# July 2019 Share Package
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# Install an Attic Ridge Vent to Reduce Air-Conditioning Costs

**Install half of the required vent area in soffit vents. These are 4-by-16-inch vents.**

**Roll out the ridge vent, smooth it down and cut it to length.**

To ask a question, write to **James Dulley**, Energy Report, 6906 Royalgreen Dr., Cincinnati, OH. 45244, or go to **www.dulley.com**.



***Q.*** *My house has gable attic vents on each end. What is my best choice for attic venting, how much do I need and can I install it myself?*

A. Adequate attic ventilation is important to reduce your utility bills and avoid damage to the roof and attic. Having a vent in each side of the gable was the typical attic ventilation configuration in older houses, but today it is considered woefully inadequate for an efficient house.

People often think of attic ventilation as being important only during summer to control air-conditioning costs. A typical dark-shingle roof can easily reach 170 F, and the air temperature inside the attic can reach 140 F without adequate ventilation.

Even with enough insulation on the attic floor, this extreme radiant heat transfers through the insulation to the ceiling below. The structural lumber in the attic also reaches 140 F by afternoon. With its thermal mass, it can stay hot well into the evening and continually transfer heat into your house.

During winter, the attic can get cold. No matter how well the vapor barriers were installed in the walls and ceiling, indoor air and water vapor get into the attic. If this moisture-laden air collects in the attic—even in relatively mild climates —it can condense on the lumber and drip onto the insulation. The R-value of insulation is much lower when damp.

In cold climates where the temperature often drops below freezing at night, it is even more important to ventilate the attic to keep the roof cold. If warm air from the ceiling below stagnates near the roof peak, it can melt snow on the roof. This water runs down the roof to a cooler area and refreezes, causing an ice dam. Over time, this dam causes water to back up under the shingles and leak into the attic and destroy the lumber. Its weight can damage the gutters.

The ideal ventilation flow comes in low over the insulation to keep it dry and cool. Some of it should flow up under the roof sheathing to keep it cooler, then exhaust out near the peak of the roof. This air flow out of the roof peak keeps it cooler during summer and much colder during winter to minimize condensation and ice dam formation.

There are various attic venting options, all of which are better than gable vents. A combination of a ridge vent and soffit vents is most effective and not difficult to install yourself. Once you install proper new attic ventilation, block off the gable vents because they will interfere with the desired air flow. I stapled extra attic foil over my gable vents to block them.

The ridge vent is at the roof peak where hot attic air is least dense so it naturally flows up and out. Breezes over the top of the ridge vent cover create a low pressure area to draw even more air through the attic. The cool air is drawn in the soffit vents.

Before you run out and buy vents, calculate how much ventilation you need. This is measured by the net free vent area of the particular product you select. The net free vent area is marked on the packaging. It is always less than the actual area of the vent because of screening and other obstructions to the air flow inside the vent.

Measure the area of the attic floor. A typical rule of thumb is 1 square foot of net free vent area of each 150 square feet of attic floor area is needed. This amount of vent area should be divided evenly between the ridge vent and the inlet soffit vents.

If you run the ridge vent all the way across the roof because it looks better, even if it is more ventilation than you need, match it with the proper amount of inlet soffit vents. Depending upon how much inlet soffit vent area you need and the depth of your soffits, you may find it easiest to install continuous lengths of under-eve soffit vent. This is less time consuming than sawing many small rectangular holes and installing individual soffit vents.

To install the ridge vent, cut a slot along the roof ridge with a circular saw. A typical 1-foot-wide ridge vent provides 18 square inches of net free vent area per lineal foot. ■

# Balance Room Temperatures for Increased Comfort

**Use the duct damper handle to control the amount of heated or cooled air to rooms. The summer and winter settings will be different.**

Photo by James Dulley

**A register booster fan has a winter/summer switch and an adjustable sensitivity knob to fine tune for your room.**

Photo courtesy of Field Controls

To ask a question, write to **James Dulley**, Energy Report, 6906 Royalgreen Dr., Cincinnati, OH. 45244, or go to **www.dulley.com**.



***Q.*** *We have a problem keeping several rooms comfortable. What are some simple, efficient methods to balance the temperatures in our home?*

**A.** There are many reasons various rooms in a home do not stay warm or cool enough, even though they have similar-sized ducts.

The number and orientation of windows affect room temperatures. South-facing windows can transmit a lot of heat into a room, causing a room to overheat in summer. North-facing windows—especially old leaky ones—can make a room chilly during winter. Both problems can be mitigated somewhat by installing new windows or insulating shades, but there will still be variations.

If your HVAC blower has an efficient variable-speed electronically commutated motor, switch the thermostat fan to continuous when problems arise. This keeps air circulating to reduce room temperature differences. If your system has a less-efficient standard blower motor, use this option sparingly. It can use a lot of electricity. During air-conditioning season, this extra electricity use ends up as heat that makes the compressor run longer for a double cost.

Another problem is the walls of the ducts—especially sheet metal ducts—lose or gain heat as the air makes its way from the heat pump or central air conditioner to the rooms. This problem is made worse because heating ducts often are located under windows. This positions them on outside walls and takes space from the wall insulation thickness.

Hold a thermometer in the register outlet air flow in each room. If there is a 5-degree temperature difference or more, wrap insulation around as much of the duct as you can.

Uneven room temperatures also happen when not enough heated or cooled air gets to problem rooms. Hold your hand over room outlet registers to compare air flow. If a room is far from the indoor blower, the duct creates more air-flow resistance. This problem is exacerbated because longer ducts also lose more heat through their walls. Longer ducts also have more joints, which can leak heated or cooled air before it reaches the intended room.

Check the baffles in the ducts near the heat pump or furnace to be sure those leading to problem rooms are not partially closed and blocking air flow. There usually is a small handle on the side of the duct. The duct damper is fully open when the handle is parallel to the duct.

Try partially closing the duct baffles leading to other rooms. You will have to close them at least 45 degrees to notice the effect. This forces more heated or cooled air to problem rooms. The settings of duct dampers to each room will have to be changed from summer to winter because the heat gain/loss varies by season.

Hang a thread from a stick and hold it near all the joints in the ducts to locate air leaks. Seal leaks with duct tape or duct joint sealing compound. Don't just use cheap gray duct tape. It often comes loose in a year or two. Use aluminum foil duct tape or black Gorilla duct tape. Gorilla tape is easier to apply and holds up for many years.

Make sure room register baffles are fully opened. Install a deflector over the register to direct heated or cooled air into the room. This is particularly effective when air conditioning because cool air tends to hang near the floor and not circulate throughout the room. Move furniture so it is does not block air flow.

Installing a duct booster fan can help get more air flow to the problem rooms. Duct booster fans are designed to fit into the ducts near the furnace blower. Some sense when the blower starts and come on automatically. Others have their own thermostat or can be connected to the main blower controls.

Register booster fans also can help. They mount over the outlet register in a room. They are easier to install than a duct booster fan and provide more control over room temperature. The register booster fan plugs into a standard wall electric outlet. It has its own thermostat so it comes on only when the main blower run. The small fan motor uses only about 30 watts. ■

# Upgrading Energy Efficiency

*Increasing awareness, reducing energy use and improving lives one family at a time*

Celilo Village is a small community of Columbia Gorge residents approximately 10 miles east of The Dalles, Oregon, near the mouth of the Deschutes River. Most residents of Celilo Village are members of either the Yakama Nation or the Confederated Tribes of Warm Springs.

When the gates of The Dalles Dam were closed in 1957, subsequent flooding of the Celilo area brought an end to 9,000 years of tribal fishing life at Celilo Falls. This led to nearly 50 years of substandard replacement housing and a lasting, negative impact on Native American inhabitants and their way of life.

After decades of failed negotiations, an agreement was solidified in 2006 between the U.S. Army Corps of Engineers and Celilo community members to build a tribal longhouse for gathering and ceremonies. By 2009, 15 permanent two-, three- and four- bedroom homes were completed on the 100-acre parcel of land. These modern, fully insulated dwellings are built on slab foundations and equipped with marginally efficient heat pumps, small wood stoves, vinyl-framed windows and many multi-bulb light fixtures. While the construction of these new homes was a huge step forward in the reparation process, years of poverty, lack of outreach about energy consumption and efficiency, and geographic separation have taken a toll on the underserved community of Celilo Village.

The NWCPUD Energy Management Department recently noticed a disproportionate number of residents struggling to keep their bills manageable. During the first outreach visit to Celilo Village in mid-2018, we learned that many of the outdoor heat pump compressors had prematurely failed due to lack of maintenance and manufacturer warranty expiration. Once these systems fail, they no longer provide affordable heating to families, necessitating the use of the costly "emergency heat" furnace function.

A backup heating method for these customers is a centrally located wood stove, which requires firewood to fuel a powerful heat source located at the entrance to the hallway in an open living room. Most of the wood stoves no longer have original features such as glass in the doors, rope seal or handles, and are not being used. In some instances, the wood stoves have been removed due to health and safety concerns. All of these issues sent a strong message to the PUD that this community needed substantial support sooner rather than later.

During the appointment for their initial energy-efficiency assessment, longtime Celilo residents Fred and Karen Whitford mentioned that in addition to repairing their failed heat pump, they struggled with the constant replacement of lightbulbs in the home. The original fixtures installed were outfitted with 75-watt incandescent bulbs, and few had been upgraded. After discussing the advancements in LED bulb technology, the Whitfords began to grasp the cost of simply lighting these homes with approximately 30 incandescent lightbulbs per home. Needless to say, we put this measure on the top of our list to tackle next.

During the next nine months, several residents took part in NWCPUD's Energy-Efficiency Upgrade Program and were eligible to add a ductless heat pump, replace broken windows and exterior doors, and install a heat pump water heater. In conjunction with this homeowner upgrade program, our team worked with members of Efficiency Services Group Inc. to design a free direct-install lighting upgrade program for all NWCPUD customers.

With the help of John Macapagal, ESG energy efficiency manager, every Celilo Village home was upgraded or supplied with lumen-equivalent, 9-watt LED lightbulbs, water-saving showerheads and a smart power strip in one upbeat, powerful day of connection and support. All Celilo Village residents were enthusiastic. Many homeowners opted into the direct install program, which allows us to install all replacements. This single day of service and outreach should provide an estimated savings of 15,560 kilowatt-hours per year for this community.

