites stay current with Avista program eligibility requirements and incentive levels. The FEMP circuit rider could also encourage these sites to request free audits and other assistance from Avista in identifying and developing energy efficiency and renewable energy projects.

FEMP should investigate the feasibility of establishing a shared/cross-agency "REM rider" position for the smaller sites located in the Avista service area. This is

another opportunity in the NW Region where REMs (or RCMs) could be a “shared resource” to the many small Federal sites.

FEMP should consider engaging BPA, Avista and regional IOUs regarding leveraging local C&I (commercial and industrial) lighting trade ally networks to target Federal sites

FEMP also should give full consideration to Mike’s suggestion for FEMP to place more emphasis on optimizing building operations.

Summary of Meeting Notes from Telephone Interview with Deb Young and Dave Bausch, Northwestern Energy Company (11/10/10)

Background

Northwestern Energy (NWE), an investor-owned electric and gas utility with operational headquarters in Butte, Montana, serves approximately 660,000 customers (395,000 electric and 265,000 gas) in the states of Montana, South Dakota, Nebraska and parts of Wyoming. Although classified as a "mid-sized utility" by industry standards, NWE has one of the largest service areas and lowest population density of any utility in the U.S (less than three customers per square mile).

In the western 2/3rds of the state of Montana, NWE serves over 335,000 electric customers in 187 different communities. The NWE electric service territory intertwines with 15 of the 30 rural electric co-ops in Montana over a 107,000 square mile area. The US Forest Service (Region 1) and DOD (Malmstrom Air Force Base) are among the agencies served by NWE.

In the western half of the state of Montana, NWE provides natural gas service to over 180,000 customers in 105 communities. NWE has both retail and "transport" (i.e., distribution-only) natural gas customers. Gas customers must be served under a retail rate schedule to qualify for universal system benefit (USB) funding for natural gas ECMs. Many of the NWE government accounts (including Federal accounts) buy their natural gas supply in the competitive market, and therefore do not qualify for gas incentives from NWE.

EE and renewable energy programs are funded through a USB charge (also referred to as a "public purpose charge") collected on customer power bills. The USB was legislatively mandated by the State of Montana in 1997. Customers with 1 aMW or more in average monthly demand can elect to self-direct their USB spending. Of the 57 customers who meet this criteria, only one (Malmstrom AFB) is a Federal site. The USB also provides low income energy assistance to some of the Base residents who qualify.

A telephone interview was held on November 10, 2010 with Deborah Young, NWE Manager of EE programs, and Dave Bausch (a NWE engineer familiar with the Federal sites in the NW Energy service area).

Deb mentioned that NWE has offered a UESC option to Federal sites in the past, but "the concept no longer fits within the company's business plan." NWE did a UESC in 1997, but subsequently "sold" the project**.**

NWE has no EE or renewable energy programs specifically tailored to Federal sites, and does not provide project financing. Deb would love to offer financing, "but NWE is not interested in becoming a bank", and would "need a more systematic approach to third party financing".

Federal sites in the NWE service area are eligible to participate in the following EE program offerings (go to www.northwesternenergy.com for additional details).

Efficiency Plus (E+) Montana at home and at work

The E+ Commercial Lighting Rebate program offers prescriptive rebates for the replacement of less efficient lighting products and with high efficiency technologies. This program is available to all commercial and industrial electric supply customers.

E+ Natural Gas Savings for Existing Businesses

This program offers prescriptive rebates for qualifying natural gas energy saving measures in existing facilities. Eligible measures include high efficiency furnace/boiler or water heater, stack heat exchanger, infrared griddle/fryer, refrigeration heat recovery, boiler tune-up, district hot water (DHW) circulation pump time clock, energy management control system (EMCS) optimization, water heater tank wrap insulation, boiler pipe insulation, service hot water pipe insulation, heating duct sealing and insulation, ceiling insulation, exterior wall insulation, high efficiency windows, and programmable thermostats. This program is available to commercial and industrial natural gas supply customers. (Note: Gas customers must be served under a retail rate schedule to qualify for this program.)

