

September 14th, 2006 – Montevideo, Minnesota 11 am to 3 pm

Tour of J&D Construction with Jerry and Doug – J&D Construction

(<http://www.jdconstinc.com/index.php>) began operating in 1980 and over the past 26 years has expanded to employ around 150 people. To accommodate this expansion they recently completed a new, very efficient facility that looks like a big grain bin. They won the 2006 Design/Build Awards. The facility was built by Behlen and literally is a 92-foot grain bin on the outside with another smaller bin making up the central structure. They have windows around the building for day lighting, foam urethane insulation throughout and a massive geothermal heat pump system to provide their heating and air conditioning. They've also worked to improve operational efficiency by standardizing all operations in trucks & warehouses. The geothermal system helps with that too, as a more comfortable environment helps with employee retention. The geothermal system consists of 73 wells, 7 manifolds designed to deliver 76 tons of heat. It was installed by Bergesun Caswell and is considered a real "Cadillac" of a system, which may mean a longer pay back period, but thus far they're happy.

Attendees included: Dorothy Rosemeier, John White, Chuck Walters, Curtis Norduane, Tom Cherveney, Cory Marquart, Jim Kosak, Dawn Hegland, Dan Tepfer, Dave Opsahl, Mary Ann Scharf, Mary Page, LeRoy Cluever, Craig Ziegler, Gary Kubly, Wes Hompe, Bill Klyve, Kevin Hein, Scott Hinde, Bob Walsh, Stan Simon, John Givan, Thomas Lorang, Steve Nelson, Tom Sagstetter, Marvin Rohtfusz, Earl Knutson, Partick Moore, Duane Ninneman, and Lissa Pawlisch

Meeting Quiz

Bill Klyve of Ottertail Power brought along about 15 energy efficiency kits, so we decided to do a quick quiz to give them away. For those of you who might still be grumbling about the answers, all of our information came from Official Energy Statistics from the U.S. Government www.eia.doe.gov. Questions included:

1. Which uses the most energy in American homes each year? **heating and cooling rooms**
2. How much of the energy in burning coal reaches the consumer as electricity? **1/3 (one-third)**
3. The average American consumes ____ times more energy than the world average. **Six times**
4. The typical U.S. family spends almost \$1,500 a year on utility bills. About ____ percent is in the form of electricity; the remainder comes mostly from natural gas and oil. **60 percent**
5. About one-third of a typical home's heat loss occurs through the doors and windows. **True**
6. The US uses a lot of energy – nearly _____ dollars worth each minute, 24 hours a day, 365 days/year. **A million**

Electrical Energy Efficiency

Lissa Pawlisch gave a quick overview about the components of energy efficiency. We spent much of the meeting talking about energy efficiency @ the end user (example, a compact fluorescent is 3-4 times more efficient than an incandescent), but electric generation, transmission and distribution also have efficiencies. A standard coal plant is only around 30-35% efficient when you look at the energy value of the coal converted to electricity. Internal gasification combined-cycle plants reach higher efficiency, around 40-45%. The Department of Energy is striving for 60% efficiency in coal plants.

Efficiency is of particular concern as Minnesota is now facing the demand for upwards of 6000 -8000 MW of new power in the next decade. Although consumption/sq foot has decreased, overall consumption per household in MN has increased as we have more TVs, computers, cell phones chargers, etc. Bill Klyve was asked about the impact energy efficiency could make in avoiding this 8000 MW projected demand growth; he indicated that thus far our efforts have delayed the need for new plants (haven't built new since 1970s), but that it will likely be hard to push off all 8000 MW with efficiency.

What is CIP? – Bill Klyve, Ottertail Power

CIP stands for Conservation Improvement Program. It's a state program that was legislatively mandated in 1982, and is now overseen by the Minnesota Department of Commerce, that requires electric and natural gas utilities to invest in energy efficiency and conservation. All rate payers contribute to CIP funds in the form of taxes on their electric or natural gas bills, and this allows the utilities to give away money every year for people to use less of their product. Bill said that while this may seem counterintuitive, it's actually good business for the utilities because if commercial/industrial customers save money, they stay in business.

