November 2008

Energy Services BULLETIN

Western's monthly energy efficiency and renewable energy newsletter dedicated to customer activities and sharing information on energy services.

Past lessons shape new Palo Alto solar hot water program

Palo Alto, Calif., residents who install clean, efficient solar water heaters can look forward to saving on their natural gas bills—and to getting a check from the City of Palo Alto Utilities (CPAU).

The municipal utility is now offering a solar water heater (SWH) rebate to residential, commercial and industrial customers. Residential systems may receive a rebate of up to $1,500, based on the estimated performance. Larger systems for commercial and industrial customers are eligible for up to $75,000, calculated by multiplying three variables:

- $20 per square foot of collector area for closed-loop systems
- Solar orientation factor
- Production rating of the specific SWH collector

The program is set up for the rebate to go directly to the contractor, who applies it to the customer's total installation bill.

CPAU launched the rebate program in May, ahead of a new state law requiring natural gas utilities to offer solar water heating incentive programs. If that seems like quick work, it is because the utilities department was already considering the program as part of its 10-year energy-efficiency portfolio plan. "We already knew it was great idea," said Utilities Account Representative Amanda Cox, who is managing the program.

Palo Alto offered a SWH rebate in the 1980s that gave a discounted billing rate to residents with the units. The old incentive is being phased out in favor of the one-time rebate based on the system's energy savings rating. "The old program had run its course," Cox stated. "It taught us a lot that we incorporated into the current program."

Experience matters

Based on those lessons, CPAU built several safeguards into the program design to ensure success:

- Mandatory contractor orientation and training
- Direct incentive payment to contractors
- Installation cost-tracking
- Inspection of all installed systems
- Use of systems pre-engineered to Solar Rating and Certification Corporation (SRCC) standards

Annie Henderson of the California Center for Sustainable Energy (CCSE) summed up the goal of those measures. "We learned from those early systems that solar water heaters deliver highest customer satisfaction if they are properly engineered and installed."

This is one of the first solar water heater systems to be installed under CPAU's new rebate program. Each installation must be inspected before the contractor can receive the rebate check. (Photo by California Center for Sustainable Energy)

Palo Alto contracted with CCSE to make sure that happens and to provide coordination and technical support. The independent nonprofit is operating a similar pilot program for the state in San Diego. Cox pointed to CCSE's experience as a major reason for the contract, noting, "They know what works."

"The San Diego pilot helped us to discover key points about installation and inspection that we can apply in Palo Alto," Henderson acknowledged.

Working with locals

CCSE is presenting the mandatory, one-day training contractors must complete to be added to CPAU's list

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of approved vendors, a prerequisite for receiving the rebate. To recruit contractors for the pool, Cox talked to professionals from the California Solar Energy Industries Association. She compiled a list of local solar businesses from Web sites like Find Solar, and sent an e-mail inviting them to participate in the classes.

The vendor response was surprisingly strong. CCSE has held three training sessions, each one more heavily attended than the last. "We aren't planning to do any more until 2009, but we may schedule one sooner to accommodate the demand," said Henderson.

So far, about 150 contractors have taken the class, and 14 vendors have completed all the eligibility requirements. Henderson explained that some companies send sales people and customer service representatives along with installers. There are also some repeat enrollees. "Some just want to learn more about SHW systems," added Cox.

In addition to taking the class, contractors must fill out a participation application; provide standard warranty documentation; and hold general liability, workers' compensation and auto insurance. Cox observed that a fringe benefit of the program will be a better-trained, more competitive, local pool of solar technicians.

Training sets standard

The core of the classes is the OG-300, Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems, developed by SRCC. Since 1980, the SRCC has provided third-party testing and certification for solar collectors and complete water heater systems. "Some of those first installations really suffered for lack of standardization," Henderson admitted.

A system must qualify under the OG-300 standard to earn CPAU's incentive. Collectors must also have SRCC certification for the Federal tax credit. CPAU uses the OG300 rating for estimated performance to calculate the rebate the customer will receive. The higher the performance number, the larger the incentive, said Cox, "Because that's ratepayers' money, and we want them to get the most energy savings for their investment."

Customers may install their own systems, but they must attend the contractor training class, too, in order to collect their rebates. CPAU has received one application from a self-installer that is pending approval. "I've talked a lot with the applicant and with other customers who want to put in SWHs," said Henderson. "There is a lot to learn about OG-300 requirements."