E+ Business Partners Program

This program provides customized incentives to commercial and industrial customers for electric and natural gas conservation. Examples of projects include measures to improve lighting, heating and cooling (HVAC) systems, refrigeration, air handling, and pumping systems. New and retrofit facilities are eligible. (Note: to qualify for customer incentives under this program, the customer must submit a detailed application, which includes 13 different points of information and analysis. The incentive is calculated based on the amount of energy savings between the "base case" (before the EE improvements) and the "change case" (with EE improvements). This program is available to electric or natural gas commercial and industrial supply customers.

E+ Energy Appraisal for Businesses

This program provides free audits that focus on identifying electric conservation opportunities for small commercial customers on NW Energy's electric distribution system. A report with recommendations customized to the facility is provided. Some energy saving measures may be installed as appropriate. This energy appraisal is currently available for commercial customers that have an average peak demand of 300 kW or less.

Deb thinks this kind of EE project support is commonly needed and most valued by Federal sites. This is not an investment grade audit and does not meet the criteria of a USDA audit. It does flag recommendations for improvement. Deb noted some of the Federal sites in her service area have participated in this program in the past, but she has not seen much recent program activity at sites.

Deb has also seen Federal agencies (like NPS, USFS and USPS) partner with the design community and take advantage of the lighting design labs (in Boise and Seattle) for EE project support.

E+ Motor and Motor Rewind Rebate Programs

This program provides rebates to offset purchase costs of new National Electric Manufacturers Association (NEMA) Premium® motors purchased as replacements for burn-outs or for new construction (1 horsepower (hp) to 200 hp). Rebates are

also offered for motor rewinds that meet green motor practices through certified member motor service centers. This program is available to commercial and industrial electric supply customers.

In terms of renewable energy, Montana is the fourth largest state, but first in the nation for wind speed (class 3 and above), available on a wide expanse of Federal, state and private lands. NW Energy already meets the Montana renewable portfolio standard of 10% renewables (note: the RPS is met mostly by new renewable generating projects placed into service since 1999—no major hydro projects are included in meeting the RPS). Most of the renewable generation is wind generation supplied from the 135 aMW Judith Gap project in Central Montana. NWE is the sole contract holder for both the supply and the renewable energy credits (RECs). In addition to the EE program options listed above, NWE also provides the following renewable energy programs.

E+ Renewable Energy Program

This program provides incentives for qualifying solar, wind, or geothermal projects. Go to the following website (www.montanagreenpower.com) for more information on eligibility requirements for this program. Deb noted funding for this program is limited. Rebates are based on a "per watt" incentive on eligible equipment (up to $50 per kW). Customers also have the option of submitting renewable project proposals. NW Energy is looking for good, visible sites, and has limited R&D funding set aside for this purpose.

E+ Green Power

Montana has legislatively mandated renewable energy credits. NWE electric customers have the option to "green up" their monthly service for as little as $2 extra a month. The funds are used for renewable energy projects primarily in Montana and Wyoming.

During the course of the interview, Deb Young mentioned that of some agencies are signed up for E+ Green. One of her Federal customers "bulked up" their E+ Green program enrollments on facilities in the NW service area to help meet their renewable obligations in other parts of their region/district, where the other

electric utilities do not offer a green power program as part of the monthly bill. To date, only one agency has stepped forward to do this. Deb noted that NWE is willing to consider renegotiating the levels of renewable purchases under their contracts with the Bonneville Environmental Foundation if more agencies want to pursue this option.

In response to other questions in the Utility Service Provider Questionnaire, Deb noted that most agencies seem to have the same types of EE project support needs, and these needs do not seem to change much over time. She thinks the free preliminary audits through the E+ Energy Appraisal for Businesses program and efficient lighting project development applicable to the E+ Commercial Lighting Rebate program are the most needed and valuable types of EE project support. Deb also noted there is interest among the EE Trade Allies (local trade associations comprised of lighting ,HVAC and other EE equipment vendors and installers) to target Federal sites.