Originally the program required that all investor owned electric utilities spend 1.5% of their revenues on energy efficiency (natural gas utilities must invest 0.5%). In 2002 rural electric and municipal utilities began participating as well (@ the 1.5% of revenue level). Utilities file a report every 2 years about the programs they plan to offer. One of their consistent challenges is ensuring that customers know that programs are available. Most customers will make the efficiency changes if they are contacted directly, but it really depends on who gets the message.

As an example, Ottertail's CIP programs provide funding for:

- variable frequency drives (vary in hertz)
- work with irrigators, grain grinders, boiler pumps
- Cooking rebates: high efficiency electric cooking, better equip for casinos/schools
- Ground source heat pump systems (Ottertail has 30 schools, 100 churches, banks and hospitals, all using GSHP – their rebate is about \$216/ton).

Note: An external review of CIP was completed in January 2005 by the Office of the Legislative Auditor:

http://www.state.mn.us/mn/externalDocs/Commerce/Legislative_Auditor_Report_on_CIP_013006014559_CIPAuditorreport.pdf

Rules of Thumb: What are you really saving? – Dave Opsahl, Willmar Municipal Utility

Dave built on Bill's comments about why utilities would invest in energy efficiency with a simply economic comparison. New coal costs about \$2,000/installed kW – just the infrastructure, no fuel; we can conserve a kW for \$300. It just makes economic sense. Here is the handy list of rules of thumb that Dave put together for the meeting:

Did you know that...

- The lifetime consumption of a person living in the United States is: 170 tons of coal, 2000 barrels of oil and 7.5 million cubic feet of natural gas. Oof-da!
- Purchases of new motors tend to be driven by the price of the equipment, not the electricity they will consume. But the actual cost of a large industrial motor typically amounts to just 3 percent of the total cost to operate it over its lifetime, which can extend up to 20 years. So energy costs account for 97 percent of total cost over the motors life.
- Efficient motors not only save energy and money, but they also reduce carbon emissions. The use of premium duty motors could save 5.8 billion kilowatt-hours of electricity and prevent the release of nearly 80 million metric tons of carbon into the atmosphere over the next 10 years, according to the DOE.

If every ...

- Household in the U.S. replaced one incandescent light bulb with an Energy Star qualified compact fluorescent light bulb, it would prevent enough pollution to equal removing one million cars from the road.
- Family replaced 5 of the most frequently used incandescents in their home with compact fluorescents not only would each family save more than \$60 every year in energy costs, but together we'd also keep more than one trillion pounds of green house gasses out of our air. That's a \$6 billion energy savings for Americans equivalent to the annual output of more than 21 power plants.
- Person who bought a new dishwasher in 2006 chose an Energy Star qualified model, it would save enough water to fill the Rose Bowl 65 times.
- Business in the U.S. saved 10% on their energy bills, Americans would save about \$10 billion and reduce greenhouse gas emissions equivalent to those from 15 million vehicles.

Energy Star impacts

- If all U.S. companies switched to Energy Star qualified exit signs, they would save \$75 million in electricity costs. There are more than 100 million exit signs in use throughout the U.S. Typically lit by incandescent bulbs, these signs consume 30-35 billion kilowatt hours of energy each year.
- Traffic signals that have earned the Energy Star use 90% less energy than conventional signals. The LED signal lamp can last up to 10 years compared to less than 2 years for the incandescent traffic signal.

- Beginning January 2005, computer monitors must meet more energy-efficient requirements to qualify for the Energy Star label. By 2010, EPA estimates that the new requirements will result in carbon emissions savings of almost 5 million metric tons or the equivalent of taking more than 3 million cars off the road.
- Energy Star and external power adapters (battery eliminators). As many as 1.5 billion power adapters are in use in the U.S. – about 5 for every person. The new guidelines for power adapters will help reduce greenhouse gas emissions with the potential to save over 5 billion kilowatt hours and to prevent the release of more than 4 million tons of greenhouse gas equivalent to taking 800,000 cars off the road.

Energy Usage Checklist – Dan Tepfer, Kandiyohi Power Coop

Where are the Energy Hogs? Well, anything can be a hog – it just depends on how you use it. Some things to watch for include:

- Old fridge – if it's not full all the time, don't use it all the time, or get rid of it altogether
- Dehumidifiers consume a lot of energy and often run all the time
- Swimming pool pumps run all the time, do a timer instead

Dan talked about the huge improvements ENERGY STAR appliances have made. Whenever you buy you should look at the appliance's energy guide and go with an ENERGY STAR model. Those with biggest savings include dishwasher, clothes washers, water heaters, refrigerators and air conditioners. Dan also mentioned a device called a "Kill – a – Watt" meter that allows you to test how much energy each appliance uses.