While lower monthly bills and an increased energy-efficiency consciousness are powerful customer benefits in their own right, these valuable programs also have inspired residents to be more hands-on with home maintenance and more communicative about utility bill concerns. This empowered connection between NWCPUD and its customers allows for a quicker response to abnormalities in use and fosters a sense of mutual understanding when it comes to serving Northern Wasco County with compassion and integrity.

NWCPUD looks forward to continuing to serve Celilo Village residents and all of our consumer-owners with energy-efficiency programs that positively impact the lives of our customer owners for years to come. ■

**Travis Hardy** is an energy management specialist at Northern Wasco PUD in The Dalles, Oregon.

# A Moment of Truth for the Northwest

*Northwest RiverPartners works to strike a balance between low-cost, efficient, reliable power production and protecting the essence of the Pacific Northwest*

I officially started at Northwest RiverPartners on March 11, 2019. Since then, I have been inspired every day by the opportunity to make a difference for people in the Northwest. It is an opportunity that lies before all of us. Together we can make a positive impact.

At Northwest RiverPartners, we advocate for our local hydropower system. That means we advocate for affordable energy, clean air, carbon-free generation, irrigation for agriculture, improved conditions for salmon, low-carbon transportation, renewability, safe drinking water and affordable energy for those who need it the most: low-income families, rural populations and small businesses.

Looking at that list, our job should be easy. It's hard to imagine anyone would oppose any of those values. Surprisingly, the work is quite challenging. A narrative out there says dams—especially the lower Snake River dams— harm salmon and orcas, and, consequently, indigenous communities. The messaging makes it clear that if you are for hydropower, you must be against the iconic essence of the Northwest.

These past few months, I have been blessed with the opportunity to talk to some of the people behind these messages. I can tell you their hearts are in the right place. They see the decline of salmon and orcas and want to do something about it. Some are convinced dams are the problem. Others aren't so sure, but they believe dams can be replaced by other forms of clean energy and are willing to try.

Their aspirations are as noble as our own. Ultimately, both sides want the healthy outcomes for salmon and orcas.

Our members believe hydropower is part of the solution, and we have lots of facts to support it. Recently, scientific studies show salmon returns to the Snake River are similar or better than both free-flowing and dammed rivers in Alaska, Canada, the Puget Sound and Southern Oregon. Through extensive tracking, we know juvenile salmon passage past each of the lower Snake and lower Columbia dams is around 96%.

Above all else, we've learned that changing ocean conditions—driven by climate change and pollution—are taking a toll on marine ecosystems worldwide.

Despite this data and research, these facts haven't carried the day in the court of public opinion. Because there are conflicting views, they've even struggled to hold weight in federal court.

Perhaps in an era of alternate facts and skepticism, this outcome isn't surprising.

However, this attitude presents a challenge. If we can't carry the day with facts, how do we get people to understand the importance of Northwest hydropower?

We have some very powerful stories to share. Across the region, real people in real communities depend on the hydropower system in a multitude of ways. We have great examples of efforts that have helped salmon, steelhead and other fish species. Sharing these stories is essential to showing what hydropower is all about.

The success of our efforts will depend on our ability to share these stories in a way that connects us all. Our goal at Northwest RiverPartners is to work with our members to identify compelling stories within their communities. We have more than 120 members, all of whom have earned a high degree of trust with their customers and member-owners through years of public service.

For the first time, Northwest RiverPartners will connect with Northwesterners through social media and other channels to reinforce what they are hearing from our member organizations.

A lot of decisions around hydropower are going to be made in the coming months and years. Those decisions will affect the reliability of the power grid, the affordability of electricity, the health of our environment, the sustainability of our salmon populations and the livability of our communities.

This is a moment of truth for the future of the Northwest.

If you want to make a difference, write to your representatives and senators and let them know hydropower is important to you. Also, please write to us if you have a story of how the hydropower system has helped you or your community. Address email to info@nwriverpartners.org, or send a letter to Northwest RiverPartners, 9817 NE 54th St. #103, Vancouver, WA 98662.

We appreciate your advocacy and support. ■

**Kurt Miller** is executive director of Northwest RiverPartners in Vancouver, Washington.

# New Era in the Electric Utility Industry

*Solar, batteries and energy efficiency create a consumer-centric system of electricity*

**By Paul Wesslund**

The power that lights your home is not your grandfather's electricity. It might not even be your older brother's electricity.

"Consumers are becoming more active participants in their daily energy lives," says Jan Ahlen, director of energy solutions at the National Rural Electric Cooperative Association.

Think about it. When a homeowner installs an array of solar panels on their roof, they are no longer just a customer. They have become a generator of electricity. Under federal and state rules, that homeowner can sell their excess electricity back to their utility.

"The utility industry has traditionally generated electricity from large power plants, then sent that to the distribution system, and then to the consumer," Jan says. "It's going to be a huge transformation. We're moving from a top-down approach to a networked model."

The transformation that's going on is huge because it is not just about the solar energy hobbyist, but about more people using a growing number of energy choices.

It's a trend utility insiders call "distributed generation," meaning electricity is getting made in different ways and places.

Backup generators give a homeowner the option to run a refrigerator during a power outage. A smart thermostat helps a consumer control energy use by automatically using less heating or cooling at times when nobody is home. Even electric cars can store electricity and use it in a different way at a different time.

Jan sees the trends as a new era of the industry that is "more consumer-centric."

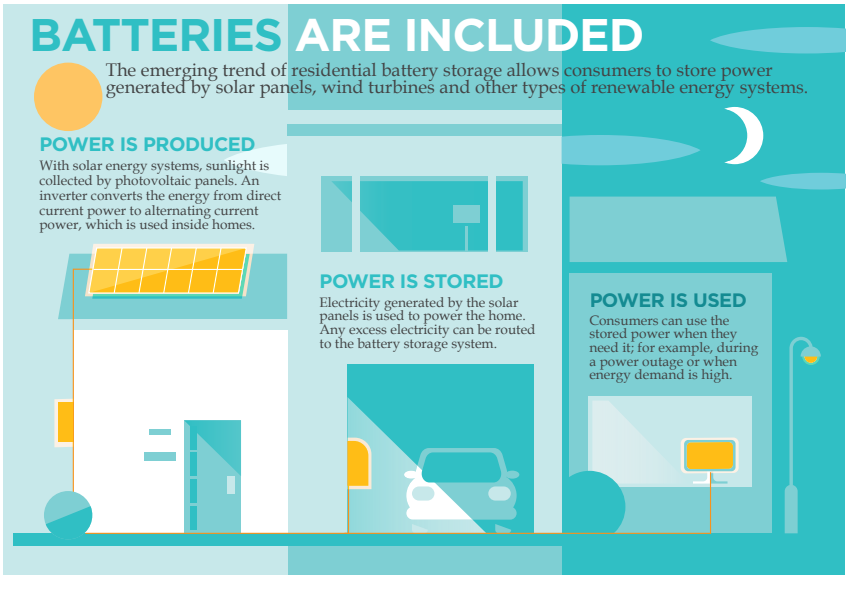
The new era means utilities will have to find new ways of doing business. It gives consumers more choices, but more choices mean homeowners and businesses will need the time and expertise to figure out how to get the best deal.

Jan says electric utilities are positioning themselves to help sort out the options for consumer-members in ways that benefit the surrounding community as well by connecting to the larger electricity network.

The distributed energy revolution is spreading as technology gets better and cheaper. New ideas are even changing ways of thinking about what generating electricity means. Energy efficiency can be thought of as a substitute for generating electricity, as improved lighting and appliances do the same work with less energy.

Here are a few of the trends creating the new era of distributed energy:

- Wind and solar energy have grown from generating about 3% of the electricity in the United States 10 years ago to about 8% today. The Energy Information Administration says that will continue, with wind energy growing 12% this year and 14% next year. EIA projects large-scale solar power will jump 10% in 2019 and 17% in 2020. Smaller-scale solar installed at homes and businesses is predicted to increase 44% in the next two years.
- Falling costs help drive that rise in renewable energy. One industry group estimates the cost of wind power is about a third of what it was 10 years ago. The Solar Energy Industries Association says the cost to install an average-size residential system has dropped from $40,000 in 2010 to $17,000 last year.
- Americans are becoming increasingly energy efficient, and in a new way of thinking that is considered distributed generation. One way to measure efficiency is to calculate the amount of electricity used by each household—a number called energy intensity. EIA



More homeowners are installing rooftop solar systems. During the next two years, the U.S. Department of Energy expects small-scale solar to increase 44%.

projects that number will decrease 0.3% each year for the next 20 years.

- Big batteries are putting more power under the control of consumers. From large home models that let rooftop solar owners store electricity from sunlight for use at night to huge industrial-scale arrays, batteries are getting better and cheaper. One industry group forecasts the U.S. energy storage market will reach $4.5 billion by 2023.
- Batteries power increasingly popular electric vehicles. About 700,000 electric vehicles are on American roads today, according to an analysis by CoBank, a financier for electric cooperatives. That number could jump to 3 million in the next five years.

One of the newer forms of distributed energy comes in the form of microgrids—essentially, a miniature utility system.

A hog farm might get some of its electricity from the local utility, but it also might have its own wiring system powered by an anaerobic digester producing electricity from pig waste, a set of solar panels and a large battery.

Those interested in microgrids and others jumping on the distributed generation bandwagon can benefit by working with their electric utility, says Brian Sloboda, director of consumer solutions for NRECA.

"A commercial company could put in a battery to benefit themselves, but they're only going to get a fraction of the benefit they could get from working with their co-op," Brian says.

Electric utilities could help the company use its extra capacity to provide backup power to the surrounding community, with financial benefits to the company.

In an era of distributed energy, electric utilities are in a position to help consumers make the best energy decisions, Brian says.

"There are all sorts of people out there trying to sell you stuff, and they may or may not have your best interests at heart," Brian says.

Instead of putting solar on your roof, your utility may have a community solar program you could participate in at a cheaper cost. He encourages consumers to talk to folks at their local utility before making an investment.

"They're the electricity experts, and they're your fellow community members," Brian says. "They're going to give you the most unbiased information." ■

# Drone Tech Provides Valuable Solutions for Utility Industry

**By Ethan E. Rocke**

At West Oregon Electric Cooperative in Vernonia, Oregon, drones are making quick work of jobs that once took days to complete.

Like many rural electric utilities, a lot of West Oregon's lines run through rugged terrain with large trees and thick brush. Inspecting those lines has traditionally presented a major logistical challenge to crews. Enter unmanned aircraft systems (UAS), or drones.