In terms of barriers and challenges to accelerating energy efficiency, she cited the lack of comprehensive EE planning at the facility level. Deb thinks Federal agencies need facility energy managers who can dedicate the time to develop a comprehensive energy conservation program for each site, including an O&M/retro-commissioning plan, and correction of deferred maintenance.

She noted that she does not have enough consistent interactions with agencies to render an opinion as to which agencies are the least and most successful in meeting their EE and renewable energy goals, or the most effective ways to transfer “best practices” across sites.

Deb offered the following specific (written) suggestions regarding what FEMP can do to accelerate EE and renewable energy projects at sites.

- Because most of the sites in NWE’s service territory are very small with staff that wear many hats, it would seem that these agencies might benefit from a shared resource conservation manager to help them get energy efficiency and renewables to the profile that is desired. It could be cross-agency, because in rural markets, many of the sites are small and similar, but geographically dispersed.

- Additional training on strategic energy management might be in order to get energy efficiency and renewable energy to permeate the organization's structures and processes in the same way that safety or sustainability do.

- User training for building occupants so that the building can take advantage of the energy efficiency features—how to use the programmable thermostat, checklists for when to call a service provider, education on how much energy/money is lost by leaving a garage door into the heated warehouse open.

- There have been challenges for agencies to receive payment to their facility for energy efficiency improvements. The utility can't assign it to the account and the "customer" can't accept a payment.

- Government agencies have challenges tied to capital budgets vs. expense budgets. The investment in energy efficiency is capital and the savings are expense. If they can't increase the capital budget, they can't invest in the measure that will deliver savings on the expense budget. This barrier needs to be addressed. If agencies can't get some sort of reward for reducing the expenses or some vehicle to cover the capital to allow for reduced expenses, then why will they get on board?

In terms of what FEMP can do to complement the EE Federal project support provided by NWE, Deb noted that NWE does have contracts with some organizations to stimulate activity in our energy efficiency programs so sharing any opportunities that FEMP makes available to Federal agencies will help the contractors better support the mutual goals of the customer and the utility.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

Federal sites in the NWE service area are eligible to participate in NWE commercial and industrial electric efficiency programs, but more research is needed to determine exactly which sites are eligible to receive incentives for gas ECMs.

In addition to renewable energy equipment incentives, NWE also accepts customer submitted renewable project proposals. Some sites may have the type of high visibility projects that NWE is seeking.

All IOU utility service providers interviewed (including NW Energy) noted a diminishment in the level of program participation at sites. It does not appear that all the sites in the NWE service area are taking full advantage of what the utility has to offer. The fact that NWE no longer offers a UESC option or any form of EE project financing may be some of the reasons sites have limited participation.

Deb was the first person interviewed to mention leveraging trade ally networks to target Federal sites. Trade ally networks include local lighting and equipment supply companies, vendors and installers. IOUs and ETO have successfully used local trade allies to deliver their commercial and industrial lighting programs. BPA also established a regional trade ally network a few years ago, in an effort to increase the level of their commercial and industrial (C&I) lighting program activity across the region. This is an excellent suggestion, and has potentially broader application to many sites across the region.

Recommendations

If FEMP adopts the recommendation to hire a circuit rider to serve as a catalyst and facilitator of EE projects, that individual should also develop an ongoing working relationship with Deb Young. The FEMP circuit rider could also engage Gerry Johnson at Malmstrom AFB and Jane Kipp at Region 1, and help facilitate discussions with Deb to ensure these Federal sites stay current with NWE program eligibility requirements and incentive levels. The FEMP circuit rider could also encourage these sites to request assistance from NWE in identifying and developing energy efficiency and renewable energy projects.

FEMP should investigate the feasibility of establishing a shared/cross-agency REM position. Deb specifically suggested that REMs could be a “shared resource” to the many small sites in her service area.

FEMP should consider engaging BPA and regional IOUs regarding leveraging local C&I lighting trade ally networks to target Federal sites

FEMP should give full consideration to Deb’s suggestions to: (1) provide strategic energy management planning (SEMP) training to Federal facility managers; (2)

provide energy awareness training to Federal facility occupants; (3) address and resolve the problem of sites inability to receive and hold utility incentives; (4) assist in overcoming the barriers to accessing low cost capital to fund EE and renewable projects; and (5) create incentives for sites to reduce energy use.