Utility Panel: incentives for conservation at residential, commercial and industrial

Panelists included:

- Bob Walsh, Minnesota Valley Coop Light and Power: Minnesota Valley serves 3 counties with only 5,000 customers. Two processing plants use 25% of total power used on their system (ethanol and cheese whey), but these users, and folks like J&D Construction are perfect candidates for CIP \$ because they warrant the time and energy needed to make improvements. While they are required to spend 1.5% of gross income on conservation, they will likely spend closer to 2.3% because they know energy efficiency works. Bob talked about a CFL flood/night light they had @ the utility. It lasted 15 years – 125,000 hours of operation – and saved them \$512 in operating costs. They provide funding for things like:
 - For commercial/industrial: infra-red camera to locate excessive heat loss, free via CIP
 - Conservation loan program: 5% loans for energy conservation practices
 - Energy audits for commercial, industrial, homeowner: where are you wasting energy?
 - Research and Development
 - Heat pumps, air source heat pumps
 - Customer education

- Bill Klyve, Ottertail Power: Bill’s major take home message: *Anything you’re going to do will likely qualify as long as we can document guaranteed savings. You should always call your utility first.*

- Scott Hinde, Xcel Energy: Scott is the Key Account Manager for Xcel in Monte, and works with commercial and industrial customers to save energy and money, although he finds that homeowners are actually more likely to call than commercial/industrial customers because they are so busy with other activities. To them, CIP means that money is available to help advocates and champions who want to get something done – get an energy efficiency project going. Some of the programs that Xcel offers include:
 - Its website: www.Xcelenergy.com – good tips, calculators, home energy analysis
 - Saver-switcher: central AC systems are cycled in 20 min increments and customers get 15% savings off their bill for June-Aug
 - Compact fluorescent discount – their website has good selection of lights below cost available, including less popular types and sizes.
 - Energy design assistance – if you’re building a new facility that 50,000 sq ft or larger, Xcel wants to be involved on initial design stage. They’ll hire an architect to join your design team to help with design issues to save energy (like windows, bldg orientation, etc.) and will then present options and rebates from which customer can choose.
 - Custom rebates: as Scott says, “sky’s the limit.” New innovative processes can qualify for these – they evaluate these projects based on a case by case basis.

- Dave Opsahl, Willmar Municipal Utility – Dave indicated that WMU has only been doing CIP programming for the past 4 years, so they mimicked the programming that Kandiyohi Power Cooperative uses. WMU has been doing all kinds of educational programming to get people thinking about energy efficiency. They also offer numerous rebates for ENERGY STAR appliances and lighting.

- Dan Tepfer, Kandiyohi Power Cooperative – KPC is part of Great River Energy, which covers 70% of state. As one of their coops, all of their rebates originate with GRE. They offer many of the same programs mentioned by the others, but really started with programs for kids – like trees for Arbor Day, models of transmission, and such to make folks more aware of the impact of energy/electricity usage.

Question and Answer

Our panelists fielded all sorts of questions, but a few highlights include:

- What do you do to educate customers effectively?
 - Newspaper & Radio
 - Target specific groups: nursing homes, health groups, food services, do workshops for each sector.

- Offer courses for continuing education credits
 - Seminars, mailings, emails
 - Gimmicks – Minnesota Valley gives \$25 off of a customers bill if they can find their acct # in the newsletter
 - All commented that the strategies don't always work.
- What do you do to service your low-income customers?
 - Provide heating and cooling maintenance program; service equip
 - Work with Habitat for Humanity
 - Work with local Housing Resource Authority (HRA)
 - Work with local Community Action Agency (CAP agency)
 - Provide free demand controllers, free 80-gallon water heaters, free fridge to those who qualify

FREE BULBS!

With our heads full of information, we concluded the meeting by all collecting a free CFL from Willmar Municipal Utilities and adjourned @ 3:15.

Thanks to all our panelists for an informative day, and thanks to Ottertail Power and Willmar Municipal Utilities for all the free energy efficiency goodies.