"When we used to inspect rights-of-way the old-fashioned way, we'd have to send three or four guys to trample through the brush for 4 or 5 miles," says WOEC Operations Manager Don Rose. "That job could sometimes take up to six guys two days to complete. Now we send two guys to fly a drone, and the entire inspection takes about an hour and a half. The video quality we get is exceptional, so we get all the information we need from the drone."

West Oregon's drone program is a little more than a year old, and Don says its benefits have made the cooperative's investment in the technology, training and certification process well worth it.

Launching a drone program responsibly requires much more than the initial investment in one or more drones. As drone applications and business uses have exploded in recent years, the Federal Aviation Administration has tightened regulation of the industry.

FAA regulations require anyone using drones for business to be certified UAS pilots, and individuals and businesses must carry liability insurance for their drone operations.

"When we first started out, there was a lot less regulation," Don says.

West Oregon turned to General Pacific's Northwest Drone Academy to get five of their linemen certified as Part 107 pilots.

Part 107 refers to the section of the U.S. code of federal regulations that governs drone use. General Pacific offers a two-day Part 107 Certification Class that culminates with taking the Part 107 exam. The cost for non-local students is $1,200 and includes the cost of meals during class time, lodging and the $150 testing fee. Local students who don't require lodging pay $900.

Classroom training is not required to pass the exam. Many people opt to prepare on their own, using any of the myriad free or cheap resources available online. A pdf of the FAA's "Remote Pilot—Small Unmanned Aircraft Systems Study Guide" is easily accessible with a quick google search, and many videos on Part 107 preparation are available on YouTube.

Utilities that aren't ready to invest in an in-house drone program also have the option of contracting drone work out. For certain specialized needs, hiring professionals is often the better option.

Timberland Helicopters in Ashland, Oregon, has provided aerial solutions to electric and natural gas utilities for decades. Timberland General Manager Mark Gibson says the company began investing in drone technology and expanding its services into the UAS space about five years ago.

"Drone technology is absolutely here and is going to continue to grow," Mark says. "There are many valuable applications for the utility industry, and there are applications out there we don't even know yet. There's so much potential."

Timberland offers a full lineup of drone services, including simple inspections and more specialized services such as infrared or corona inspections, beyond-visual-line-of-sight operations and payload operations such as pulling line across a river, canyon or other difficult terrain.

"There is a lot of potential for UAS applications in the utility space," Mark says. "They can't do everything, but they can save a lot of time and improve safety. Drones can keep a guy from having to climb a tower in bad weather or trudging through snow for miles. It can make mapping systems more cost effective. There are so many useful applications for this technology in the utility space."

Timberland partnered with General Pacific to develop the Northwest Drone Academy. In addition to its FAA Part

Many electric and natural gas utilities are investing in drone technology and using the systems to make quick work of jobs that previously took far longer.

107 Certification Class, the academy also offers mission-specific and specialized training, including 3D point cloud mapping, asset monitoring, corona, external load, line pulls, LIDAR, multispectral imaging, photogrammetry, surveillance, asset protection, thermography and videography/photography.

Most UAS applications fall into two categories: reconnaissance and payload operations. Reconnaissance is often easier and less costly than payload operations because the latter requires drones that can carry lines or equipment effectively. Reconnaissance drones are often small and inexpensive. Some models are available for less than $1,000.

For any utility considering an in-house drone program, consultation with an aerial solution provider might be a good starting point. Discussing needs and objectives with a professional up front can simplify the drone selection and acquisition process and help utilities decide which services to train for in-house and which services might be better to hire out. ■

**This video frame from a West Oregon Electric Cooperative drone shows one of the co-op's lines and the rugged terrain that once made inspecting it a two-day job.**

Photo courtesy of WOEC

# Stay Clear of Electrical Hazards

*Whether at work or play, be aware of electrical safety risks when outdoors*

**By Pam Blair**

**When moving irrigation lines, ladders or other tall items, look up and make sure you do not come in contact with overhead power lines.**

Photo by Mike Teegarden

Warm summer weather draws people outside. Whether taking a dip in a pool, boating, playing outdoors, planting flowers or tackling home improvement projects, it is important to remember you are surrounded by electricity.

Practicing good habits around electricity helps ensure your family, friends and neighbors safely enjoy the outdoors.

Below are tips to help reduce the number of electrical deaths and injuries.

## Power Lines and Utility Equipment

Before starting any project, identify the location of power lines. Look above for overhead lines. Be aware that some power lines are buried underground.

- Call 811 before you begin any digging project. A local call center will send out a crew to identify underground lines.
- Metal ladders conduct electricity, so use wooden or fiberglass ladders outdoors. Keep ladders at least 10 feet away from overhead power lines, and carry them horizontally.
- Always look up before raising any long piece of equipment—a ladder, irrigation pipe, antenna or pole—to make sure it won't come near a power line.
- Don't fly kites or drones near power lines. Reserve these for flight in wide-open spaces, such as a field or park.
- Do not attempt to retrieve balloons, kites or other objects stuck on power lines or other electrical equipment.
- Leave tree trimming to the professionals, particularly when the tree and its limbs are anywhere near a power line.
- Never play near or touch a power line with any part of your body, a toy, a stick or any other object. Assume all power lines are live and dangerous.
- Do not climb or play around a utility pole, an electric substation or a transformer box containing underground electrical facilities.
- Never climb a tree that is close to power lines. Even if lines do not touch the tree, they could touch when more weight is added to a branch.
- Do not post signs, hang banners, or tie ribbons or balloons onto utility poles or other electrical equipment. This can be dangerous to you and utility workers.
- Never try to rescue a family member, friend or pet that has come into contact with electrical equipment. Stay at least 35 feet away from downed power lines, and call 911.

## Swimming Pools and Boating

Water and electricity do not mix. Inside and outside, electrical devices and cords should be kept at least 10 feet away from pools, spas and other water sources.

- Have an electrician inspect the pool, spa or hot tub. Make sure all equipment meets local codes and the National Electrical Code, which specifies that all electrical wires and junction boxes must be at least 5 feet away from the water.
- Use battery-operated instead of cord-connected devices around water.
- Cover all outdoor receptacles to keep them dry. This is especially important around pools and other water sources.
- Use a ground-fault circuit interrupter on outside outlets, especially those near water. A GFCI will shut off power to the outlet if the circuit is compromised.
- Make sure all electrical equipment used for swimming pools—even the cleaning equipment—is grounded.
- Never touch electrical devices when you are wet, either from water activities or from perspiration.
- Do not swim or hang out near the water before, during or after a thunderstorm. Water and lightning are a dangerous combination.
- Know the location of all electrical switches and circuit breakers.
- Post a detailed emergency plan around the pool, spa or hot tub area, outlining what to do if someone is suffering from electric shock.


**Warn youngsters not to play around or climb on the green transformer boxes that house underground electrical facilities.**

Photo courtesy of Touchstone Energy Cooperatives

### Boating and Open-Water Fun

Docks and boats carry sources of electricity. Faulty wiring or damaged cords and other devices can cause the surrounding water to become energized.

Just like your home, it is critical a licensed electrician inspects your boat and that you are familiar with its electrical system so you can identify hazards.

- The National Electrical Code requires marinas and boatyards to have ground-fault protection. Test GFCIs and equipment leakage circuit interrupters monthly. Make sure electrical current is not escaping from the vessel.
- Check for nearby power lines before boating, fishing or swimming.
- Never swim near a marina or a boat while it is running. Residual current could flow into the water, putting anyone in the water at risk of electric shock drowning. There is no visible warning. As little as 10 milliamps—1/50th the amount used by a 60-watt lightbulb—can cause paralysis and drowning.
- If you feel tingling sensations while in the water, swim back in the direction from which you came, and immediately report it to the dock or marina owner.
- Know where main breakers are on both the boat and shore-power source so you can respond quickly in an emergency.
- If you see an electric shock drowning in progress, turn power off, throw a life ring and call 911. Never enter the water, or you also could become a victim.

### Power Tools, Cords and Outlets

The U.S. Consumer Protection Safety Commission reports there are nearly 400 electrocutions in the United States a year. About 15% are related to consumer products, with 8% attributed to electrical accidents with electric power tools. Lawn and garden equipment and ladders coming into contact with overhead power lines account for 9% of consumer product-related electrocutions each year.

- Inspect power tools and appliances for frayed cords, broken plugs and cracked or broken housing. Repair or replace damaged items.
- Never use power tools near live electrical wires or water pipes.
- Check that each outlet has its own weatherproof outlet cover, and keep it closed when not in use.
- Use GFCIs with every power tool to protect against electric shocks.
- Do not use corded power tools in wet or damp locations.
- Use tools with insulated grips to avoid the potential of electric shock.
- Use only extension cords rated for outdoor use. Indoor cords cannot withstand outdoor weather conditions, and may become a fire or shock hazard.
- Before using an extension cord, inspect it carefully for damage. Discard cords with cracks or exposed wires.
- Use extreme caution when cutting or drilling into walls where electrical wires or water pipes could be accidentally touched or penetrated.
- If a power tool trips a safety device while in use, take the tool to a manufacturer-authorized repair center for service.
- Do not use power tools without the proper guards.
- Unplug outdoor tools and appliances when not in use. ■

# Savings You Can Count On

*Trained energy advisers help target efficiency issues*

**By Derrill Holly**

Better energy efficiency at home starts with savings, not purchases. An energy audit conducted by a trained energy adviser can help you get there.

"Members are our community and we are the experts in the electric energy arena," says Manuela Heyn, an energy services representative for Gulf Coast Electric Cooperative, based in Southport, Florida. "We have the tools, knowledge and commitment to assist our people. Saving energy can also help shave peak loads."

Manuela conducted her first energy audits with basic tools: a flashlight, laser temperature gun and a candy thermometer—the last one to check the output temperature of the water heater. She now has access to more sophisticated equipment, including thermal imaging.

Members become frantic when they see a major increase in their power bill, and they want immediate answers as to why. With experience and access to meter data reports, identifying major power consumption problems has been simplified and, in many instances, resolved in the office.

During on-site audits, Manuela uses all of her senses and experience to find abnormalities such as hot water line leaks, running well pumps, damaged power cords and construction issues. In one case, she found spongy drywall, disconnected ducts and lack of insulation.

Manuela also checks household systems that many homeowners seldom see or consider unless they spend time with their HVAC technician.

