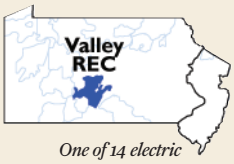
Valley Rural Electric Cooperative, Inc.

Your Touchstone Energy® Cooperative



One of 14 electric cooperatives serving Pennsylvania and New Jersey

Valley Rural Electric
Cooperative, Inc.
10700 Fairgrounds Road
P.O. Box 477
Huntingdon, PA 16652-0477
814/643-2650
1-800-432-0680
www.valleyrec.com

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7 a.m. - 5:30 p.m.

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Monday - Thursday
7 a.m. - 5:30 p.m.

FROM THE PRESIDENT & CEO

Satisfying our energy appetite requires a diverse menu

by Wayne Miller
President & CEO

WE'RE IN THE middle of a green revolution in America, with towering wind turbines and bright solar arrays dominating headlines. No doubt, those technologies will certainly take on a bigger role in "keeping the lights on." But despite media hype, they won't be able to totally replace conventional sources such as nuclear and hydropower, coal and natural gas for producing electricity any time soon.

To meet the growing demand for electricity, co-ops will continue to mix and match generation resources, finding the best way to balance environmental concerns while ensuring delivery of affordable and reliable power. And because federal climate change legislation will likely boost the price for every kilowatt-hour generated by fuels that emit carbon dioxide — notably coal and natural gas — additional nuclear power may become an attractive option once again.

Valley Rural Electric currently gets the majority of its electricity — 58.3 percent — from nuclear sources. And for good reason. For starters, nuclear power doesn't release carbon dioxide in the air. It's also available 24/7, unlike other renewable energy options that are dependent on breezes or daylight.

In the past, nuclear power has faced opposition because of waste and safety concerns. However, commercial nuclear reactors have been operating since the 1950s, and most issues have been resolved. In addition, other countries have jumped on the nuclear bandwagon in a big way, and helped to perfect the technology. Over the past 40 years, for example, France has built enough nuclear power stations to provide two-thirds of that nation's energy, and recycles the radioactive waste created, using it over and over again as fuel.

In the United States, largely because of added construction costs imposed on nuclear plants following the Three Mile Island accident in 1979, no new nuclear facilities have been ordered and built from scratch since 1973. That's a long drought. However, utilities are ready to break ground on 26 nuclear reactors in 16 states, while another 11 reactors are in the planning stages. These new reactors, if built, will run much more efficiently, generate more power and boast lots of new safety features.

Even with a nuclear renaissance, coal will remain a keystone of electric power in this country. More than half of our nation's electricity is generated by coal; the goal now is to burn it as cleanly as possible. One of the most promising options involves carbon capture and storage (CCS), where carbon dioxide emissions are pulled out before they're released up a power plant smokestack. The collected gas is then pumped thousands of feet down into geological formations where it will be entombed forever.

Large-scale CCS technology is just now being tested and won't be commercially viable for at least a decade, if not longer. But CCS may become a cost-effective option as co-ops focus on research and development to lower costs.

So the next time you hear someone talk about nuclear power or clean coal, remember both of these fuels are keys to keeping power affordable and reliable. We will have to mix and match our resources if we want to find a balanced, sustainable solution for our energy future.

HEATING UP: The consensus among many scientists is that greenhouse gases are warming the planet and are accumulating in the earth's atmosphere as a result of human activities.

COURTESY ILLUSTRATIONS

Climate change

Your questions answered

CLIMATE CHANGE is a topic of increasing interest to the energy industry. However, many electric consumers are still unclear about exactly what climate change is, and how it affects their electric cooperatives. In an effort to clarify this issue, here are some answers to basic questions about the subject.

What is climate change?

Climate refers to the average weather — specifically the temperature and precipitation, among other variables — over a long period of time. Research shows that the earth's climate is always changing. Natural climatic changes may occur over seasons, decades and centuries. The periodic rapid warming trend in the eastern Pacific Ocean, known as El Niño, is an example of climate change on a shorter time scale.

What causes climate change?

Natural factors and processes contribute to climate change, and include changes in the earth's orbit and changes in the output of the sun. It is believed that human activities, such as fossil fuel consumption and deforestation, may contribute to climate change.

What are greenhouse gases and how are they produced?

Greenhouse gases are chemical compounds that trap heat from the sun in the earth's atmosphere. Greenhouse gases include carbon dioxide, methane and water vapor. These gases occur both naturally and through human activity. Carbon dioxide is released into the atmosphere when forests and fossil fuels are burned. Fossil fuels include oil, natural gas and coal. Methane is released during the production and transport of coal, natural gas and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste such as in municipal solid-waste landfills. Although water vapor is the most abundant greenhouse gas, its atmospheric concentration is not directly affected by human activity.