Poised for success

CCSE conducted inspections on the first three installations in mid-October, and three more homeowners have applied to the program. CPAU is promoting the technology through bill inserts, public outreach events, and the contractors who take the training. "Our goal is to install 100 units the first year," said Cox. "The applications have been a little slow coming in, but our office is getting lots of calls for them, so interest is clearly building."

Henderson thinks that the Palo Alto rebate may ultimately be more successful than the San Diego program. "Palo Alto is a very progressive community," she noted. "Also, there are a lot of homes in the city with radiant space heating, so solar water heaters can have a significant impact on the customer's overall heating bill."

The logistics of installation are easier, too, for a municipal utility. If a project hit a snag in San Diego, Henderson recalled, CCSE had to work with several different parties, not all of them invested in the rebate program. In Palo Alto, the utility and the permitting office are part of a larger entity—the city—that is committed to an overarching energy-efficiency plan.

It may be, too, that it is the right time to offer consumers another option for installing their own renewable energy system. Both energy costs and concern over the environment are on the rise. Requiring only one or two panels and costing around $6,000-$9,000, SWHs offer individuals a relatively affordable way to take action—and reduce utility bills. That is a winning formula for an energy efficiency program, something that Palo Alto Utilities has learned from experience.

Want to know more?
Visit www.wapa.gov/es/pubs/esb/2008/nov/nov081.htm

Energy Services Bulletin

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States take lead on climate change plans

Throughout Western's territory, municipal, state and Federal agencies are moving forward on drafting plans to address climate change—plans that will have significant implications for our customers.

Given that more than 80 percent of man-made greenhouse gas (GHG) emissions in the United States come from burning coal, oil and natural gas, utilities should be prepared for legislation and policies that target their operations. Renewable portfolio standards—now established in 31 states—are an example, and some form of the much-discussed carbon tax could well be the next one facing power providers.

New regulations always present challenges for businesses, but they can offer opportunities to those who plan ahead. Admittedly, tracking climate change legislation is a big job for already overstretched public utilities. So Western has put together a brief summary of activities in our territory, including links to more information.

Regional partnerships

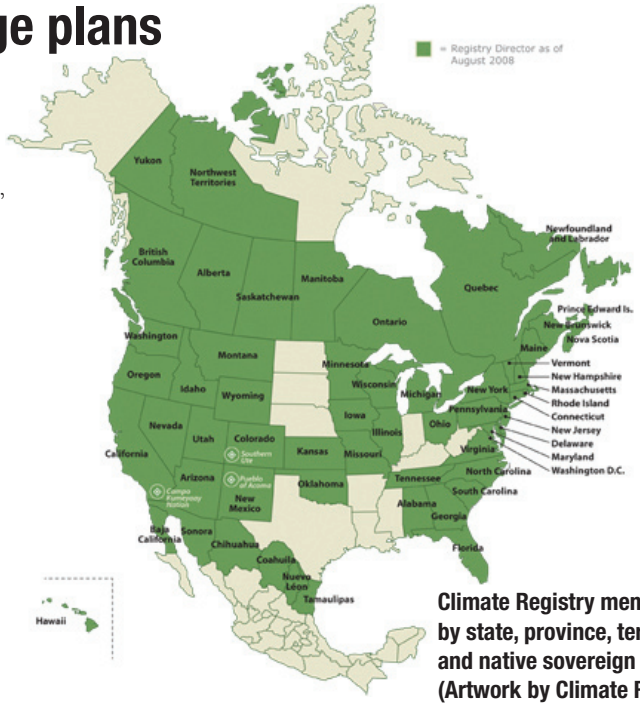
West Coast Governors' Global Warming Initiative: Concerned about the consequences global warming will have on the West Coast states, the governors of Washington, Oregon and California approved a series of detailed recommendations to reduce global warming pollution in 2004.

Higher goals and greater incentives to increase retail renewable energy sales and more aggressive energy-efficiency measures in state building codes are among the recommendations utilities might expect to see implemented. The governors are also committed to exploring a market-based carbon allowance program and expanding renewable energy and energy-efficiency markets.

Midwest Governors' Accord: In November 2007, nine U.S. governors from the Midwest and one Canadian premier agreed to set GHG reduction targets. The accord was reached between Indiana, Illinois, Iowa, Kansas, Michigan, Minnesota, Ohio, South Dakota, Wisconsin and Manitoba. Notably for utilities, the governors agreed to develop a market-based cap-and-trade mechanism to achieve the reductions. The initiative to build a low-carbon transmission infrastructure to supply the Midwest with sustainable and environmentally responsible energy will also be of interest to utilities.