## Dirty Dozen Energy-Efficiency Tips for the Home

The average U.S. household will spend about $2,100 on home energy this year, according to calculations by the Alliance to Save Energy, based on information from the Department of Energy. But you can spend less with these 12 simple tips:

- Seal air leaks and properly insulate. Plug energy leaks with weatherstripping and caulking. Be sure your house is properly insulated to save up to 20 percent on heating and cooling bills, while increasing home comfort.
- Install a programmable thermostat to save up to 10 percent on cooling and heating costs.
- Change to new and improved lightbulbs. Reduce energy use from about a third to as much as 80 percent with today's increasing number of energy-efficient halogen incandescents, CFLs and LEDs.
- Look for the Energy Star label—the government's symbol of energy efficiency—on a wide range of consumer products to save up to 30 percent on related electricity bills.
- Wash clothes in cold water. Heating the water in a washer uses 90 percent of the energy used to wash clothes. According to Energy Star, the average household can save $30 to $40 a year by switching to cold water.
- Turn off all lights, appliances and electronics when not in use. Use a power strip and turn off devices to cut standby power. This will save the average household $100 a year on their energy bill.
- Even if you don't own your home, you can keep your electric bill down by making energy-efficient choices in the areas of your home you control.
- Clean or change filters regularly. A dirty furnace or air conditioning filter slows air flow and makes the system work harder to keep you warm or cool.
- Hire a professional to service and maintain your heating and air-conditioning system.


- Reduce the water heater temperature to 120 F to save energy and money on heating water. Wrap the water storage tank in a specially-designed blanket to retain the heat. If your water heater is in need of replacement, consider installing an energy-efficient tankless water heater.
- Use low-flow faucets and showerheads to save on water bills.
- Use your window shades. Close blinds on the sunny side in summer to keep out the hot sun, and open them in winter to bring in warm rays.

# Energy Audits Point the Way to Savings

Conducting an energy audit of your home is a great way to identify opportunities for energy savings. Below are five areas an auditor will typically cover.

- **Leaks and Losses:** Damaged, missing or improperly installed insulation can increase energy use year-round. Knowing where and how to check can identify problems.
- **Comfort Costs:** A visual inspection of your thermostat, water heater, heating and air conditioning equipment, and ductwork can identify performance problems.
- **Assessing Appliances:** The age, condition, location and use patterns for washers, dryers, refrigerators, and other major appliances can impact efficiency levels.
- **Learning Lighting:** A quick discussion about lighting options with an energy auditor can take the guesswork out of choosing the best bulbs and fixtures.
- **Activity Adjustments:** Knowing how and when you use energy can help you save money. Shifting the time of day you use energy to do things such as laundry and cooking to cooler, less humid hours can ease the load on HVAC systems.

"One home I visited had an overflowing air handler water pan and extreme fungal growth," Manuela says. "Some members, particularly renters, don't realize their HVAC systems have an air filter. When they are dirty, they can freeze up the system and cause an increase in power consumption."

Many utilities provide energy audits and support professional development for energy advisers that includes exposure to building science concepts.

Professional development training focused on both new construction techniques designed to improve energy efficiency and retrofitting options for upgraded older housing are common, as is specialized training for multi-family units and manufactured housing.

"By providing a picture of how energy is used in the home, people can concentrate on what can save them the most energy," says Eileen Wysocki, an energy auditor with Holy Cross Energy, headquartered in Glenwood Springs, Colorado.

Eileen starts with a baseload estimate of energy use based on meter data. Talking with the consumer, she learns about household size and behavior patterns, then considers seasonal factors. In her area, that includes using heat tape to prevent water lines from freezing in the winter.

"We have many second homes in our service territory," Eileen says, noting that even when empty, energy use continues. "Fan coil blower motors, whole-house humidifiers, boiler pumps, ventilation systems, driveway snowmelt pumps, pool pumps, hot tubs, garage heaters, heated toilet seats and towel bars are using energy, regardless of occupancy."

The co-op—which serves popular ski areas around Aspen and Vail—is designing a new audit form that will stress benefits for members through efficiency upgrades, including comfort, says Mary Wiener, energy-efficiency program administrator for Holy Cross Energy.

Some utilities provide free audits, especially when requested in response to high-bill concerns. Others may charge a small fee, offering rebates to consumers who implement some of the recommendations.

Utilities that offer audits use the service to reinforce their role as a trusted energy adviser that helps consumers save energy and control electricity costs.

Time spent with an energy auditor can help a consumer avoid ineffective upgrades or buying improperly sized equipment that might not improve comfort or produce savings.

An energy adviser's home visit usually involves far more detailed information than the brief discussions about energy efficiency members may hear at a utility meeting, fair or other community event.

On average, a member can reduce their energy use by about 5 percent if they follow the low-cost or no-cost advice given during the audit. Additional savings of up to 20 percent can be achieved by addressing issues with big-ticket items, such as HVAC replacement, attic insulation or major duct repair.

Improved energy efficiency not only helps the utility control peak demand and wholesale power costs, it offers opportunities to discuss available programs and services, such as rebates, weatherization measures and payment assistance. ■

*To learn more about energy audits available to you, contact your electric utility.*

**CEC Energy Specialist Jody Howe removes the plugs from foundation vents.**
Photo by Courtney Cobb

# Beat the Summer Heat

*Energy-efficiency tips to keep you cool and save you money*

**By Courtney Cobb**

Summer has arrived, and that means changes for many Central Oregon residents. While the high desert typically cools off in the evening, Central Electric Cooperative's energy specialists have some easy and quick tips to help you stay cool and energy efficient during the day.

## Getting Ready

CEC Customer Service and Energy Supervisor Ryan Davies suggests members review the following tips below to ensure they are ready for the summer season.

- One common item often forgotten is your foundation vents. Be sure to open them or remove the plugs. It is important to allow the crawl space to breathe during the warmer months of the year.
- Schedule regular system maintenance. This will help prevent your cooling equipment from malfunctioning when the heat hits.
- Clean in uncommon areas such as your registers and fans. Reduce dust from entering the system.
- Check and replace the air filter in your HVAC system. If your system has the option, rinse the reusable filter and re-install. Ductless heat pump filters should be cleaned monthly.

## Keeping it Cool

During a Central Oregon summer, we look for a variety of ways to keep cool. Ryan points out one tip for those

members who have a refrigerator or freezer in their garage.

"Don't leave the garage door open all day," he says. "This outdoor heat gain causes the units to work harder and consume more energy."

If you are planning a remodel this summer and have a refrigerator more than 10 years old, don't move it to the garage for more storage. Follow proper recycling procedures and invest in an energy-efficient model.

Here are a few tips to keep cool:

- Take advantage of the high-desert climate. Since we live in a climate that cools off at night, turn off your cooling system after sunset and open your windows to allow the cool breeze to cool your home.
- Shut the windows and blinds in the morning to retain the cool air.
- Install window coverings to prevent heat gain through your windows.
- Use the bathroom fan to remove heat and humidity from your home after taking a shower or bath. When washing and drying laundry, run the fan in your laundry room.
- Use the oven in the morning, if possible, while it's still cool. Avoid using the oven during hot days or use an outdoor grill. Minimize the use of appliances that generate heat, such as lighting, computers, dishwashers and televisions. These add heat to your home.
- Install a sunscreen shade to outside windows to block the heat.
- Weatherstrip around the top and bottom pane if using a window-mounted air-conditioning unit.

**An easy way to retain cool air from the previous evening is to shut windows and blinds in the morning.**

## AC Alternatives

When considering cooling options, many consumers look toward window air-conditioning units or central air conditioning units. However, there is another option to consider: an air-source heat pump.

"Heat pumps can efficiently provide cooling and heating," Ryan says. "The two common options are a ductless heat pump or a heat pump that works in conjunction with your central ducted heating system."

Ductless heat pumps work well in moderately sized homes with wall cadet, baseboard or radiant floor/ceiling heating systems, or even an electric furnace. Ryan says these systems thrive in such homes with open floor plans.

A traditional heat pump works with your central heating system and is a great option for people who already have an electric furnace with ductwork.

"The existing system can be adapted, modified and upgraded to accept a heat pump," Ryan says.

Air-source heat pumps work great for warm weather or cool weather. Ryan says the upfront costs might dissuade some people, but the system is potentially more than two times as efficient as a consumer's current system. CEC has two cash incentive programs designed to help pay for the systems.

## Think Efficiency

Many people think that by turning off their AC units they can save money. This is not the case. Ryan says consumers should turn their thermostats up to 78 degrees or higher.

"If homes get overheated, it requires more energy to cool them down," he says.

- Set your thermostat as high as comfortably possible—even a few degrees can affect your cooling costs.
- A programmable thermostat can allow you to keep your house warmer than normal when you are away. It can then be set back when you are at home and need cooling.
- Using a ceiling fan will allow you to circulate air, and produce a wind-chill effect. Be sure to turn off the fans when you leave the room. Fans cool people, not rooms.
- Clean the dryer exhaust duct.

## DIY Projects

"One great project people can do is plant a tree to help shade portions of their homes," Ryan says. "Be mindful not to plant it too close to fence lines, power lines or house foundations."

Here are some other great DIY tips:

- Caulk around windows and doors with the proper type of caulk. Look at walls and ceilings in your attached garages, outside around foundations, chimneys and windows. Your attic hatches might also need weather stripping.
- Caulk around plumbing penetrations beneath bathroom and kitchen sinks.
- Insulate the attic access hatch or door.
- Ensure all windows and doors are properly weather-stripped.

Learn more about energy efficiency tips and all of the programs Central Electric has to offer at www.cec.coop. ■

# Safety Camp Stars

*Free summer program teaches bike, electricity, fire, emergency and gun safety to first and second graders*

**By Shelly Yockey**

The Coos-Curry Electric Cooperative Inc. headquarters in Port Orford buzzed with unusual visitors June 1 for the second annual Safety Camp. Twenty-four first and second grade students joined CCEC volunteers for this year's Safety Camp, made possible with the support of Coos-Curry Electric Charitable Foundation, the CCEC Community Involvement program and efforts of volunteer staff and community members.

Safety Camp is modeled after the weeklong Safety City offered by the city of Brookings and taught by Dan Palicki. The goal is to teach children the importance of safety. Dan mentored CCEC employees last year, enabling CCEC to solely run the 2019 Safety Camp. Safety City allowed CCEC and Safety Camp students the use of its equipment until CCECF can buy its own. Brookings Safety City holds three weeklong camps during the summer. For information call 541-469-3118.

As students registered and said goodbye to parents and guardians—some with hesitation and others with energy and excitement—they were divided into two groups.


**Students learn the rules of the road using pedal cars.**

First was a fitting for a free bike helmet made possible through a grant from the Wild Rivers Community Foundation. The grant also helped provide snacks and lunch for all participants.