What do scientists think about climate change?

The consensus among many scientists is that greenhouse gases warm the earth and are accumulating in the earth's atmosphere as a result of human activities. However, there is considerable uncertainty in scientists' understanding about the long-term impacts of greenhouse gases on the earth's climate.

What does climate change have to do with electric cooperatives?

The process of generating electricity is the single largest source of carbon dioxide emissions in the United States, representing 40 percent of total carbon dioxide emissions from all sources in 2005. Electric cooperatives generate about 5 percent of the nation's electricity; more than 80 percent of that generation comes from fossil fuels. As a result, electric cooperatives have a well-developed interest in technologies that reduce, avoid and store greenhouse gas emissions.

What are electric cooperatives doing to address climate change?

Currently, there are few cost-effective technologies to reduce greenhouse gas emissions from fossil fuel-based generation. Electric cooperatives are working to develop new technologies and energy sources to reduce, avoid and sequester or store emissions. Cooperatives across the nation are using and promoting alternative and renewable energy options, including wind energy, solar energy, hydropower and biomass (methane gas, wood waste, farm byproducts and ethanol). Currently, more than 700 electric co-ops offer renewable energy. Valley gets 8.5 percent of its electricity from hydropower. In addition, the co-op has supported the integration of a methane digester, two solar and four windmill renewable energy projects on co-op lines.

How can new technologies improve climate change concerns?

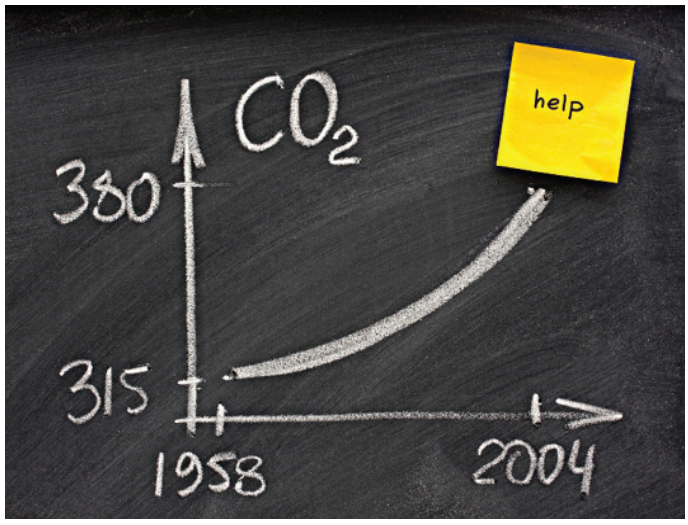
New technologies that lead to greater energy efficiency are a primary focus for electric cooperatives. These include building modern, environmentally sound power plants and implementing carbon-efficient electric generation, such as nuclear energy and clean-coal technologies. Electric cooperatives are keeping pace with high-tech advancements to improve operations. For example, electric cooperatives currently lead the industry in automated meter technology.

What is the policy debate in Washington about climate change and what do electric cooperatives support?

Climate change issues continue to gain increasing attention in Congress and the utility industry. Electric cooperatives support the research and development of low and zero-emission energy technologies, new energy-efficiency technologies, renewable and alternative energy options and financial incentives to accelerate the use of new technologies and offset higher costs, and will continue to support voluntary greenhouse gas emissions reduction efforts. We will support these objectives providing they don't conflict with our mission to provide safe, reliable and affordable power to the people we serve.

How do international factors affect climate change?

The global population and worldwide demand for fuel are growing significantly. China is the fastest growing major economy in the world, while India runs a close second. This growth means more people are driving cars, building more homes and businesses, and using more fossil fuels to generate electricity, thus leading to more greenhouse gas emissions. Therefore, it is necessary that governments around the world support ways to reduce emissions while they develop long-term climate change solutions and new technologies.



CARBON CONUNDRUM: Since the Industrial Revolution in the 1700s, deforestation and the burning of oil, coal and gas have helped to increase carbon dioxide (CO2) concentrations in the atmosphere. In 2005, global atmospheric concentrations of CO2 were 35 percent higher than they were before the Industrial Revolution.

What can I do as an electric cooperative member to address concerns about climate change?

First and foremost, cooperatives encourage the wise use of energy. This includes using compact fluorescent lighting, upgrading to energy-efficient appliances and following home improvement tips, such as installing a programmable thermostat or improving insulation. Valley also offers home energy audits to troubleshoot areas in your home that need repairs or upgrades. For more information, visit www.valleyrec.com and click the *Save Energy* tab.