Western Regional Air Partnership (WRAP): This collaborative effort of tribal and state governments and Federal agencies is developing technical and policy tools to aid compliance with the Environmental Protection Agency's regional haze regulations in the West. Working with the Center for Climate Strategies (CCS) WRAP is producing comprehensive GHG inventories and forecasts for nine western states to lay the foundation for ongoing regional collaboration.

Western Climate Initiative (WCI): The governors of Arizona, California, New Mexico, Oregon and Washington launched this initiative in February 2007 to identify, evaluate and implement cooperative measures to reduce GHGs in the region, focusing on a market-based cap-and-trade system. British Columbia, Manitoba and Utah have since joined the partnership, with four states and four provinces from Canada and Mexico participating as observers. WCI recently announced its recommendations, which will cover 90 percent of the region's emissions, including those from electricity, industry, transportation and residential and commercial fuel use.



Climate Registry members by state, province, territory and native sovereign nations. (Artwork by Climate Registry)

State programs

Arizona GHG Executive Order 2006-13: Climate Change Action: Between 1990 and 2005, GHG emissions in Arizona increased by an estimated 56 percent. Gov. Janet Napolitano and the state legislature responded by establishing a Climate Change Advisory Group (CCAG). The CCAG's recommendations form the core of this executive order. Arizona's goal is to reduce GHG emissions to 2000 levels by 2020 and to 50 percent below 2000 levels by 2040.

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Climate change plans

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The recommendations mostly target the transportation sector, calling for increased use of biofuels and hybrid vehicles.

California State GHG Bill and California Climate Change Portal: The state that produces roughly 1.4 percent of the world's GHGs, and 6.2 percent of the U.S. total, is actively working on finding solutions to climate change.

Assembly Bill 32, the Global Warming Solutions Act of 2006 was the first of its kind in the nation. The California Air Resources Board (ARB) is the lead agency for implementing AB 32, which requires a reduction in GHG emissions to 1990 levels by 2020.

Key elements of interest to utilities in ARB's preliminary recommendations include:

- Expand and strengthen existing energy-efficiency programs and building and appliance standards;
- Expand the renewables portfolio standard to 33 percent;
- Develop a California cap-and-trade program that links with other WCI partner programs to create a regional market system.

Colorado Climate Project: The Rocky Mountain Climate Organization brought Coloradans together to reduce the state's contribution and vulnerability to climate change. In its first phase, a Climate Action Panel developed 70 recommendations for reducing GHG emissions and preparing for the changes that may be coming.

The state adopted the recommendations as part of its Climate Action Plan in 2007. The plan pushes energy-efficiency measures to reduce demand for electrical energy and lower utility bills; builds on the state's recently expanded renewable portfolio standard and looks for ways to develop our renewable energy supplies even further. It also proposes creating economic incentives for major utilities and industries to pay farmers and ranchers to sequester more carbon in the soil.

Utah State Energy Resource and Carbon Emission Reduction Initiative: Presented in the 2008 general session, this bill provides that an electrical corporation or municipal electric utility maintain a percentage of electricity sold in the form of renewable energy resources. Another provision relevant to power providers is a requirement that utilities plan and report on acquiring renewable energy resources.

Climate Action Plans for Kansas, New Mexico, Minnesota and Montana: In addition to working with regional groups like WRAP, CCS has also helped several states in Western's territory develop climate action plans. The plans incorporate policy analyses and recommendations from technical work groups: agriculture, forestry and waste; energy supply; residential, commercial and industrial; transportation and land use; cross cutting issues and cap-and-trade. Only Montana did not have a cap and trade group contributing to its plan.

While each plan is different, many recommendations focus on strategies familiar to utilities for reducing consumption and promoting renewables development. Demand-side management (DSM) and energy-efficiency consumer programs, net-metering and interconnection rules and alternative energy development are featured in most of the plans. Some also contain provisions for efficiency improvements and repowering existing powerplants.

Being proactive

Rather than waiting to see what actions state and Federal governments take, many utilities are voluntarily joining the Climate Registry. The nonprofit organization establishes consistent standards to help businesses and governments calculate, verify and publicly report their carbon footprints in a single, unified registry.