**"Look left, look right, then left again."**

This phrase was repeated throughout the day as pedal cars were driven through makeshift streets tucked between the CCEC office and warehouse. The street was painted with simulated sidewalks, crosswalks, stoplights, railroad crossings and intersections. As each obstacle was approached, the drill was to look and ensure the pedal car could safely cross through the area.

Next, a few children had the opportunity to make a simulated 911 call after a classroom discussion on when it is appropriate to call 911. With help from volunteer coordinator and CCEC employee Marie Coleman, students relayed their home address and answered all the questions the dispatcher needed to send help.

After practice calls, children learned about fire safety from Gold Beach Fire Department volunteers Sam Waller and Mac Hagood. Mac fully suited up in fire gear to demonstrate that a firefighter may look scary while wearing all their gear and a mask, but it is important to not be afraid of them because they are there to help. Sam and Mac also emphasized the importance of having an evacuation plan.

Children viewed a short video from the Eddie Eagle GunSafe Program that teaches four important steps to take if a firearm or weapon is found. The 8-minute cartoon features characters Eddie Eagle and the Wing Team, who are playing at the park when an unattended backpack is found under the bench by Gary the Goose. He asks his friends whose bag it could be. The zipper is opened, and a handgun is revealed. This is where Eddie Eagle and the jingle comes in, "Stop, don't touch, run away and tell a grown-up."

The video explains how dangerous the gun is and that it is always important to leave it alone and tell a grown-up. The children learned there is a big difference between pretend guns used in video games and real ones.

The jingle was chanted throughout the day as the kids giggled and moved on to their next event. Parents can learn more about the program at eddieeagle.nra.org.

A surprise visit from Cal-Ore Life Flight fascinated both students and volunteers as pilot Jeff Hubbell landed the helicopter on the grass nearby. The flight crew consisted of Flight Nurse Shellee Magnuson and Flight Paramedic Marcus Tessler. They spoke to the group and simulated loading an injured patient.

A trip to CCEC would not be complete without a visit from linemen. CCEC linemen Nate Duey and Tim Hawkins volunteered for the day. They explained how electricity is generated, how power is provided to the homes the students live in and the dangers to be aware of.

They used an interactive board called Power Town to demonstrate these concepts. Students practiced how to be certain they were a safe distance away from all electrical dangers.

If a tree took a power line down, would you know how far the safe zone is? As everyone held up their thumb and fixated on the dangerous object, they stepped backward until the object disappeared behind their thumb, knowing they were in the safe zone.

## Highlights from the day

Brookings Police Department K-9 Officer Zane VanZelf and his canine Hulk gave a demonstration of police K-9 obedience and training. Curry County Search and Rescue member Luke Martinez shared information about water safety and hypothermia with a hands-on demonstration. He also reminded all students that any child under the age of 12 must wear a life jacket when on moving boats.

The day ended with a closing ceremony. Each student received a bag of safety-related items to take home, along with goodies from Umpqua Bank. Two names were drawn to win bikes donated by CCEC employee Dan Springer.

"Safety Camp was a whopping success!" says CCEC General Manager and CEO Brent Bischoff. "My wife and I were both very impressed with all of the staff and community support of the effort. There were so many great experiences to help those young minds learn and navigate safely in society. Many of the employees at CCEC support our communities with volunteer efforts of many types that often go unnoticed and without thanks. They make a difference for good, and it is appreciated by many.

At the Safety Camp, my wife mentioned that whenever she crosses at a sidewalk, her mind flashes back to a similar safety camp she went to as a little girl and she thinks, Look left, right, left. ■

**Officer Zane VanZelf of the Brooking Police Department, with his K-9 partner Hulk, explains the duties of police K-9 teams.**


**Mac Hagood and Sam Waller of the Gold Beach Fire Department discusses fire safety and safe evacuation in the event of a fire.**

*CCEC and CCECF would like to give a special thanks to Tolowa Dee-ni' Nation and Gold Beach Lumber for their sponsorships.*

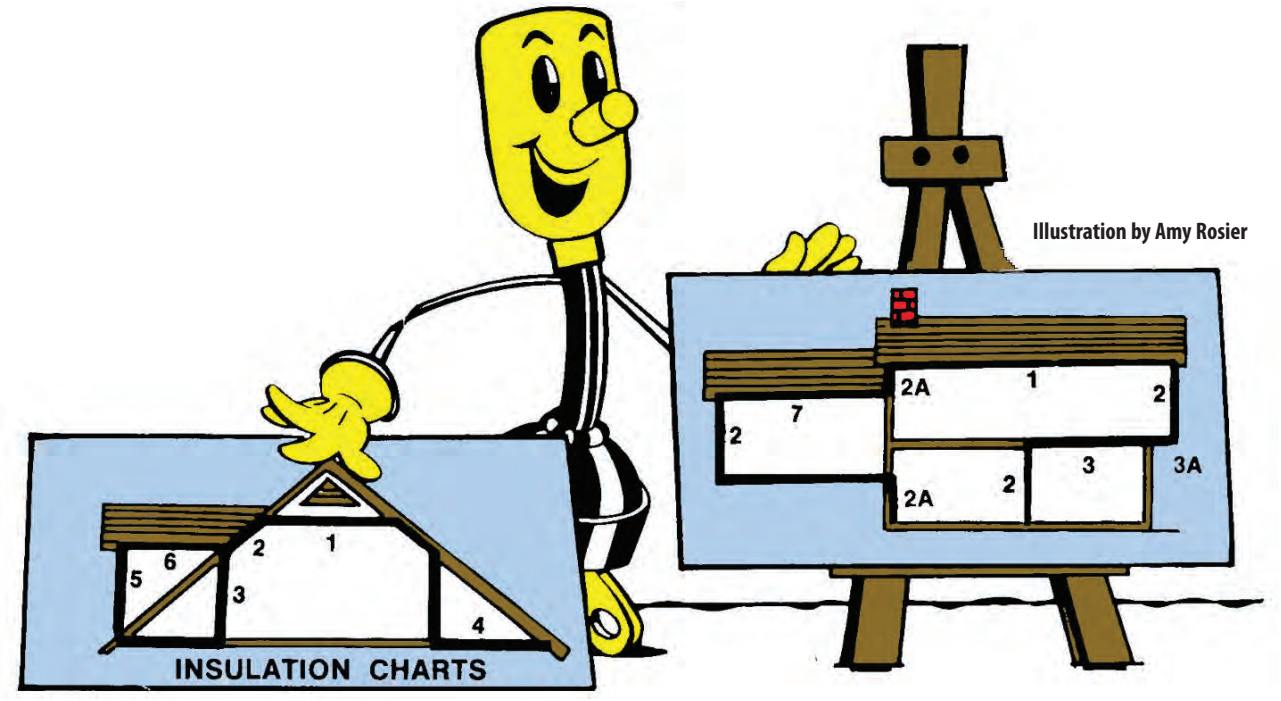



Illustration by Amy Rosier

# A Baby Boomer Revival

By the 1970s, overall popularity waned in the use of spokes-characters. Most that remained were relegated to promoting sugary kid cereals and snack foods.

Reddy Kilowatt had a hard time adjusting to the energy crunches of the 1970s as the demand for electricity began to exceed supply. Many power companies gave Reddy the pink slip, figuring the need for a strong marketing tool was no longer needed. Reddy was forced into semi-retirement.

Willie, on the other hand, donned a sweater and hopped on a bicycle in new ads to promote energy conservation. He was shown caulking and offering energy tips.

But before long, many co-ops viewed him, too, as outdated and placed him on a back shelf like an old appliance.

Margaret F. Callcott, who extensively researched and wrote about these gesturing little pluggers of the advertising world, noted a resurgence in spokes-character advertising around 1985. Charles Schulz's Peanuts characters started successfully selling Metropolitan Life Insurance about the same time animation made a comeback with the hit movies, "The Little Mermaid" and "Who Framed Roger Rabbit?"

Much of the rebirth was fueled by a sizable baby boomer market eager to recapture facets of its childhood, Callcott said.

She noted that in the trade publication Advertising Age, King Features Syndicate took out "work wanted" ads for old cartoon favorites Betty Boop, Popeye, Blondie and Family Circus, putting them up for hire with the nostalgia-oriented tagline, "Friends from childhood last forever."

Hoping to capture the fancy of nostalgic baby boomers and position itself for what was expected to be the coming competition in the electric utility market, Northern States Power Co. brought Reddy Kilowatt out of retirement in 1998.

The Minneapolis-based electricity provider—serving 1.4 million customers in Minnesota, Wisconsin, Michigan and the Dakotas—bought the exclusive rights to Reddy from Ashton Collins Jr., son of Reddy's creator.

Northern States Power reasoned that Reddy—who was only being licensed to a handful of other companies at the time—still carried strong recognition as a dependable and trustworthy symbol of electric service. Reddy was fitted with new sneakers and a sidekick, Reddy Flame, to promote Northern States Power's gas operations. The company also opened a Reddy Store, offering new and vintage collectibles and memorabilia with his image.

Reddy's comeback as a full-fledged spokes-character suffered a major blackout shortly after his revival. Northern States Power merged in August 2000 with Denver-based New Century Energies under the name Xcel Energy Inc. Reddy finds himself once again retired. ■

*Story courtesy of Richard G. Biever, senior editor of Indiana's Electric Consumer. This was written in 2001, in honor of Willie's 50th birthday. Willie Wiredhand is a registered trademark of the National Rural Electric Cooperative Association and cannot be used without permission of NRECA.*

**Next month:**
The final chapter in this series about our beloved icon

**Everett Riggs struggles to stay atop Not Now at the Lakeview Round-Up. Labor Day 2019 marks the 100th anniversary of the event.**
Photo by Mark Getty

# Small-Town Rodeo With Big-Country Soul

*Rodeo enthusiasts and locals continue to support Lakeview Round-Up*

**By Marie Lee**

When World War I ended and the Spanish Influenza epidemic subsided, locals were ready to get out and have a good time. Rodeos, or Wild West shows, began to pop up in small isolated cow-towns as thousands poured in to camp-out and watch the show. Bly, west of Lakeview, held a rodeo over the Fourth of July in 1920 and Lakeview followed suit with its first rodeo Labor Day weekend of 1920.

Most of those rodeos came and went. But the rodeo in Lakeview has consistently remained. It's a time for class reunions, family reunions and pioneer reunions. It's a time to meet with old friends and neighbors.

Labor Day 2019 marks 100 years of rodeo in Lakeview. That's a sizable accomplishment for an isolated town of less than 3,000, which is the county seat of Lake County. The population of the entire county is less than 8,000.