Cooperatives still believe that the cleanest kilowatt-hour is the one that is never generated. We are currently expanding our demand-side load reduction and "smart" meter system to help curb the need for additional generation and assist members with the efficient use of energy. To find out more about how you can get involved in the co-op's demand response program, email memberservices@valleyrec.com or call 800/432-0680.

Background information courtesy of the National Rural Electric Cooperative Association

- **DURING A STORM,** avoid contact with water and plumbing and don't use corded phones. Phone lines, plumbing and fixtures can conduct electricity if your home is struck by lightning. Also, don't use a cell phone outdoors in a storm.
- If you hear thunder, it means you have the potential to be struck by lightning. Seek shelter immediately. Stay away from entry doors and windows, as well as exterior walls made of concrete, brick or tile.
- It's safer to remain in your car than to be outside when lightning strikes. If you're caught outside, go to a ditch or ravine away from trees, poles, water and metal objects. Squat low to the ground with your hands on your knees and your head between them. If you feel your hair stand on end, rise onto the balls of your feet to minimize contact with the ground.
- To help protect your home's electrical appliances in a storm, unplug them (even those on surge protectors) and disconnect any associated cable TV or phone lines.
- For more storm safety tips, visit www.lightningsafety.noaa.gov. For electrical safety information, visit www.valleyrec.com and follow the *Kids Korner* link to the *Play it Safe* page.

Help your community save energy

Follow these tips to help lower your public building's electric bills

EXPERTS AGREE that energy efficiency investments typically pay for themselves. Consider taking a few simple, no-cost and low-cost steps to help your church, fire company, township building or other public facility save both energy and money.

General

Track your energy use. Analyze energy bills for the past year and look for patterns. This information will help you see the results of your energy-saving efforts and alert you to developing problems that could be costly. Remember to encourage employees and volunteers to be energy-conscious.

Indoor lighting

Assess lighting levels and explore opportunities to reduce them. Try to not run desk and task lights in addition to overhead lights.

Switch from incandescent to compact fluorescent lightbulbs, which use one-fourth as much energy and last 10 times longer than standard bulbs.

Consider light-emitting diode (LED) exit lights instead of incandescent. They last up to 25 years and reduce maintenance costs.

Explore opportunities to switch to high-pressure sodium or metal halide lighting in warehouses.

Outdoor lighting

Make sure lighting is adequate for safety.

Set lighting timers only for the hours when lights are necessary.

Consider using sun trackers or photocells in conjunction with electronic timers on outdoor lighting.

Evaluate converting incandescent or mercury vapor lighting to high-pressure sodium or metal halide lighting.

Heating, ventilation and air conditioning (HVAC) systems

HVAC equipment that is properly maintained will use less energy and enjoy a longer life.

Schedule HVAC tuneups once or twice a year. Clean coils, check and correct the refrigerant charge, clean and lubricate the fan motor, check for proper airflow, adjust the pulley settings and fan belts, replace air handling unit filters and do routine checks to ensure proper performance.

Close outside air dampers when the building is unoccupied. This includes morning warm-up periods.

Raise cooling settings and lower heating settings on programmable thermostats.

Seal ducts that run through unconditioned spaces.

Consider using rooms and areas that can be heated and cooled individually for after-hours meetings so you don't have to heat or cool a whole floor.

Water heating

Purchase a water heater with an energy factor of 0.9 or higher.

Insulate the tank.

Ensure the heating temperature is correct based on local requirements. Keep in mind that there may be strict requirements for minimum and maximum water temperatures for certain facilities, like nursing homes and child-care facilities. There may also be strict requirements for minimum water temperatures for manual and automated dishwashing in food establishments.

Refrigeration

Clean refrigeration coils regularly.

Doors and seals on walk-in units should be kept in good repair.

Make sure that refrigeration units are properly charged with refrigerant.

Ensure units are properly defrosting. Check for ice buildup.

Due diligence

All that glitters is not gold, and everything a salesperson says will not necessarily save you money. Questions to ask a product vendor or supplier:

Is it UL approved?

Do you have a letter from the manufacturer stating no equipment warranties will be voided?

Do you have reports from credible sources supporting the product's effectiveness?

Can you provide the names of 10 companies, with contacts and phone numbers, who have used your product for a year or more and who will attest to its effectiveness?

How long has your company been selling this product?

To receive a complimentary copy of our *Commercial Energy Savings Guide*, email memberservices@valleyrec.com or call 800/432-0680. Please include your Valley Rural Electric Cooperative account number with the request.

Information courtesy of Touchstone Energy®