In addition to demonstrating environmental leadership, membership in the Climate Registry provides utilities with resources and technical assistance to document their voluntary actions to control emissions. Members will identify and manage GHG risks and opportunities and take part in discussions related to their industry and evolving GHG policy. Best of all, perhaps, utilities gain a competitive edge by increasing operational efficiency.

That's because many of the strategies states will employ to shrink their carbon footprint are already known to Western customers as ways to control costs and keep customers satisfied. Utilities may discover that "climate change plan" is just another phrase for good business.

Want to know more?
Visit www.wapa.gov/es/pubs/esb/2008/nov/nov082.htm

Customers applaud first DSM technology workshop series

Like a traveling road show, the Demand-side Management (DSM) Technology workshop on commercial lighting moved from town to town this summer, bringing ideas and information to enthusiastic audiences in Western's Upper Great Plains (UGP) region.

Basin Electric Power Cooperative, Missouri River Energy Services (MRES) and NMPP Energy hosted workshops in Bismarck, N.D.; Sioux Falls, S.D.; and Grand Island, Neb. respectively. About 74 representatives from large and small, municipal and cooperative utilities attended the three events.

Members of the Spencer Ambassadors, a chamber-of-commerce group, join the Spencer Municipal Utilities staff for their "Green Day" light bulb giveaway. (Photo by Spencer Municipal Utilities)

Finding right light

Organized by Market Development Group, the workshops all presented the same basic information, but tailored to the region and location through case studies. Lighting vendors Orion Energy Systems, Paragon Lighting, Inc. and Lee-Noonan Company presented examples of local commercial retrofit projects, such as office buildings, grocery stores and warehouses.

For NMPP Member Development Manager Corrinne Pedersen, the case studies illustrated the importance of utility energy specialists being aware of the differences in lighting technology. "Not all lighting is the same, but there are vendors in the business that will push whatever sells," she observed. "It's up to the consumers to understand their own lighting needs, and their power providers should be able to help them."

That is why Basin hosted the Bismarck workshop, agreed key accounts coordinator Chad Reisenauer. "We want our member cooperatives to be a resource for those consumers—to be the energy experts," he said. "That is central to Basin's conservation program."

Something for everyone

Most of the attendees were familiar with efficient lighting, whether or not they had formal customer programs. MRES Energy Services Manager Joni Livingston noted that the majority of the 34 municipal MRES members at the Sioux Falls workshop offered some form of the Bright Energy Solutions program. "Several members have offered lighting programs for years," she pointed out.

However, some MRES members, like Rock Rapids, Iowa Municipal Utilities, have only recently begun to push lighting retrofits in their community. Rock Rapids Billing Clerk Karen Parkinson said that the workshop helped her to start sorting through the tremendous amount of information she's found on lighting.

What most of the attendees were looking for, Livingston said, was information on the latest technology. "That, and answers for their customers' questions."

Parkinson agreed, adding, "The better we understand lighting, the better we can explain the incentives to our customers."

The focus on technology and local projects made the workshop especially valuable to utilities that are too small to implement their own lighting programs. "Most of our customers already offer rebates for efficiency upgrades," said Reisenauer. "They came to the workshop to see what's new in the field—to make sure they are providing their commercial accounts with all the options."

Induction lighting was a hot topic at the Bismarck workshop, said Reisenauer. "The subject really resonated with the audience. Every farmstead around here has a pole-mounted, mercury-vapor light, so utilities are very interested in any technology that might provide more light at less cost."

Focus on practical

Curtis Dean from Spencer, Iowa, Municipal Utilities (SMU) attended the Sioux Falls workshop with an eye on new technologies. As marketing and community relations director, Dean has run SMU's lighting rebate program for the last 10 years. But, he said, he wanted to learn more about the ins and outs of lighting. "I've used the Internet to educate myself, but it was good to hear from the experts, and to be able to put questions to an expert in the room," admitted Dean.

There were lots of questions for the lighting vendors at the Sioux Falls workshop, recalled Livingston. The presentations by Ryan Holl of

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Choosing your energy-efficient HDTV

High-definition television (HDTV), the latest evolution in home entertainment, is coming soon to your living room bringing a bigger picture, finer resolution—and that old troublemaker, the Energy Hog, if you don't do your homework before buying.

Fortunately, Energy Star is updating its ratings for televisions to help consumers enjoy the big picture without the big electric bill. Starting in November, Energy Star ratings will measure an HDTV's in-use power.

Under the new standard, TVs with Energy Star stickers are expected to be at least 30 percent more efficient when operating than those without stickers. Originally, the ratings measured the small amount of power a set used when it was turned off, the assumption being that televisions are "off" more than they are "on."

