

Energy costs are rising. You hear about it in the news and you see it on your utility bills. Is anyone doing anything about it?

The answer is a resounding, "Yes!" Colorado electric cooperatives are working hard to help their members conserve energy. In addition to helping members save on utility bills, energy efficiency and energy conservation programs at Colorado cooperatives are helping to:

- Reduce our nation's dependence upon foreign fuels.
- Make the most of our abundant natural resources, including renewable resources like wind and solar.
- Reduce our carbon footprint.
- Take pressure off generation and transmission facilities.
- Shift energy use from peak times to off-peak times which in turn helps make the most effective use of our energy-production resources.

Colorado cooperatives are not unique in this regard. According to National Rural Electric Cooperative Association (NRECA):

- 92 percent of all electric co-ops in the U.S. use member publications, ads, web sites and other communication resources to build energy efficiency and conservation awareness.
- 77 percent offer members free or low-cost energy audits to help pinpoint energy leaks.
- 49 percent provide financial incentives via loans, rebates or incentives to reduce power consumption during peak times or to switch to higher efficiency electrical products.

However, the statistics for Colorado cooperatives are even more impressive! Every one of the state's 22 electric cooperatives provides energy efficiency conservation information to members. Most offer energy audits. Those that do not offer referral programs to specialized companies who provide this service. Over 95 percent of Colorado's co-ops offer financial incentives to increase energy efficiency.

Here are just a few examples of the ways Colorado electric cooperatives are helping move our state to the forefront in energy conservation.

Conservation Education

Cooperatives have promoted energy conservation from their inception. At first, this was a necessity. With miles of line and substations few and far between, power capacity was limited. Members didn't have the luxury of squandering this scarce resource. Conservation programs were initiated. Over the years, especially during the oil-embargo years of the 70s, these programs were refined and expanded.

The only new wrinkle in educating members on the benefits of conservation has taken place in the past few years. As cooperatives have gone on-line, their web sites have included sections on conservation strategies. Most electric cooperative web sites offer links to appliance use calculators, home energy audit programs and CFL cost savings estimators. Web resources like these are available to both co-op members and non-members alike.

Every Colorado cooperative offers members information on energy conservation. In part, this is due to the cooperative business model. Cooperatives are democratically controlled by their members. Co-ops do not operate for a profit. In fact, revenue generated in excess of expenses is returned to members via capital credits. Decisions are made with the best interest of the cooperative's members in mind.

When an electric company subtracts profit from the formula, conservation becomes a wise business

strategy. Conservation saves the company money in terms of infrastructure upgrades. Conservation does not cost cooperatives, it pays.

CFLs

Compact fluorescent lamps (CFLs) have taken center stage as one of the easiest ways for homeowners and businesses to cut their electric bills and reduce their carbon footprint. Early in 2007, Tri-State Generation and Transmission Association, power provider to 18 of the state's cooperatives, purchased and distributed 44,000 CFLs to member cooperatives in the four-state region they serve. Subsequent purchases have boosted the total of CFLs Tri-State has purchased and distributed to 100,000.

Some of the more notable CFL programs offered by Colorado cooperatives include:

- Programs offering CFLs at cost or below cost to local organizations who in turn sell the bulbs as fund-raisers.
- CFL giveaways at annual meetings and community events.
- CFL sales to both members and non-members, often at near wholesale prices.
- CFL education events.
- Donations of CFLs and other conservation items to school children.
- Business lighting programs.
- Participation in Energy Star's "Change a Light, Change the World" nationwide campaign.
- Retrofitting programs for city and county offices, medical facilities and other community buildings with CFLs to help these agencies cut lighting costs.
- Partnerships with local builders to use 100 percent CFLs lighting in model homes in new subdivisions.

To date, in 2007 alone, Colorado cooperatives have distributed about 45,000 CFLs to their members. That quantity of CFLs saves an annual total of about \$445,000 in energy costs and close to 5 megawatts of electric generation. That's enough electricity to power over 7,000 homes for an entire month. It is the equivalent to planting 900 acres of forest or removing 450 cars from the road for a year. (Source: www.onebillionbulbs.com)

Many cooperatives support their CFL distribution programs with CFL recycling programs. Most provide a number of drop-off spots where community members can leave burned out CFLs to have the tiny amount of mercury inside the lamp recycled or disposed of properly.

Load Management

Conservation involves more than cutting back on use. Conservation also includes time of use. Power plants must be able to meet the peak power consumption of any given day. It takes a while for a plant to ramp up production to meet that peak. At times, power suppliers must purchase power on the open market to meet peak demand.

Either way, meeting peak demand can be an expensive proposition and power generation companies bill for power accordingly. Because cooperatives are billed on both consumption and on their contribution to peak load in any given month, they have initiated programs to help members shift use to off-peak times.

Some programs are simply geared toward consumer awareness. The philosophy behind these programs is that if members shift use, the cooperative saves money on its power bill and this cost savings can be passed along to everyone. Other programs offer lower electric rates for off-peak use to partic-

ipating members. These programs are voluntary; members may choose to participate or not. These programs are varied; but, most employ the use of automatic control devices.