Summary of Meeting Notes from Telephone Interview with Randy Thorn, EE Point of Contact, Idaho Power Company (11/12/10)

Background

Idaho Power Company (IPC), an investor-owned electric utility headquartered in Boise Idaho, serves 490,000 customers in southern Idaho and eastern Oregon. Idaho National Laboratory and Mountain Home Air Force Base are among the largest sites that receive electric service from IPC.

IPC no longer offers a UESC option and has no programs specifically tailored to Federal sites. Federal sites in the IPC service area are eligible to participate in the following IPC commercial program offerings .

Building Efficiency (commercial construction)

Incentives of up to $100,000 per project designed to offset part of additional capital expenses for more efficient lighting designs, cooling systems, controls and building shell in new commercial and industrial construction projects.

Custom Efficiency (complex projects)

Financial incentives for large commercial and industrial energy users who undertake complex projects to improve the efficiency of their electrical systems or process. Incentives of $0.12/kWh up to 70% of the project cost.

Easy Upgrades (simple retrofits)

Incentives of up to $100,000 per year for simple energy-saving retrofits to existing commercial buildings. A menu of eligible retrofits includes improvements such as new lighting, HVAC equipment, and controls.

FlexPeak Management (demand response)

Recurring payments for reducing a set amount of electricity consumption in response to Idaho Power peak demand and other electrical system needs.

In addition to EE program incentives, IPC has the following renewable energy program offerings:

The IPC Net Metering program allows customers to install small-scale, renewable generation projects on their property and connect to Idaho Power's grid system through generator interconnection. The purpose of the program is to enable customers to offset their energy use. Customers generating more electricity than they use can earn a credit on their monthly power bill.

IPC also offers its customers a Green Power program. Customers can designate the amount of green power (produced in the NW from environmentally –certified wind and solar energy projects) purchases and the amount is added to the customer's monthly power bill. IPC uses a portion of the proceeds from the Green Power program to support the Solar 4R Schools, initiative (to install solar roofs in area schools).

Interview Highlights

A telephone interview was held with Randy Thorn, P.E. (IPC energy efficiency programs) on November 12, 2010.

Randy started the interview by affirming that IPC does not tailor energy efficiency program offerings for Federal agencies. All IPC programs offer incentives for eligible measures, but IPC does not provide a financing option for the customer's share of total project cost (net of utility incentives).

Randy provided a brief overview of IPC commercial program offerings (he also mentioned that Curt Nichols created the program design for the Easy Upgrades program when he was the IPC commercial programs manager). The latter program includes a broad list of eligible measures.

The Building Efficiency program is applicable to both commercial and industrial new construction and major retrofit projects and provides incentives for exceeding current building code requirements.

The Custom Efficiency program requires documentation of energy savings. IPC also provides up to $3,000 for scoping audits, and up to $10,000 (or 50 %, up to $10,000) for detailed (investment quality) engineering studies. Cascade Engineering is often used for the latter.

All IPC program offerings are tied to the rate schedule the customer is served under. All IPC customers on retail rate schedules pay 4.5 % for EE program funding.

Any account greater than 1 aMW is assigned a customer account representative (CAR), to serve as the single point of contact between IPC and the customer. Steve Floyd is the CAR for the VA and GSA accounts. Randy (and other IPC staff) is tapped as needed by the CAR to address EE opportunities at the customers' facility.

Randy thinks the walk-through audits IPC offers are sufficient to identify the magnitude and type of EE opportunities at the site. He described it as a "course screening process" the utility uses to identify what the prime opportunities are. "We do not want to get too bogged down, and we do not need to audit every building."