Upgrading vs. energy use

Although Energy Star's new methods of measuring energy efficiency are more useful to consumers, it can still be hard to tell how the HDTV is going to impact your electric bill. Liquid crystal display (LCD) televisions draw much less power than similarly sized cathode ray tube (CRT) sets, but most people replace their old tube sets with much larger flat panel TVs. Doubling or tripling the screen size cancels out potential energy savings.

According to Energy Star, a typical 42-inch LCD television draws nearly four times as much power as a CRT television under 30 inches—the kind of TV most consumers are looking to replace. Beware the plasma television, which lures consumers with its large screen and affordable price tag, but is a serious energy gobbler.

Those in the market for a big screen should consider the high-definition picture provided by rear-projection digital light processing (DLP) televisions, only available in large sizes. A 60-inch DLP television requires an average of only 250 watts, while a typical LCD would use 400 watts and the plasma would eat up close to 500 watts.

Small energy needs notwithstanding, DLP TVs have their downside for consumers who are also watching their environmental footprint. Many models use mercury-filled light bulbs to illuminate the screens. The bulbs must be replaced periodically, posing a potential pollution hazard when it comes time to dispose of them.

Energy use varies

Some of the most eco-friendly HDTVs are also among the most energy-efficient models, thanks to the use of light-emitting diodes (LEDs) as a light source.

The Samsung HL61A750, for instance, is a 61-inch DLP powered by LEDs, which not only enhance the power savings of the DLP but should last for the lifespan of the set. Consumers have praised the set's sharp images and vivid colors. The maximum energy draw of the HL61A750 is 170 watts.

Flat-panel LCD televisions also benefit from LED technology. The Philips 42-inch 42PFL9803 replaces the traditional fluorescent backlight with LED illumination for impressive energy savings. When in use, the 42PFL9803 draws only 75 watts—little more than a conventional light bulb and around half of what a typical 42-inch LCD would require. The

This 42-inch, flat-screen television from Philips delivers a vivid picture using only 92 watts. (Photo by Philips)

model has one drawback, however, in that it is a lot more expensive than similar HDTVs.

Philips offers some more modestly-priced models with good energy efficiency, but you get what you pay for. Consumer tests indicate that the picture quality and color rendering are not as good as the 42PFL9803.

Not everyone has room for, or wants a large-screen TV, and as a rule, the 32-inch HDTV uses less energy simply because of its size. Even so, there is plenty of variation in energy use, price and picture quality. Panasonic, LG and Samsung all offer well-reviewed "entry-level" options. Here again, do your research, because similar but different models by the same manufacturer may not be as energy-efficient.

Some brands are introducing green concepts into their manufacturing process. The Sony KDL-32JE1 is a 32-inch LCD television that needs only 89 watts of power to operate, and is made of recycled plastics from other Sony products. Sony uses as feedstock reprocessed materials that would otherwise have ended up in a landfill. Currently only available in Japan, this design is sure to go worldwide very soon.

See ENERGY-EFFICIENT HDTV page 8

Web site of the month:

ACEEE State Energy-efficiency Policy database

www.aceee.org/state/index.htm

It just became easier for busy utility professionals to keep track of new and changing energy-efficiency policies in their home states. The American Council for an Energy-Efficient Economy (ACEEE), a long-time champion of energy efficiency as our first and least-cost "fuel," recently unveiled a new Web site for state policymakers and energy-efficiency advocates.

The state energy-efficiency policy database is a comprehensive gateway to detailed information on a variety of state energy policies. "This Web site builds on the extensive research regarding energy efficiency policies and programs for which ACEEE has become well known over the past 28 years," said ACEEE's project manager Sarah Black. "The database will serve as a portal to original ACEEE research as well as resources elsewhere on the Web."

Visitors may search by state, or by policy area, including appliance standards, building codes, clean distributed generation policies, tax incentives, vehicle policies and utility-related energy efficiency information. ACEEE plans to expand it to also cover state climate policies and smart growth initiatives.

Search by state

The database home page shows a map of the United States that visitors can click on to learn about specific states' policies. Below the map are links to ACEEE reports on state-level innovation and detailed state-level analysis. Visitors download pdf versions of ACEEE reports for free, or order hard copies for a fee.

