

Metering Workshop Notes 3-29-06

Attendees:

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Ab Ream's Objectives and Introductions:

Ab Ream (DOE) started the meeting off by reviewing Section 103 of the Energy Policy Act of 2005 (EPAAct), the section directing all federal agencies to install meters and advanced electric meters on all federal buildings (where practicable) by 2012, according to guidelines set forth by DOE. Agencies must submit their implementation plan by August 6, 2006, and finish installing the meters by October 1, 2012.

Ab then summarized information found in the metering guidance issued by FEMP, including the definition of advanced meters and standard meters, potential uses of metered data, metering cost-effectiveness, methods of prioritizing buildings and methods of financing.

Ab explained that OMB is considering metering progress as part of their agency scorecard, probably in the form of a 6-month update on how the implementation is proceeding.

Dave Hunt's Metering Plan Template:

Dave Hunt (Pacific Northwest National Laboratory) went over the agency-level metering plan template he wrote for this meeting. The objective of the document is to give agencies a road map on how to most effectively and efficiently satisfy the requirements of EPAAct.

He stressed that the agencies should feel free to develop their own format and that this template was merely one example as to how a plan could be developed, and not meant to be taken as Gospel. That said, he did suggest using a "milestone" rather than a narrative

format, and keeping the plan brief, meaningful, modifiable and ambitious. Other special considerations include coordinating with sub-agencies to make sure that both sides are on the same page, and the importance of achieving first-time compliance, since the cost and time of upgrading a system would be prohibitive.

Dave created the template using the FEMP guidance, and broke it up by creating four elements (EPA Act Metering Requirement, Metering Program Structure, Agency Policy Guidance to Bureaus, Metering Implementation), each with specific objectives. Each objective contains multiple milestones to achieve in order to successfully meet the objective.

In walking through the template, Dave pointed out the necessity of finding financing, and the importance of budgeting for the purchase and implementation of the meters.

A DOI representative pointed out that Milestone 1-1 has a sub-agency deadline in March 2007 to report their plan, while the agency's deadline to submit their plan is in August of 2006. So how can the agency submit their plan without any idea as to the magnitude of the work necessary at the sub-agency level? Dave responded that in his opinion, it was going to be impossible to have a comprehensive plan prepared by August given the sub-agencies and bureaus that the agency was eventually going to have to take into consideration. So for August, the important thing was just to submit a bare-bones, easily modifiable plan. This did raise the complaint from various agencies that it seemed foolish to submit an ultimately meaningless plan.

A Navy representative (Jose) also noted that a complete metering plan is due in October-December of 2006 in the template, but that the detailed DOE guidelines weren't due out until September-October 2008. How can agencies take advantage of the guidelines if their metering plan is already released? And won't this cause almost certain compliance problems for the agencies? The rushed time frame was acknowledged, but, it was noted, the law is the law. (*we don't really understand what Jose was referring to here, so we may have the specifics wrong*)

The concern that OMB might take the template as a mandate was raised. Ab and Dave assured participants that they would make clear to OMB that this was merely a sample template, not instructions.

Terry Sharp (ONL) clarified that the agency-level plan is the only one submitted to DOE, that the sub-agency and bureau plans were for internal use only. He later pointed out that agencies should also look at where they're starting from, since some agencies, like the VA, for instance, are way ahead of the curve in metering their facilities. The VA, in fact, may be today where other agencies hope to be in 2010.

Interior noted that previously Ab had recommended and requested a greater level of detail (buildings, how many buildings metered per year, percentage of electricity the metered buildings represented, etc.) but that that detail is not in the template, nor is the chart found in the FEMP guidance. Ab responded that although that would be ideal (and

possibly even a necessary component of a plan), it wasn't a strict requirement, and stressed once more that Dave's template was only a rough guide, not to be taken literally. Dave suggested that it could be included in section 4 of the template.

Dave said that the overall plan is meant more to help the agencies clarify their thoughts and to force them to develop a strategy than it was for DOE's benefit. The thing to remember, though, is that the plan is not set in stone, rather it can – and should – be updated over time.

Fish and Wildlife noted that the template suggests that priority installations be completed by the end of 2008, but that agencies are currently fine-tuning their budgets for FY'08, so that this would be tough to schedule. Time, therefore, is of the essence.

Dave's two main conclusions are that OMB should be here in person to clarify how metering progress is going to be considered when drawing up the agency scorecards, and that since agencies are already in FY'08 budgets, planning in the short-term is going to be difficult.

