

Energy Issues

IEP Newsletter –

INSIDE THIS ISSUE:

PEM On-Line Update1
 Tips from the Board 1
 Energy Highlights: Electric Utilities
 Rates – A Perspective..... 2
 For the Record : Managing Cost with
 Energy Accounting 3
 Contact Information 4

PEM On-Line Update

On October 25th Schneider Electric issued a press release announcing its partnering with IEP in offering the *Professional Energy Manager’s* certification through their online *Energy University*.

In their press release Susan Harman, Global Manager, Customer Education, said the “Energy University is thrilled to offer online PEM certification. We are especially pleased to have



developed this offer in conjunction with the IEP, an organization renowned for providing the very best in practical energy management training and technical assistance.”

Since the announcement, 28 people in nine countries have completed the curriculum and become PEMs.

Tips from the Board

Boiler Tune-Up Requirements

In March of 2011 the United States Environmental Protection Agency (U.S.EPA) issued the Boiler Maximum Achievable Control Technology (Boiler MACT) Rule. This rule is currently in effect placing several demands on most boiler operations. It should be noted that the Boiler MACT is currently being revised and modified with an expected release in the fourth quarter of 2012.

The requirements of Boiler MACT are based on equipment capacity and fuel type. But, the typical requirements fall into the categories of boiler tune-ups, combustion emission limits, fuel monitoring, and energy assessments. Many natural gas fired boilers are exempt from the Boiler MACT requirements.

However, boiler tune-ups are a central component of boiler energy and cost management.

The Boiler Tune-up Guide has been developed to provide the boiler owner the knowledge base to appropriately direct boiler tune-up and combustion management activities. This will allow the boiler owner to clearly define the scope of work the tuning technician will be tasked to accomplish. Additionally, the Guidebook is arranged to provide the boiler owner with evaluation techniques to identify the potential impacts of tuning activities and to set realistic expectations on these activities.

It is available at the EPA website (<http://www.epa.gov/>). The direct link to the book is http://www.epa.gov/ttn/atw/boiler/imptools/boiler_tune-up_guide-v1.pdf

Contributor: Greg Harrell, Ph.D., PE, PEM, CEM



Energy Highlights: *Electric Utility Rates – A Perspective*

There has been a lot in the news recently about energy and its cost. During the first few weeks in October we saw gasoline prices in California reach \$5.00 per gallon in certain areas. This is somewhat of a self-inflicted price escalation and the topic for another Energy Highlights.

When hearing this I thought about the current EPA requirements on the use of coal for the generation of electricity. If implemented as proposed, EPA guidelines will cause the closure of more than a dozen coal-fired plants, causing the cost of electricity to increase dramatically. There are a number of industries that rely on inexpensive electrical power, without which they would be forced out of business or to relocate. So, I thought it would be interesting to see what the cost of electricity is in different areas across the country.

As you can imagine, costs vary based upon location and whether the utilities are in a regulated or deregulated market. Energy (only) prices varied from less than 6.0¢ per kWh to over 14.0¢/kWh along the eastern seaboard. However, the highest electrical rates in the fifty states are in *Hawaii*. With the majority of their energy coming from oil, the cost of both residential and commercial electrical energy has reached new heights.

As with most utilities, there are a number of rate options available, including time-of-use rates. To put things in perspective, following are selected excerpts, considering only demand and energy charges from several of Hawaii Electric Company's* (HECO) general rate schedules.

Residential (Schedule R):
Between 300 kWh and 1, 000 kWh per month \$0.308 per kWh
All in excess of 1,000 kWh per month \$0.319 per kWh

Commercial (Schedule J Small Power) >25 kW and <200 kW
All kW at \$10.25 per kW per month
All kWh\$0.24803 per kWh

Commercial (Schedule P Large Power) ≥ 200 kW
All kW at \$19.50 per kW per month
All kWh\$0.21818 per kWh

The current electrical generation needs for Hawaii Electric Industries* (HEI) customers are said to be met by the following sources: Fossil Fuel - 84%, Renewables – 10%, and Energy Efficiency – 6%.

HEI is aggressively pursuing renewable energy sources to offset its need for oil. They have 1,000 MW of various renewable projects in the works, with Wind playing the largest part.

The greatest concentration of people is on the island of Oahu. There are currently wind farms on the northern part of the island, but insufficient for their needs. Consideration is being given to erecting wind farms on neighboring islands (including Maui) and laying underwater cables to transmit the power to Oahu. The breakeven point for such an undertaking is said to be at an equivalent cost of oil of \$120.00 per barrel.

Solar is the second largest contributor to their renewable plans. In 2011 more

“Consideration is being given to erecting wind farms on neighboring islands (including Maui) and laying underwater cables to transmit the power to Oahu. The breakeven point for such an undertaking is said to be at an equivalent cost of oil of \$120.00 per barrel.”