Randy recalls that someone else at IPC signed a UESC with a Federal customer, but it was at least 4 years ago (or longer) since Randy saw one of these. He is not sure if there are any UESCs still active in his service area; if there are, IPC would honor the contract. {Note: After consulting with the PNNL market assessment lead following this interview, the Federal customer Randy referred to was probably Mountain Home AFB. It is believed that this UESC is no longer active at this Federal site.}

At present, the only options available for Federal sites are the basic IPC commercial and industrial programs. Randy noted that IPC has been working with INL, GSA and the VA under the Custom Efficiency program.

In the past, the local VA Hospital implemented some very good EE projects. Doug Lamb (energy manager for the local VA Hospital) "took the initiative at the local level". Randy mentioned this as a good example of "setting goals for facility managers and giving them the tools to get the job done".

Randy cited a project with GSA that "went bad". The vendor-provided magna drives on water heater pumps created a cavitation problem that needed engineering analysis resources to correct. He thinks these kind of problems can be

avoided by having an independent review, analysis and sign off performed by a professional engineer (either from the utility or a third party contractor).

Randy described another project (at the USDA Research Station in Aberdeen) as "a miserable failure". This goes back over 3 years ago, and started when the site requested assistance from the IPC customer account representative. An initial walk-through audit found lots of site specific opportunities to upgrade lighting and the HVAC system. Engineering contractors were tasked under a scoping study to narrow the opportunities to the point where the project could be funded.

Four engineers were flown out (using ARRA funding provided by FEMP in January 2010). The engineers produced a 40-page "detailed" report, but all of it was "assumption-driven". "There was no data logging or analysis of individual systems." The project did not adhere to the IPC Custom Efficiency program requirements, and IPC had to redirect the project to the Easy Upgrades program.

Randy noted that there are sometimes "fits and starts" regarding project documentation, If sufficient documentation exists then IPC may allow an incentive for a previously installed EE measure. In the future, IPC will require pre-approval of the ECMs to receive utility incentives.

Randy cited two "lessons learned" from this experience:

- The whole approach was "overkill". The 52,000 square foot facility had a maximum occupancy of 25 people. This was way too small of an EE opportunity for the level of resources expended.
- FEMP should have used some form of "course screening" done on the front end, before "limited Federal resources were deployed". "FEMP needs to deploy its resources more effectively."

In response to the interview questions, Randy noted that EE project support needs vary by agency and type of facility, and these needs change over time. He thinks the sites that are most successful with energy efficiency are the ones that have local facility managers that are "passionate about getting EE done". "If there is no EE champion, it does not happen." He thinks it is very important to set goals and empower local facility managers.

Unfortunately, Randy is not seeing much from the local sites. He mentioned there is “very limited activity of late”. He thinks many of the sites are “too remote from their utility”, and doing EE projects “without talking to the utility or taking full advantage of utility incentives”.

In terms of specific actions that FEMP can undertake to accelerate EE projects, Randy suggested FEMP should re-examine the screening mechanism and the criteria it is using to provide EE project support to sites. He questions whether FEMP resources should be deployed in this region, given the low cost of power in the NW.

In general, he thinks FEMP should review EE opportunities at sites at least on an annual basis, and work with local utility account representatives to make sure facility managers are aware of utility EE program offerings. He thinks the utility has sufficient resources and can do a better job.

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Observations

IPC collects a 4.5 % charge on their retail rate schedule for EE program funding, and Federal sites in the IPC service area are eligible to participate in IPC commercial and industrial programs. This utility also pays for walk-through audits (up to $3K) and cost shares “investment quality” engineering studies (up to $10K). Larger sites that have an assigned IPC customer account representative can request an annual account review and assistance from IPC in identifying EE opportunities.

By Randy’s account, there is less activity at Federal sites, and it does not appear that all the sites in the IPC service area are taking full advantage of what IPC has to offer. The fact that IPC no longer offers a UESC option or any form of EE project financing may be some of the reasons sites have limited participation.

Recommendations

FEMP could also engage the larger sites (GSA, VA, INL and Mountain Home AFB) and encourage them to schedule annual account review meetings (with the assigned IPC customer account representative). This meeting could be the forum for requesting IPC assistance in identifying and developing EE opportunities (using the course screening approach Randy is advocating) and for ensuring that each site stays current with IPC program eligibility requirements and incentive levels.