Dave Purcell (Army) asked if DOE/FEMP can develop generic specs to address the additional goals found in EPAAct (EPAAct lists what the meters must do and then lists several additional goals that can be met to save more energy.) For instance, what would agencies have to do to qualify for Time of Use metering? There was general agreement among other agency representatives that this would be very helpful. Additionally, Dave Purcell urged DOE to issue these specs quickly so as to be able to include them in his plan, so as to ensure that the systems that the Army ends up with in 2012 are both compatible with other systems and useful. Navy concurred that further guidance would help ensure that agencies not end up with systems that are useless beyond immediate implementation. Ab said that he wouldn't recommend that level of detail in the plan although he would look into the idea of writing out specs.

Vic Petrolati's Plans for Developing DOE's Metering Plan:

Vic Petrolati (DOE) admitted that he doesn't really know exactly how to do this either, but that he had begun developing the plan. One complicating factor at DOE is that there is little to no billing on individual buildings – instead it's all campus-style billing with one meter per campus.

He briefly summarized DOE's previous experience with installing meters (generally for bill allocation for major users.)

Vic also discussed the difficulties in prioritizing, given the difficulties in knowing the energy use of individual buildings. However, there are some available resources. Most agencies have a corporate database on real property (age, size, type, occupancy, etc.) and DOE at least already has data on electrical metering (standard or advanced) on all of their buildings. Finally, he also has the energy cost and consumption data for each DOE site, which allows him to figure out the typical energy use for major building types (e.g. labs use about 300,000 btu/ft²).

The DOE metering plan approach is to develop a working group from the DOE program offices for the DOE plan in August. Drafts of the goals will be shared with DOE sites for comments. DOE sites will then submit metering plans that address required annual actions for 2012 by October 1, 2007. Finally, a contractor will be hired to assist the site in developing their plans.

Some components they will include in their goals are:

- Whether additional standard meters are necessary
- Additional requirements for new construction (this, Vic stressed, should be the easiest thing to address, since there's no reason to build new facilities without metering, even though it's not technically required)
- Requirements for using and reporting on the data (since meters are, ultimately, useless without meaningful analysis of data)
- The percentage of building square footage or energy consumption that should be metered
- A screening approach (square footage? Energy use?)
- The level of site funding that should be dedicated to this effort and how it should be prioritized (will additional appropriations be necessary? Should the funding come from a central fund? What role should ESPCs and UESCs play?)
- Exemptions
- Technical solutions

Their guidance to their sub-agencies will be more specific than the FEMP guidance was, Vic said. However, he concluded that it was very difficult to really know what to propose without actually looking at the data.

Steve White's metering plans:

Steve White (GSA) first clarified that GSA is responsible for the metering of buildings that are owned, run, or operated by GSA. The general rule is: whoever pays the energy bills will be responsible for the metering, since they're the ones who will reap the benefits.

GSA has already done pilots in New York and Washington, DC with software testing. The testing in New York didn't go very well, as the meters they used didn't have storage capability, meaning that if the server crashed, all data would be lost.

However the meters in DC went much better. With these meters, GSA owned the data and the network on which the data was analyzed, so there were no monthly bills to pay. The DC meters also metered power quality, which, although it cost slightly more, showed great returns. For instance, that data allowed them to target and repair a chiller that had been knocked down.

Basically, his experience with utilities and their level of cooperation has been varied. Some utilities were very helpful, others were less so. One utility, for instance, made it

very difficult to install a relevant meter but was happy to install a different, less suitable meter that they owned.

Steve discussed GSA's system of data management which tracks energy data on buildings for which GSA is responsible for the energy bills – the Energy Usage Analysis System. It allows the user to sort by cost, cost/ft², use, etc. and thereby allows the user to more easily prioritize which buildings should be metered. Computing power and software are provided, and GSA is considering writing this capability into performance or O&M contracts.

As far as money goes, GAO helped a lot. In one of their reports, they had written that one of the three biggest impediments to implementation and usage demand response programs was the lack of equipment at customer locations. So GSA used that statement in their request for funding. Ultimately, they received \$7 million/year to incorporate metering. Agencies should absolutely ask GAO if they'll give them similar appropriations.

They're writing nation-wide blanket purchase agreements (BPAs) that would approve specific meters for specific regions – meters they would hopefully be able to sell at a discounted price, with the GSA logo on them. Other agencies might be able to access these BPAs as well. They would mainly be for equipment, not installation. Their web-based communications infrastructure might also be able to be shared.