* Hawaii Electric Company (HECO) services Oahu and is one of several companies under Hawaii Electric Industries.

* Hawaii Electric Industries is the parent company of the electric utilities serving the islands.

Energy Highlights *(continued)*

Electric Utility Rates – A Perspective

than 10,000 new solar projects were installed totaling 78 MW. This was a 104% increase in solar projects over 2010.

Bio-fuels are also playing a part in several ways:

- Privately burning sugar cane refuse to generate power for commercial operations and selling excess to the grid
- Growing bio-fuel material for power generation by the utility

- Contracts have been signed for 17 million gallons of bio-fuels per year

Hawaii Electric Industries' goal is to have 70% of their electricity produced by renewables and conservation by 2030.

Contributor: Thomas D. Mull, PE, PEM, CEM, President – CCG, Inc.

Sources: HEI 2012 Shareholders Meeting Information and Hawaii Electric CEO Interview



For the Record: Managing Costs with Energy Accounting

"This abridged article previously appeared in the Boone REMC Power Talk newsletter, and is reprinted with permission."

Key Points

- Energy accounting can be used to track and manage energy use, helping to reduce utility costs.
- Accounting methodologies range from a simple spreadsheet to dedicated software programs.
- Software functionality should align with the goals and objectives of your energy-management program.

An energy-management program can help your organization improve overall efficiency and reduce operating costs. Like any business initiative, energy management requires data to justify costs, ensure support, and evaluate progress. This is where energy accounting comes in. Energy accounting is a system used to measure, analyze, and report energy use on a regular basis.

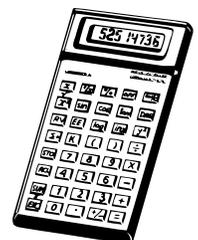
Armed with this information, you can communicate more effectively with others about how managing energy costs can improve your company's bottom line.

Why Use Energy Accounting?

Your energy bill provides you with overall energy use and cost information, but energy accounting provides a more in-depth analysis of how you are using energy and what you can do to reduce utility costs. Energy accounting can help your organization:

- Establish more accurate energy budgets using past data and detailed analysis tools.
- Compare energy use and costs to similar facilities, enabling you to spot usage patterns and locate inefficiencies.
- Monitor changes over time; allowing you to understand how weather patterns, business cycles, and other factors impact energy costs. Prioritize investments by identifying areas or departments with high energy costs and targeting them for upgrades.

"Your energy bill provides you with overall energy use and cost information, but energy accounting provides a more in-depth analysis of how you are using energy and what you can do to reduce utility costs."



For the Record: Managing Costs with Energy Accounting (continued)

- Evaluate progress in energy-management efforts, providing you with information to make improvements and maintain support.

Getting Started

- Organization is critical for energy accounting. Before you begin, assemble the appropriate team to manage the effort, decide what data to track, and how best to record and display that data. Key implementation steps include:
 - Get management buy-in; a successful accounting effort requires cooperation across departments and commitment from organization decision makers.
 - Identify information for analysis. This will depend on the size and scope of your energy-management program, and may include (in addition to energy use) weather data, equipment details, building conditions, occupancy schedules, and so on.
 - Gather past and current data about facility energy use. Submetering key equipment, such as motors and space conditioning, can provide specific information for tracking trends and spotting inefficiencies.
 - Choose an accounting methodology, depending on the size and needs of your organization. You may only require a single spreadsheet, or a complex dedicated software program.
 - Plan an effective communication system. Graphs and tables, combined with a written report, can help highlight progress and ensure continued support.

For larger organizations with many facilities and metering points, it makes sense to use a dedicated energy accounting software tool. Energy accounting software simplifies the process of importing and accessing data. Most packages can make detailed calculations, provide graphics, and create customized reports. Weather data and other variables are typically included. A variety of programs are available, and they range widely in price, features, and options.

In selecting a program, keep the following in mind:

- Know what you are looking for. Before beginning your search, take an in-depth look at your energy-management program and decide what features you need.
- Do your research. Read reviews and talk to current users of each program you are considering.
- Get what you need. Make sure the software you select is aligned with the goals and objectives of your energy management program and that it provides the type and depth of analysis you need.

The U.S. Department of Energy's [Building Energy Software Tools Directory](#) provides objective descriptions of hundreds of energy software programs, including energy accounting packages.



Professional Energy Manager

"In selecting a program, keep the following in mind:

- *Know what you are looking for*
- *Do your research*
- *Get what you need*



Institute of Energy Professionals

IEP Contact Information:
Phone: 919-280-3480
E-mail: danmull@theiep.org

We're on the Web!

<http://www.theiep.org>