FEMP should investigate the feasibility of a shared RCM position for smaller Federal agencies with multiple sites in the IPC service area (for example, GSA and NPS).

FEMP should give full consideration to Randy's suggestions for FEMP to: (1) re-examine the screening mechanism it uses to allocate FEMP support; (2) apply this mechanism to "course screen" EE project opportunities in different regions; and (3) limit the level of FEMP resources deployed commensurate with the level of EE project opportunity.

APPENDIX C:

Additional Source Materials

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

ENERGY EFFICIENCY

In reply refer to: Federal Energy Efficiency Market Assessment

Date: June 3, 2010

To: Federal Agency/Service Provider

From: Curt Nichols, Energy Smart Federal Partnership Lead

Subject: Pacific Northwest Federal Sector Energy Efficiency Market Assessment

Thanks for all you've done to further the cause of efficient energy use in the Pacific Northwest. Now, we're hoping that we can count on you again.

Under the direction of the Federal Energy Management Program (FEMP), the Pacific Northwest National Laboratory (PNNL) is undertaking a market assessment of energy-saving opportunities in federal facilities in the Pacific Northwest.

The goal of this assessment is to determine the remaining potential for saving energy, to identify barriers that prevent implementation of energy-saving projects, and to solicit recommendations for FEMP that can help bridge those barriers. If you are contacted as part of this assessment, please participate to the fullest extent possible. Your input is valuable to FEMP.

We encourage your input in this process. You have a chance to help shape the services from FEMP to better support your efforts to manage your energy costs.

BPA also plans a similar review this summer. Our review will have a different focus. PNNL is focused on what *FEMP* can do to encourage enhanced energy efficiency. BPA's review will be focused on the services that *we* offer to federal facilities and how we can deliver them in a more effective manner.

Your participation in both these processes is greatly appreciated. Thanks in advance for taking the time to help both FEMP and BPA shape the services we offer. If you have any questions or concerns, please contact me at 503-230-7515 or at cwnichols@bpa.gov.

Pacific Northwest
National Laboratory
Operated by Battelle for the
U.S. Department of Energy

Date: June 1, 2010

To: Federal Agency/Service Provider

From: William F. Sandusky, Energy and Environment Directorate

Subject: Participation in Federal Sector Energy Efficiency Market Assessment for the Pacific Northwest

The Pacific Northwest National Laboratory (PNNL) provides on-going technical assistance to the Department of Energy's Federal Energy Management Program (FEMP) in the area of Project Transaction Services as a member of the electric and gas utility service program team. The focus of this team is to assist Federal agency sites, their serving utilities, and other service providers to assess, design, and deploy both energy efficiency and renewable energy projects that will reduce the amount of energy and required to operate Federal buildings sites located in the Pacific Northwest (Washington, Idaho, Oregon, and Montana).

PNNL is currently undertaking a market assessment of the region. The purpose of this study is to: (1) assess the remaining energy efficiency market potential for the Pacific Northwest Federal sector; (2) engage Northwest region energy efficiency service providers and key Federal agencies to identify opportunities, barriers, and "pinch points" in energy efficiency project implementation; and (3) provide a comprehensive set of specific recommendations to FEMP for accelerating the implementation of projects at Federal sites in the Pacific Northwest region.

PNNL has enlisted the services of a subcontractor (Tim Scanlon, Economic Valuation Consulting) to conduct this assessment. As the PNNL Project Lead for this assessment, I have requested that Tim contact you to solicit your insights on opportunities, barriers and challenges to accelerating energy efficiency projects at Federal sites. Tim will be contacting you shortly to arrange a convenient time to engage you in this Assessment.

As a representative of one of the key Federal agencies or service providers in the Northwest region, your participation in this market assessment is critical to the success of this effort.

Your participation is greatly appreciated. Thanks in advance for your valuable time and support for this important study. Please contact me (509-375-3709; bill.sandusky@pnl.gov) if you have any questions or concerns.

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