- Electric thermal storage (ETS) heaters store heat during off-peak times and release the stored heat as needed. Members purchase the heaters from the cooperative. Control devices are installed along with the heaters. For most members, the program offers many benefits with no downside.
- Controlled water heater recharge times. Often these programs are accompanied by rebates on ultra-efficient water heaters. Power line control carriers are used to drop load when needed so the utility can control costs. Everyone saves and no one loses.
- Reduced rates for consumers who sign up to shift use to off-peak times. No control devices are installed; but, members are charged higher rates for on-peak use.

Tri-State's Energy-Efficiency Credit Program

Tri-State maintains an active energy-efficiency credits program in which most, if not all, of the cooperatives in Colorado participate. The program, initiated in 1985, serves as a means to encourage and reward energy-efficient purchases and practices.

The program provides cash rebates to consumers who install more efficient heating and cooling systems (such as heat pumps), electric water heaters and electric thermal storage heating systems. Additionally, the program offers rebates to irrigation, commercial and industrial consumers who add or switch to high-efficiency electric motors to power their operations. Through the program, Tri-State has reduced approximately 30 megawatts in demand and saved 35,000 megawatts-hours in energy.

Additionally, through this program, Tri-State pays out about \$2 million annually in rebates to Coloradans who increase their energy efficiency. Most cooperatives in Colorado supplement the program, some more than double the rebates offered by Tri-State. Others add more items to the eligibility list such as programmable thermostats and refrigerators. Not only do member save through rebates, they continue to save with the energy-efficient products they install.

Co-ops who do not receive power from Tri-State have their own energy rebate programs. For example, Holy Cross Energy's WE CARE program offers rebates on Energy Star certified refrigerators, dishwashers, clothes washers, CFLs, programmable thermostats, and conventional electric water heaters.

Practice What You Preach: Office Efficiency

Several cooperatives in Colorado have recently improved or built new office buildings. Not surprisingly, without exception, those projects have all been designed with energy efficiency in mind.

Because heating systems are at the top of the list in terms of residential and business energy consumption, the cooperatives who have built or remodeled their facilities have incorporated energy efficient heating systems. Some use ETS heat. Others use geothermal heating and cooling systems or heat pumps.

Water heating is another important area for energy conservation. Accordingly, cooperatives have installed point-of-use water heaters to minimize heat loss in pipes.

Lighting efficiency has been improved through the use of CFLs, motion detectors that automatically turn lights off when they are not needed, solar tubes, and automatic dimming lighting that detects light needs and conserves electricity when the sun can do the job have also been employed.

Conservation extends beyond the office doors. Several Colorado co-ops have added hybrid vehicles to their fleets. Others are experimenting with biodiesel. Many others work four ten-hour days instead of five eight-hour days. The difference pays off in less travel time and fewer travel miles, especially for crews working in the field. Co-ops work together; car pooling and ride shares to industry meetings are common among those who work at the same office. Just as often, employees contact counterparts at nearby co-ops to share transportation as well.

Cooperatives have also worked to trim an energy loss that many are unfamiliar with: line loss. Line loss occurs when electricity flows through power lines. By employing a variety of strategies, the amount of power lost can be reduced. For example, since 1949, line losses at one Colorado co-op were trimmed from 17 percent to 3.5 percent. Other cooperatives in Colorado have made similar gains.

Special Conservation Programs

Cooperatives in Colorado are diverse. Each represents the members they serve. Consequently, many cooperatives have developed unique energy efficiency and conservation programs for their members such as:

- Loan programs for energy-efficiency improvement projects.
- A "Reduce Your Carbon Footprint" contest with three winners each receiving energy-efficient LED Christmas light strands in time for the holiday season.
- Energy-conservation make-over contests for local homeowners with the cooperative paying for a substantial number of energy-efficiency projects in the winner's homes.
- Demonstration solar and wind power installations with real-time monitoring at local offices.
- Watt-meter loan program through which co-op members can borrow watt-meters to monitor individual appliance use.
- Recycling incentive programs for old refrigerators, often coupled with a rebate on the purchase of a new energy-efficient refrigerator.

Larger, more expensive programs are investigated carefully before implementation; cooperatives watch how they spend their member's money. Pilot and test programs are the norm. Sample pilot projects in the state include:

- A partnership with Cooperative Research Network (CRN) to test low-temperature heat pumps for their effectiveness in cold-temperature winter areas.
- A pilot program designed to encourage members to install geothermal heat pumps through which the coop offers members the option of having the system's loop field installed, owned, and maintained by the co-op with no up-front cost to the member. Instead, the homeowners will pay an additional monthly premium on their electric bill.
- A solar water heating program through which the co-op would offer a subsidy or rebate on the installation of solar water heating systems with electric backup. The co-op would offer a time-of-use rate to these members and would place all backup water heaters on load control devices. Members would cut water heating costs, and the co-op would gain the ability to dump load to shave peaks and thus control their power bill.

Conservation: The Fifth Generation Source

Some have called conservation the fifth generation source. Fossil fuels, hydro-power, nuclear power and renewable resources each play a role in our national energy portfolio. Why not add conservation to the list?

That's the approach cooperatives in Colorado have taken. Their efforts are making a significant impact

upon the demand for electricity in the state. Along the way, co-op members are saving money on their utility bills. Conservation can make a difference!