Joe Loper's Selected Utility Offerings:

Joe presented a table with various utility advanced metering capabilities, programs, costs and incentives. It was meant merely to illustrate the different type of approaches different utilities have. Ultimately, it is vital that individual facilities talk to their local utility, though, to determine what specific programs may be relevant.

Agency reps with experience with utilities underscored the unevenness both between and within utilities as far as their metering programs.

Jean Lupinacci's Presentation on Portfolio Manager and Target Finder:

Jean Lupinacci (EPA) discussed EPA's Portfolio Manager (PM) program, which she warned could prove difficult to use without information on how to prioritize the buildings.

PM uses an energy management approach based on successful Energy Star partner plans and focused on performance assessment, which is necessary for understanding resource use, can help establish baselines, benchmarks, priorities, and goals.

It's a good benchmarking tool for both internal and external benchmarks, as it can not only be used for month to month comparisons (or year to year, etc.) but also for comparisons to the national stock, through EPA's Energy Performance Rating System (?) (EPRS).

Since you “can’t manage what is not measured,” metering is vital, allowing you to establish how your facility performs. This is an important thing to know, since there is huge variation in energy performance even among the same type of facility. EPRS has shown energy use from 30kBtu/ft²/year to 340kBtu/ft²/year. More than a year ago, before Hurricane Katrina and the higher energy prices, that was a difference of \$2/ft².

EPRS can normalize building consumption, benchmark buildings, recognize top performing buildings, and identify potential portfolio improvement for offices, hospitals, k-12 schools, warehouses, etc. This can be an important tool, especially for larger agencies which have no choice but to benchmark and prioritize their buildings. Nationwide, EPRS has benchmarked 26,000 buildings.

Portfolio Manager, found at www.energystar.gov/benchmark, is a secure program that allows for the grouping of facilities. It is an automated benchmarking tool that will be very helpful once buildings are metered (not necessarily practical before then, since energy consumption information is required.)

Target Finder is a program that was originally used to help interested parties successfully achieve the Energy Star rating. By entering zip code, size, type and other characteristics of a building, Target Finder can give you the average energy intensity expected for that type of building. This will allow agencies to benchmark their buildings against the national average, or at least to predict how much energy similar buildings use. Although there is no online database available (so agencies would not be able to save their data on the site), the data could be exported to an Excel spreadsheet or something like that.

The program is password protected, the information doesn’t have to be disclosed to FOYA, and EPA doesn’t look into the accounts, so there aren’t really any security risks.

Concluding Discussion:

Ab briefly reviewed what we covered during the day.

Vic said that the most critical issue facing agencies was where to obtain resources. What are other agencies doing to get money? And, the money GSA got from GAO, where did that money come from?

Dave Purcell said that they were meeting with GSA the next day to discuss these issues, and that they would then know what appropriations they’d be receiving for their metering program as a whole (if any), or if they would have to take a “onesy-twosy” pay as they go approach.

Agencies wanted to know when the OMB decision on how metering would be considered in the agency scorecard could be expected. It’s unclear at this point, although Ab is sure that something meter-related will be there.

Joe Loper pointed out that since ESPCs have cost-effectiveness requirements, and metering alone has no payback period officially (since without analyzing the data, just

putting a meter on a building doesn't really do anything), could the Hawthorne effect be used as stipulated savings for ESPCs? (The Hawthorne effect states in this case that the mere presence of meters will cause facilities and facility managers to be self-conscious about their energy use, whether or not any actual improvements are made. An estimated 2% savings is expected from installation alone, therefore.)

Ab responded that it's tricky, since stipulated savings is frowned upon, but the data that meters collect will ultimately help reduce future stipulated savings. Vic felt it was a workable approach, that maybe metering could represent 10% of savings in an ESPC. Dave Hunt mentioned that GSA's federal center did install meters as part of an ESPC under a stipulated format about a year ago.

Wayne from NASA (appearing over conference call), sent out the statement of work that NASA had used to contact a contractor about metering programs (*is this right?*). He expects the results of the study to be completed within six months. He also said he was visiting NASA sites to attempt to define agency-wide standards. Finally, he mentioned that Paul Allen of Disney was going to be coming to one of their meetings in June to discuss Disney World's energy-saving strategies.

Moving Forward:

The next meeting will probably be at the end of May, and will get deeper into the weeds, helping agencies flush out their plans (which by then they will likely have started working on) and presenting specs for the additional goals. Also, OMB will attend, hopefully.