Since 1980, American Council for an Energy-efficient Economy has come to be recognized as an energy efficiency leader for our outstanding analysis, advocacy and expertise. (Artwork by ACEEE)

The state pages list the policy areas with a check box next each one to indicate whether or not the state has that policy. Links are provided to more detailed policy information if it is available. Each page also includes the state's ACEEE energy-efficiency ranking and a link to council's 2008 state scorecard.

Search by policy

The policy pages offer a brief explanation of the topic, links to related resources and ACEEE reports on the subject, if available. The search button allows visitors to select a state—those states without that type of policy will not appear on the list.

State pages describe the policy, provide links to helpful state Web sites and may contain links to the original legislation. Visitors will also find state-level contact information on these pages.

Utility policies

ACEEE's information on utility programs is very thorough. In addition to a summary of the state policy, the pages list different program areas with check boxes for the programs the state offers. Those include programs for customer energy efficiency, energy-efficiency funding, energy-efficiency resource standards, decoupling, reward structures for successful programs and energy efficiency as a resource. The program areas are linked to more detailed explanations further down the page.

Decision-makers, businesses, concerned citizens and others in the energy efficiency community will find the database an invaluable resource for existing state "best practices." ACEEE rolled out the complete version of the Web site in October, and anticipates updating it on a quarterly basis as new policies emerge.

Want to know more?
Visit www.wapa.gov/es/pubs/esb/2008/nov/nov085.htm

DSM workshop

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Orion and Dan Anderson of Paragon Lighting were the best received, she said. "They provided very practical, specific information attendees could use in their communities. Their presentations included a number of actual case studies of the results of lighting retrofits."

For Dean, the workshop helped to clarify the advantages of T-8 ballast lights versus T-5s, and gave him new ideas for applications. "I was surprised to learn that there were so many places T-5s could replace high-pressure sodium (HPS) lamps," he said.

That may have implications for SMU's lighting program, Dean added. "We still give rebates for HPS and metal halide lights," he explained. "Shifting some rebates to T-5 technology could mean more savings for our customers and for SMU."

Ideas into action

Since the workshop, Dean has been talking to more business customers about the benefits of replacing old, inefficient lighting. "I was taking notes like crazy during the workshop on everything that sounded like something our customers could use," he recalled.

SMU is also developing case studies on local businesses that upgrade to more efficient lighting. The reports compare dollar costs and kilowatt-hour use before and after the retrofits, and calculate the savings. "We'll use the case studies to show other customers how much difference new lighting can make," said Dean.

Community events are another way to spread the word to consumers about efficient lighting technology. To encourage Spencer residents to conserve energy, SMU gave away more than 500 compact fluorescent lights (CFLs) on the city's first "Green Day" Oct. 7. As part of the celebration, Dean shared plans for a citywide recycling push and promotional effort. Proper recycling of CFLs and old fixtures is a critical part of any lighting program—another lesson from the workshop, Pedersen noted.

Western looks forward to hearing how our customers put those lessons to work saving money and energy. Of course, we also appreciate the occasional rave review. "This was the best $50 and gas money my boss has spent," declared Dean.

If you would like to suggest a topic for the next series of DSM Technology workshops, contact UGP Energy Services Representative Mike Radecki.

Want to know more?
Visit www.wapa.gov/es/pubs/esb/2008/nov/nov083.htm

Energy-efficient HDTV

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Alternatives to HDTV

That brings up another strategy for saving energy—if you can wait to buy that HDTV, do. As with all technologies, HDTVs have been dropping in price and increasing in efficiency since they first came out, and they will continue to do so.

Many consumers will choose to upgrade to a HDTV that is digital-compatible when broadcasters switch from an analog to digital signal in February 2009. However, a digital-to-analog (DTA) converter box is all that is needed to make your television digital-compatible, so there is no need to buy your HDTV in haste. The National Telecommunications and Information Administration has more information on DTAs and discount coupons for purchasing converters.

Subscribers to cable and satellite services may already be digital-compatible. Check with your service provider before buying any new equipment. By the way, Energy Star rates converter boxes for energy efficiency, too.

Articles and resources

There are many resources for evaluating the energy efficiency of high-definition televisions. The mention of products here is not intended as an endorsement by Western's Energy Services, but as a springboard for your research. When choosing any new appliance, shop around and ask lots of questions to make sure you are getting the right equipment for your needs. With the right knowledge and preparation, you can minimize the ecological impact of an HDTV and still enjoy high-definition entertainment.

Want to know more?
Visit www.wapa.gov/es/pubs/2008/nov/nov084.htm