Lake County is wide-open high desert country where cowboys, ranchers, business owners and their families and friends come together once a year for an end-of-summer celebration.

Lake County Fair and Round-Up was first named the Lakeview Round-Up. The Round-Up was organized and directed by a group of volunteer business

**A bareback rider refuses to be bucked at the event in 1926.**
Photo by Mark Getty

**Anna O'Leary was Lakeview Round-Up queen in 1938.**
Photo courtesy of the Past Presidents Ed Garrett Memorial Museum

owners and local ranchers who organized themselves into the Lakeview Round-Up Association.

During the 1920s and 1930s, well-known old-time cowboys thrilled crowds who filled rough wooden grandstands. Many of them began as bronc busters on local ranches. They were young, cocky and brash. They hired on because they heard there were tough horses to be broken. Their proving grounds were often the MC Ranch in Warner Valley or the ZX in the Chewaucan Valley, near Paisley. The youngest and the greenest cowboy on the payroll was given the most spoiled and ornery horse on the ranch. If he could stay on, he earned respect and high marks from the boss and the rest of the crew.

Boss Richardson won four out of the first five Lakeview Round-Ups. He learned the cowboy way at the ZX, and so did Everett and Evan Riggs. Bill Brown, whose real last name was Cox, rode for W.W. Brown at Wagontire when he was 15. He took Brown's name with him when he moved on to the ZX, and then on to the MC Ranch in Warner Valley. Dally and Ernie Givan also rode for the MC.

Ernie busted broncs and Dally learned to swoop in on his horse and pick Ernie off before he got bucked off. That's how Dally Givan learned to be the pickup man the cowboys loved to see in the arena.

Other well-known cowboys from up and down the West Coast, Montana, Wyoming and Idaho came to ride in Lakeview's rodeo. Among them were Perry Ivory, Montana Red Tait, Pat McCartie and Jesse Stahl.

It was not easy to finance a small-town rodeo. Each successive year brought a new set of problems. There was a notorious murder in 1927 when world-famous trick rider Lorena Trickey murdered her common-law husband. And there were unsavory characters, unscrupulous entrepreneurs, sideshows unfit for children, unsanitary food booth conditions, the Great Depression, overzealous committees when times were good and, finally, World War II.

When Lake County passed a bond in 1940 enabling the county to buy the round-up grounds, a county fair board was established and Labor Day weekend became the Lake County Fair and Round-Up, with the rodeo under the direction of those who ran the former Lakeview Round-Up.

Regulations during World War II

*Continues on page 8*

Riders of all ages can enjoy the round-up.

## Small-Town Rodeo

*Continued from page 5*

forced the rodeo to become an amateur event where only local cowboys could participate. As sanctions eased, the Lake County Round-Up remained an amateur rodeo for decades, although it was opened to all amateurs, no matter their residence.

It wasn't until 2014 that the local Round-Up Association became sanctioned as a Professional Rodeo Cowboys Association rodeo.

The Lake County Fair is part of the intertwining events that round out the weekend. FFA and 4-H youngsters depend on the livestock sale to pad their college savings accounts. A Sunday evening destruction derby and a Saturday night concert by a well-known country Western artist fills the arena grandstand.

Along with the PRCA rodeo, there is a ranch rodeo in the main arena and a sanctioned roping event in the adjacent Neil Flynn Memorial Arena. Adults quench their thirst at the Re-Ride Room, which is housed in oversized tents next to the grandstand, while others suck on shave ice as they peruse various food trucks.

Behind the fair's northern most exhibit building is a small rodeo museum. The Past Presidents of the Lake County Round-Up Ed Garrett Memorial Museum was opened in 1993. The museum displays treasures, stories and pictures of cowboys who have ridden at the Lakeview rodeo during the past 100 years.

Significant legendary cowboys have ridden and roped in Lakeview's arena. Among them was Ross Dollarhide Jr., who went on to work in movies and television.

The list of who's who in the Lakeview and the Lake County Round-Up directors, past presidents, round-up queens and princesses is a list of generation after generation of Lake County's pioneer families joined by newcomers whose descendants have stayed to make Lake County their home.

It takes a mass of volunteers to make such an event continue to run year after year. Those volunteers have the grit, determination, backbone and heart to continue Lake County's premier celebration well into the next generation and perhaps beyond. ■


**Top, saddle bronc riding is one of the event's largest competitions. Above, riders, volunteers and sponsors work together to keep the rodeo going.**

Photos by Larry Holloway Photography

# Blachly-Lane Aware Committee

## The place for member engagement

Blachly-Lane Electric Cooperative's Aware Committee began in 1982 to build grassroots advocacy for rural electrification at the encouragement of the National Rural Electric Cooperative Association. Its mission stated, "Aware will be a direct line for the voice of rural people—rural electric members and their neighbors—reaching from back home to the state house and Capitol Hill."

The Aware Committee helps members engage and stand for the cause of rural electrification. Our founders knew they would not have electric service if they didn't start it themselves. The same is true today. Without engaged and unified member-owners, the cooperative business model collapses.

Blachly-Lane's board of directors appoint up to 20 Aware members each August for one-year terms. Each director may appoint up to four members, of which at least two must live in the director's district.

As it was in 1982, Aware members make commitments to:

- Facilitate communication between Blachly-Lane and its members, solicit views of neighboring members and share the information provided to other members at Aware meetings.
- Attend meetings up to six times a year. Typically, the committee meets five times a year, in September, November, January, March and May.
- Agree to become informed about how the rural electric system came into being and why, how it is governed and operated, its cost-based rate structure, and the scope and nature of the co-op and its importance to the welfare of the entire community.
- Understand the special challenges involved in delivering reliable rural electric service, and the state and national legislative and regulatory role and impacts on the local rural electric system.
- Identify, discuss and agree to make others aware of the concerns of rural electrification.

If you would like to serve on the Aware Committee, please reach out to a director by August 23, or call the office at 541-688-8711. We will pass your name on to the director of your district. ■

**AWARE members visit with fellow consumers at Blachly-Lane's 2019 annual meeting.**

| District 1 | District 2 | District 3 | District 4 | District 5 |
|---|---|---|---|---|
| Ernie Jacksch | Curtis Short | Bev Matteisen | Marlene Northrup | Eric Imbler |
| 541-927-3466 | 541-359-9434 | 541-998-3704 | 541-998-1216 | 541-954-1949 |

Mary Lou and Ralph Peak at their family property south of Malta. Their family foundation pays for local educational and community projects.

# Pioneering Physician Enriches Her Hometown

*New Pierce, Parke, Peak Family Foundation promotes education and community projects*

**By Dianna Troyer**

To pay her medical school tuition in the late 1940s, Mary Lou Pierce worked weekends and nights as a nurse, a profession she learned during World War II.

During one memorable night shift, she was scrubbing in with a general surgeon she often worked with who knew she was also enrolled in medical school.

"He told me he didn't want to see me doing any more night shifts while I was also going to medical school," Mary Lou says. "He offered to loan me money if I needed it. I know he helped some of my other classmates, too."

His encouragement and generosity are unforgettable to the Malta native.

"He lifted a financial burden so I could focus on medical school and not have to work as much," Mary Lou recalls.

After graduating from the University of Utah Medical School in 1952—one of three women in a class of 52 students—Mary Lou repaid Dr. Lindem.

Reflecting on his philanthropy and wanting to pay it forward, Mary Lou, 93, established the Pierce, Parke, Peak Family Foundation last year. It promotes education in her hometown of Malta and supports community projects while honoring her pioneering family.

Mary Lou grew up on a farm south of town in a 900-square-foot cabin with four siblings and her parents, Jesse and Lois (Parke) Pierce.

The foundation provides a four-year college scholarship to a Raft River High School senior interested in a health profession or engineering. It also offers financial incentives for elementary school students to excel in reading and math.

The foundation also paid for playground equipment at Malta's park.

"When I was in high school, no scholarships were given," Mary Lou told the first scholarship recipient, Laci Whitaker, when the two met after an awards assembly.

"I'm thankful for this opportunity, and it will really help," says Laci, who plans to enroll in the College of Southern Idaho and become an oncology nurse.

She told Mary Lou she became interested in nursing after caring for her grandmother, who died two years ago from multiple myeloma, a cancer that builds up in bone marrow.

"After I took an EMT basic training class, that really pushed me and made

**Clockwise from above, dirt flies as John Allen maneuvers a posthole digger at Valley Vu Cemetery after May Lou's donation to build fencing around the property. Volunteer Brandon Severe hauls concrete to set fence posts around the cemetery. Mary Lou and Laci Whitaker, who received the foundation's first scholarship, visit after an awards ceremony.**

me realize I want to become a nurse," Laci says.

## Priceless Education

Knowing firsthand the transformative power of education, Mary Lou advises students to pick a career and study to reach their goals.

"Education changed my life," she says. "I always encouraged our six children to study whatever interested them and to set and achieve goals."

Her daughter, Marie, remembers one of her mother's favorite sayings.

"Mom always told us, 'Can't can't do anything if Can't doesn't want to,' " Marie says. "Instead of criticizing us if we failed at something, she would help us figure out what we needed to do differently to achieve our goals."

While at school in Malta, Mary Lou was interested in math and science.

"Our superintendent, Ephraim Miller, noticed my interest and encouraged me to continue my education after high school," she recalls. "I always liked science and math because there was a definite answer to questions."

During World War II, women were recruited to the Cadet Nurse Corps. Decisive, determined and direct, Mary Lou told her parents she planned to enroll in the corps after graduating from Raft River High School.

"Dad wasn't too happy about my decision, but I told him that's the way it was," Mary Lou says. "I'd grown up with four brothers, so I had a mindset that I could do just about anything."

Her three older brothers all served in the military.

In 1943, at 17½ years old, Mary Lou enlisted in the corps and was assigned to nursing school at St. Mark's Hospital in Salt Lake City.

"After a few years working there, I realized I wanted to be a doctor because it answered questions about how our bodies functioned in more detailed ways

*Continues on page 8*

## Pioneering Physician Enriches Hometown

*Continued from page 5*

than nursing could," she says.

Having earned her registered nursing and bachelor of science degree in nursing, Mary Lou applied to the University of Utah Medical School in 1949 and was accepted to the program.

Two years later, she was sent on a summer assignment to the U.S. Army's Dugway Proving Ground in Western Utah to do physicals on personnel. It was there she met her future husband, Ralph Peak, a lieutenant assigned to do chemical weapons testing.

