



## Successful Energy Efficiency Programs

Efficiency measures are increasingly being counted on as a resource in the same way conventional fuel-based options are. Below are some examples of successful efficiency programs.

### Platte River Power Authority

Platte River Power Authority spent \$2.2 million on demand side management programs from 2002 to 2005 and reduced peak demand by 5 megawatts, equaling a cost of only \$440 per kilowatt. Current construction costs for coal plants ranges from \$1,500 - \$3,000 per kilowatt.

### Xcel Energy

In it's Colorado operations, Xcel Energy invested approximately \$750 million and expects to save more than 700 megawatts of demand, the entire output of a large-sized power plant, from demand-side management implementation from 2009 to 2020.

### Bonneville Power Administration

Since BPA's efficiency program started in 1981, BPA has saved enough energy to avoid constructing 936 megawatts of generation capacity.

Sources: Summit Blue Consulting, LLC, "A Commitment to Serve: A Cooperative Board Member's Guide to G&T Resource Planning", pp. 25-26. Boulder, CO, November 2007; Xcel ERP filing 07A-447E, November, 2007

*It's no secret that the cost of energy continues to rise. Power providers project increased demand for energy, and increased costs, in the coming years. Yet many opportunities for energy efficiency exist in the rural residential, commercial, agricultural, and industrial sectors. These opportunities can substantially reduce demand for energy, cut consumers energy bills and eliminate unnecessary construction of new coal fired power plants.*

## Energy Efficiency Opportunities

### Rural Residential

- **Appliances** – ENERGY STAR® -labeled appliances should be purchased whenever a new appliance is needed.
- **Lighting** – Compact fluorescent light bulbs and energy-efficient T-8 fluorescent lamps should replace incandescent or old fluorescent lighting, and timers and/or motion detectors should be installed on outdoor fixtures.
- **Evaporative Coolers** – These cooling systems can use 80% to 90% less electricity for cooling compared to standard compressor-based air conditioning systems,
- **Heating** – High efficiency furnaces, boilers, and heat pumps save great amounts of energy, in addition to improving the thermal integrity of the building envelope in older homes.

### Rural Agricultural and Industrial

- **Irrigation Pumping** – Improved irrigation technologies and management practices can save up to 40% of both electricity and water used, saving the average farmer more than \$5,000 per year on electricity costs for irrigation alone.
- **Ventilation Systems** – Optimizing a ventilation system's motor performance, speed, blade design and shape, housing design, and clearance between the fan blades and the housing will increase energy efficiency.
- **Motors** – Energy efficient motors and variable speed motor drives can save 50% of the energy used.

### Rural Commercial

- **Office Computers** – Turning off just one computer and monitor every night and weekend can save a small business up to \$80 per year.
- **Store Signs** – Replacing incandescent lights in "EXIT " and "OPEN" signs with LED fixtures will use 80–95 percent less energy and last 10–20 times longer.
- **HVAC Equipment** – Installing more efficient fans, chillers, and packaged air-conditioning equipment can reduce overall electricity consumption by 15% to 20%.

Source: T. Potter, *Rural Electric Efficiency Prospects*. SWEEP, Boulder, CO, March 2008. [www.swenergy.org/pubs/reep/index.html](http://www.swenergy.org/pubs/reep/index.html)

## A Look at Compact Fluorescent Lamps

Rural residents are likely to have large outdoor security lighting systems, increasing their energy use and the opportunity for efficiency. Energy providers that offer incentives for customers to replace standard light bulbs with compact fluorescent light bulbs or T-8 fluorescent lamps can greatly reduce energy use and offset the need for additional capacity. The benefits of compact fluorescent bulbs over standard incandescent bulbs are highlighted below.

### Lighting Cost Comparison: Incandescent vs. Compact Fluorescent Lamps



	<u>Incandescent</u>	<u>Compact Florescent</u>
Lumens	850	830
Watts	60	15
Life in hours	1000	8000
Bulb cost (1)	\$2.00	\$4.00
Operating cost (2)	\$48.00	\$12.00
Total cost	\$50.00	\$16.00

(1) Costs for 8,000 operating hours; (2) Assumes electricity cost of \$0.10/kWh

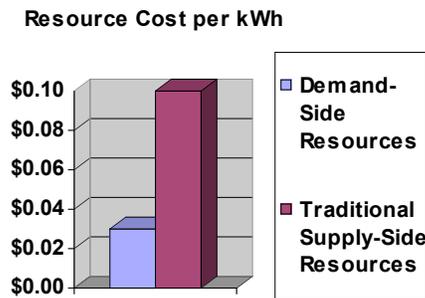
### Components of an Energy Efficiency Program

Holy Cross Energy, a cooperative corporation with more than 43,000 member-owners, provides a few examples of what rural electric cooperatives can do to encourage efficiency:

- **Commercial and Industrial Grant Program:** Holy Cross's commercial and industrial consumers may apply for a grant of up to 20% of their previous 12 month billing, up to a maximum of \$10,000, for energy efficiency and/or conservation measures.
- **Appliance Rebate Program:** Holy Cross customers who purchase eligible ENERGY STAR® appliances and other energy-efficient products receive a cash rebate. Qualifying products include refrigerators, dishwashers, clothes washers, compact fluorescent light bulbs, and programmable thermostats.
- **Energy Audits:** Holy Cross offers free residential energy audits for their customers. The audit includes the installation of one standard compact fluorescent bulb in a fixture of the consumer's choice and an insulating water heater blanket on the customer's water heater at no cost.

Source: Southwest Energy Efficiency Project, Utility Energy Efficiency Programs, [http://www.swenergy.org/programs/colorado/utility.htm#Platte\\_River](http://www.swenergy.org/programs/colorado/utility.htm#Platte_River)

## Cost Benefits of Energy Efficiency



Utilities across the U.S. are implementing energy efficiency programs at an average cost of saved energy of \$0.02 - \$0.03 per kilowatt-hour. Leading utilities are achieving at least a 1% decrease in energy use and peak demand per year, meaning at least 5% savings after 5 years, 10% after 10 years, etc. Capital and operating costs associated with traditional supply-side resources usually range from \$0.07 per kilowatt-hour to \$0.15 per kilowatt-hour, depending on fuel source and region. (Average residential customers use approximately 650 kilowatt-hours per month.)

## What Can Rural Electric Cooperatives Do To Encourage End-User Efficiency?

- **Educate Consumers** – Increasing energy efficiency means cost savings, increased profits, higher productivity, and a cleaner environment. Conducting energy audits and providing customers with practical information on their energy efficiency and conservation options can lead to action.
- **Provide Financial Incentives** – Providing rebates that cover 50-75% of the cost of efficiency measures can help to overcome the resistance that households and businesses have to investing in energy-efficient measures.
- **Support Service Providers** – Provide energy efficiency training and certification for builders and contractors, and help these businesses promote their energy efficiency services. Also work with retailers to increase the availability and marketing of energy-efficient products.
- **Get the Word Out** – Raise awareness about the economic, societal and environmental benefits of efficiency. Utilize bill stuffers, television, newspapers, internet, direct mailers and community events. Appeal to both self-interest and community pride.

Source: Potter, Tom (SWEET)

## Community Benefits

Increasing energy efficiency costs less than alternative electricity sources: fossil, nuclear or renewables. It saves households and businesses money.

Increasing efficiency supports jobs in the local community and strengthens rural areas' economic competitiveness.

Increasing efficiency helps build community self-sufficiency.

Increasing efficiency frees up money for other social and economic development priorities in rural regions.

Source: Potter, Tom (SWEET)

**Demand-side management programs can save energy at an average cost of one-half the typical cost of new energy sources, while helping the whole system meet demand at all times.**

Source: Blue Summit Consulting, LLC.