"We started early in the morning because we had to take such detailed medical histories," Mary Lou recalls. "Each history and physical took about four hours. He was standing there visiting, so I told him he needed to report now or he'd miss lunch. A few weeks later, he saw me eating lunch alone and joined me. We talked and started dating."

During the 1950s, most women had to choose to have a family or a career.

"He told me he didn't want a career wife," Mary Lou recalls. "There weren't many women physicians in those days. I told him I wanted a family and career both, and eventually he accepted that. I also promised that if there ever had to be a choice, I would choose my family."

Two days after she graduated from medical school, she and Ralph were married. They immediately moved to Washington. Mary Lou completed a one-year internship at Swedish Hospital in Seattle, while Ralph earned a master's degree in chemical engineering at the nearby University of Washington.

"We always encouraged each other and were proud of our accomplishments and careers," May Lou says. "We worked tougher to raise six children and pursue our careers."

Early in her career, Mary Lou worked in surgery and pediatrics. She later switched to emergency medicine.

"Years ago, hospitals generally didn't have emergency room departments because a doctor was designated to be on call and would take cases and make referrals," she says.

While working in Pocatello at Bannock Regional Medical Center in the early 1970s, Mary Lou was assigned the task of organizing the hospital's first emergency department.

After nearly 50 years as a physician, Mary Lou retired in 2000.

During their careers, she and Ralph lived throughout the West.

"No matter where we lived, Malta was always home," she says.

Mary Lou's hometown loyalty prompted her to help Malta students. Five years ago, when she learned some Raft River Elementary School students struggled with math and reading, she launched and financed the Quarters Program. Teachers set individual goals for students and pay a quarter to those who reach their goals.

"I want students to learn how to learn," Mary Lou says. "In elementary school, kids love to learn, so if you find a way to motivate them it becomes a joy. Whatever they do in life, they have to be able to read, understand math, approach and solve problems, and teach themselves."

Every year, students write to Mary Lou. They tell her how much they earned and how they spent their quarters.

"I love reading the notes and letters," Mary Lou says. "Some buy books with the quarters."

Recognizing another community need, Mary Lou bought 1,300 feet of white polyvinyl fencing to border Malta's scenic cemetery, where her parents and siblings are buried. Local residents volunteered to build the fence.

"It's a tremendous thing they're doing for us," says Janis Warr, secretary of the Valley Vu Cemetery board. "The white fencing just sets it apart and makes it look like a place the community cares for and cherishes."

"Our cemetery is a work in progress and looks better every year with the fencing and trees we've planted—red and white crab trees and honey locust," Board President Kent Robinson, says. "We plan to eventually put a picnic table under a shady tree and have a vault for 20 to 30 urns."

Darlene Henrie, another board member, says the volunteerism in the community is impressive.

"So many people helped build the fence," she says. "It's great to know you can count on people here."

Last December, Mary Lou's husband of 66 years died. He was buried at Valley Vu.

"That's where I want to be buried, too," Mary Lou says. "Malta is always home to me." ■


**Valley Vu Cemetery overlooks the scenic valley near Malta.**

# Locals Give Competition a Shot

*Ritzville's nontraditional triathlon focuses on fun and excitement for all*

**By Katelin Davidson**

Triathlons attract elite athletes who partake in a day of grueling challenges with the sole goal of crossing the finish line. Training lasts for months, even years, as athletes prepare for the competition.

As the sun rises over the small community of Ritzville on Armed Forces Day, participants wake early to prepare for a day of competition in the annual Ritzville Triathlon.

As they slowly arrive to register, unknowing bystanders might be confused or concerned about the individuals' ability to complete a three-sport contest.

It only takes seconds to realize something is different about this triathlon. Athletes aren't stretching or taking time to focus on the challenge ahead. Instead, they greet each other with smiles, handshakes and hugs, and swap stories of past competitions.

In its 29th year, the Ritzville Triathlon has only one physical requirement that limits participation: competitors must be at least 21 years old to compete.

Spectators can hear the first beer open before the sun is fully in the sky.

True to form with triathlons, Ritzville's event hosts three areas of competition. But unlike typical triathlons, there is limited training.

Contests trap shooting, golfing and bowling.

The event started nearly 30 years ago after a group of local men watched the news at a bar and saw a segment on an area triathlon. They joked about needing a triathlon for fat men, and the Ritzville Triathlon was born.

Because Ritzville hosts a gun club, golf course and bowling alley, it didn't take organizers long to select the events. They also were members of leagues who regularly competed in each of the events.

One of the men at the table was Ron Kimble. Twenty-nine years later, his daughter, Tia Kubik, is a coordinator for the annual event. A Big Bend Electric Cooperative employee, Tia has competed in the event for about seven years and has helped coordinate the event for most of those years.

Tia and Lori Witt handle registration and track scores.

All participants must pay a $75 registration fee prior to competition and must partake in all three events to win the triathlon title.

The title doesn't hold much importance, however. In fact, most competitors don't remember who won the past few titles because the most important part for participants and coordinators alike is that everyone has fun.

Since alcohol is permitted during the event, the triathlon starts immediately with trap shooting. Participants can register as five-member teams or individuals. All participants are on a team throughout the day, even though winners are based on individual success.

Thirteen teams competed this year.

Each participant gets a T-shirt, hat and a bag of goodies. A portion of the registration fee is also distributed to businesses and organizations where the event is hosted.

"The T-shirts change each year, but always have Yosemite

**Opposite page, 13 teams competed in the 29th annual Ritzville Triathlon in May. Above, triathlon participants register early before heading out for the first event, trapshooting.**

Sam and Mount St. Helens in the background," Tia says.

Participants begin the day with 50 clay pigeons. They move on to compete in golf or bowling, based on their team number. Each member must complete six holes of golf and two games of bowling to be eligible for the top prizes.

Awards are presented after the last team finishes. The awards include top overall, winner for each of the three events and a ladies overall champion.

As events start and the boom of shotgun blasts echo through the air, teams gather outside to watch their competition shoot trap and enjoy a cold morning beverage to help set the stage of the day.

Others arrive late, having paid the registration fee in advance knowing they would probably need the extra sleep, and explain that fellow team members needed to stop for greasy food before they could even consider the possibility of competing.

Coordinator Walt Weber monitors the trap shooting event and reminds everyone to be safe. Walt says he has participated in the event for more years than he can remember. He has helped run the event for nearly 20 years.

Walt stepped in to coordinate the event "after the five fat guys didn't want to," he says.

While most participants are locals or former Ritzville alumni, the event is open to the public. Anyone can participate as long as they meet the age requirement and pay the registration fee. Event coordinators prefer participants have experience on the shooting range, or at least learn gun safety before competing.

Students from the local high school trap shooting team assist at the gun club.

Lori returns each year to coordinate because she enjoys the atmosphere and seeing everyone happy. The event coordinators also like supporting local business and ensuring the longevity of the Ritzville Triathlon by keeping these activities in town.

For Tia, the best part of the Ritzville Triathlon is the sentimental part.

"This is something my dad started that I want to continue," she says. ■

*To participate in the 30th annual Ritzville Triathlon or to learn more, email ritzvilletriathlon@gmail.com.*

**Above, the first event of the Ritzville Triathlon is trapshooting. Shooters shatter the competition by hitting clay pigeons. Top, Dave Breazeale takes a practice swing for the later golf portion of the triathlon, while waiting for his turn to shoot.**


Lynn Porter and search dog Cayvun train weekly at the Minidoka County Fairgrounds near Rupert.

# K9 Solves Crimes, Historical Mysteries

*Lynn Porter and search dog Cayvun may soon search overseas to find World War II soldiers' remains*

**By Dianna Troyer**

Sometimes, an image is forever imprinted into memory.

For Rupert resident Lynn Porter, it was finding the driver's license of a missing person. In 2012, Lynn and her border collie search dog, Beretta, helped law enforcement officers find the remains of Rupert resident Norine Boyd.

Norine had disappeared 24 years earlier at the City of Rocks National Reserve near the Idaho/Utah border, and investigators suspected she had been killed.

While waiting for officers to reach them to search a narrow rocky ravine, Lynn happened to look down.

"I saw the front of her driver's license and felt like she was looking right up at me," Lynn says. "We found her remains nearby. Those moments are bittersweet—a roller coaster of emotions. You're ecstatic to have helped a family have closure, yet it's intensely sad to have proven their loved one is dead."

Norine, 29, a mother of three, had driven to the remote 1,200-acre reserve about 60 miles from her home and vanished.

"After all those years, hikers happened to find some evidence, so the search could be narrowed down to a certain area that my dog could work," Lynn says. "Officers called and asked for our help. We found her remains about a mile-and-a-half from where her car had been abandoned."

Since 1991, Lynn has trained dogs to

**Cayvun sits when she finds bones. Lynn put them in the glass jar above her while training.**

locate lost people, drowning fatalities, unmarked historical graves and murder victims. She became interested in search dogs after hearing a presentation about them at a Civil Air Patrol meeting.

"I can't explain the satisfaction it brings to me to help distraught families," Lynn says. "It's amazing and a joy, too, to watch dogs detect human scents that linger for years. In water, they can smell micro-bubbles from skin oils breaking the water surface near where someone has drowned."

A substitute teacher, Lynn provides her services for free but accepts donations to defray costs of travel and maintaining two-year certifications with the National Association for Search and Rescue.

Five years ago, community donations helped cover costs of traveling and enrolling in classes to earn additional cadaver dog training and bone identification at Western Carolina University's Forensic Anthropology Program in Cullowhee, North Carolina.

With her training in forensic anthropology, archaeology and criminal justice, Lynn relies on systematic scientific methods to find human remains. Known for her skills among search dog associations nationwide, she was recently invited to help with an overseas search later this year.

Kolibri Forensics, a nonprofit organization based in Evansville, Indiana, asked her to help find the remains of World War II soldiers who died east of the German-Belgian border in the Hurtgen Forest during a three-month battle in 1944. About 150 soldiers are still missing in a 54-square-mile area.

"Many families have waited decades for closure of their loved one's death," Lynn says.

Other cases she has been asked to work on this summer involve finding a serial killer's victims near Lewiston, Idaho, and the remains of an 8-year-old Floridian who disappeared in 1984.

People hear about Lynn through internet searches and often contact her through her Facebook page, Semper Vigilans Forensic Investigations. When she retired Beretta several years ago, her Facebook contacts put her in touch with a kennel in Northern Idaho whose owners wanted to donate a dog for search and rescue work.

When she picked up the 1-year-old sable German shepherd, she knew exactly what she would call her.

"For years, I've wanted to name a dog Cayvun because it's the Gaelic goddess who guards the well of truth and knowledge," Lynn says. "It's a tribute to my heritage of being Irish, Welsh, Scottish and English."

Cayvun's most memorable case so far was locating a dismembered murder victim in 2018, "but with the investigation ongoing, nothing more can be said about it," Lynn says.

To stay tuned up for whatever mission comes along, Lynn trains 4½-year-old Cayvun more than four hours a week at the Minidoka County Fairgrounds.

"It's a perfect place to practice because there are so many scents from people and animals," Lynn says. "She has to distinguish those scents from human bones. Plus, there are structures to search like the horse stalls or under the grandstands."

Lynn hides baby teeth or human bones, obtained from a legitimate site on the internet, for Cayvun to find. Once she finds the bones, Cayvun's reward is playing with an orange rubber ball that Lynn throws for her.

"We have such a strong bond," Lynn says. "She's so willing and in tune to me and my commands. We're always ready, wherever we're asked to search." ■

*Donations for the World War II project can be sent to Semper Vigilans, 510 15th St., #22, Rupert, Idaho 83350.*

Copper Valley ELECTRIC
A Touchstone Energy® Cooperative

# The Giant Engine That Could, But Almost Didn't

In 2017, when Unit 5 at the Valdez Diesel Plant (VD5) began experiencing main bearing failures, no one could have predicted the unique challenges the team would face before the unit was back online. Main bearing failures could prevent the unit from running and cripple the Co-op's ability to perform maintenance on other units or use it as back up generation when needed for meeting demand, so it was critical the situation was addressed. Sometimes the litany of tasks in a complex project fall into place seamlessly, sometimes there's a different story.

The unit was built in 1974 by Enterprise Engine in Oakland, California. It is a 6-cylinder engine with 17-inch diameter pistons and a 21-inch stroke, weighing in at 60 tons. At full power it produces 3600 Hp and it is used to meet incremental load or for back up generation when primary units are in need of repair or out of service for maintenance.

The tale of VD5 all started with a detailed inspection of the engine, which indicated the crankshaft and the engine base, which supports the crankshaft, would both need to be either refurbished or replaced. As with any project at CVEA, the team takes cost, efficiencies, and reliability issues into consideration when deciding the best way to move forward. Both the high cost and long lead time for a new crankshaft necessitated a search for options.

A lead on a used crankshaft fell through at the last minute requiring a different option, so the team set out to refurbish the crankshaft and base to as-new condition at a machine shop in Texas, which came at no additional cost and with the same warranty. Unfortunately the entire project was now behind schedule.

To replace the crankshaft, the entire unit had to be disassembled, so the decision was made to do a complete overhaul. It took a 10-ton gantry crane to remove the engine block.

*Continues on page 28*

## *Giant Engine That Could*

(*Continued from page 25)*

The work was performed by CVEA power plant operators with support from machinists from California Marine Diesel.

The engine base and crankshaft were then loaded into a 20 foot shipping container where a shipping company was contracted to load the container on a trailer and deliver it to a machine shop in Texas; one of a few in the country with the capacity to refurbish such huge parts. They loaded the container on schedule and departed Valdez, then onto a barge, and it left Alaska.

Here is where the story got interesting. Who could have imagined a connex containing an 18 ton engine could be 'lost'? After the container was off loaded from the barge in Washington, it went missing. For 10 days, it could not be found. The appointment with the machine shop was missed and the entire project was now significantly behind schedule and in jeopardy of missing the summer high demand season.

It was just by chance the shipping company finally found the container; it had been offloaded into an empty container yard at the loading dock. Luckily, the 'empty' container needed to be moved and the crane operator noted it was heavy. Once found, the container was back on its way, and finally arrived in Corpus Christi two weeks later.

The machine shop went to work thoroughly cleaning the base and crankshaft and took measurements of all critical dimensions. It was determined the crankshaft could be straightened, re-chromed and machined to as-new specifications, but unfortunately the engine base had excessive wear and could not. It would require spray welding before machining, which added weeks to the schedule and significant cost increases to the vendor.

Meanwhile, as the base and crankshaft were being refurbished in Texas, operators at the Valdez Diesel Plant cleaned, inspected, and otherwise made ready hundreds of other engine parts that would go back into the refurbished engine. Additionally, some of the large and major components were transported to Glennallen and refurbished by the Glennallen Diesel Plant operators.

Many of the parts, like the connecting rod above, measuring over five feet and weighing 600 pounds, are so large they could only be moved with rigging and power equipment.

With the spray welding and initial machining of the engine base complete, the next step was to install and bore-align the bearing caps. During a Magnaflux inspection, a fine crack was found in one of the bearing caps. Unfortunately, parts for these old engines are difficult to find and an initial search was unsuccessful. A concern of not finishing before a second summer high demand season caused tensions to be high.

Finally, a company that could fabricate one to factory specifications was found; the work was complete, the part installed,

and the bore successfully aligned. Work on the engine base and crankshaft were now complete. They were sprayed with protective coating, crated, and successfully shipped to Valdez (without getting lost).

At the diesel plant, it was time to put this giant engine back together. The base was put in place, rigging was used to put the refurbished crankshaft back onto the base, the remainder of the engine reassembled, and wiring and instrumentation were re-installed.

This project was huge, not only in size and scope, but in man-hours. It required, at some point, every single operator in Valdez and Glennallen, as well as the Communications and Controls Engineer, and three mechanics from California Marine Diesel. The team worked on and off, in between other projects, for a year and a half disassembling and cleaning hundreds of parts, putting it all back together again, and performing multiple tests to ensure it works as good as new.

The Co-op is guided by its mission to provide reliable power to the members of CVEA. This important project, with its many delays and challenges, is an example of that, and CVEA is extremely proud of the efforts of the entire team.

If you have questions regarding this project or any CVEA project or issue, contact Sharon Scheidt at 822-5506, 835-7005, or email scheidt@cvea.org. ■

**Opposite top, removing the engine base to prepare for shipment**
**Opposite bottom, one of six connecting rods that measures over five feet and weighs 600 pounds**
**Top left, unwrapping the refurbished base at the Valdez Diesel Plant**
**Top middle, rigging the refurbished crankshaft onto the base**
**Above, Matt Craig, Plant Operator and Dave Coon, Communications and Controls Engineer, re-installing and wiring the instrumentation**
**Left, VD5 like new and back in service in January 2019**

# Vroom! Vroom!

## *TPUD volunteers help students create solar cars*

In early June, Tillamook PUD partnered with the Bonneville Environmental Foundation and Neah-Kah-Nie School District to bring a unique clean-energy science, technology, engineering and math educational opportunity to 120 Tillamook County grade school students.

After a review and analysis of energy, fourth and fifth grade students from Garibaldi Grade School and Nehalem Elementary worked through the engineering process with Tillamook PUD volunteers to create and construct solar cars.

"Students were highly focused and thrilled to build their very own solar cars," said Neah-Kah-Nie School District Superintendent Paul Erlebach. "Some students were so engaged with this renewable energy activity they skipped recess in order to continue assembling their solar cars."

Students were encouraged to take what they learned and think ingeniously when designing and building their cars.

"I liked building the cars the most," one Garibaldi student said. "It was fun. We got to see if it worked, and if it didn't we could add on to it."

Students took their completed cars home, along with a bag of parts to enhance or change it.

At the end of each day, students, Tillamook PUD staff and school staff went outside to see the power of the sun in action as they raced their cars.

"This is a great way to end the year: having students work with local business partners," Nehalem Elementary Principal Kristi Woika said.

Tillamook PUD is pleased to have the opportunity to be involved with and help support renewable energy and STEM activities in area schools. ■

**Above, Senior Accountant Tammy Rodrigues, left, and Engineering Field Representative Jesse McClain, right, help Nehalem Elementary students build their solar cars. Middle, GIS Analyst Donovan VanSant talks strategy with a student during outdoor testing. Top, youngsters tap into the sun during the championship races.**

# Industry Partners Talk, BTI Listens

**By Lisa Jacoby**


**Baker Technical Institute is helping meet workforce needs with its technical education programs, including those for heavy equipment operators.**

Photos courtesy of BTI

Baker Technical Institute offers career and technical education programs focused on courses aimed at building a strong workforce and providing direct pathways to work. The goal, says BTI President Doug Dalton, is to work with industry and community leaders to assess the next generation of needs in the job market, then develop programs to educate and train a workforce to fill the needs.

"We're trying to be the link between industry and the workforce that will allow business and communities in rural areas to thrive," he says.

Several years ago, BTI heard from industry experts that there was a need for qualified heavy equipment operators across the country. There were few training opportunities in the region.

Because they were starting from the ground up, BTI could rethink the way operators are trained. It worked with industry experts to determine the most effective and efficient way to teach the skills using state-of-the-art technology available worldwide.

BTI's answer quickly emerged as a hybrid program using simulators combined with seat time on real equipment in a land lab designed to replicate a construction site.

This led to a close partnership with CAT Simulators in Illinois. As part of the operator school, BTI built a lab that contains CAT simulators where students log time practicing tasks. Each simulator is designed to mimic the interior cab and controls of specific machines, including an excavator, dozer, wheel loader, grader, haul truck, log loader and feller buncher.

An attached shop enables students to practice maintenance on the machines.

At the land lab, students operate machines in a construction-type setting performing the same tasks they would on the job site, such as trenching, grading and truck loading.

"We move a lot of dirt at the land lab," Doug says. "It is pretty amazing to watch how well the students perform even on their first day because they have really focused on the mechanics and strategy of operation on the simulators. When we get out here, we see the students operating with the knowledge of the finer skills that allows us to move right to working on the next level."

BTI's operator school serves adult learners who pay $6,000 tuition for the 260-hour course. BTI also offers introductory courses to Baker High School students at no charge during the school year as part of the school's Career Technical Education program.

As the program developed, Doug went to the Ford Family Foundation to share

the vision of a mobile lab that could serve rural communities around the region.

"You have to be mobile," Doug says. "Going to customers is the key when we have such large distances between our towns."

The foundation supported the project with upfront capital to create a mobile platform. A heated and air-conditioned trailer was equipped with simulators. So far, the mobile lab has traveled to students in Pendleton, Grand Ronde west of Salem, Madras, Burns, Spokane, Seattle, Grand Coulee, Boise and Eastern Oregon University. It is deployed to locations, usually for six weeks at a time.

BTI's instructors take turns traveling with the simulators. Land labs are set up in the remote locations, and representatives from Caterpillar distribution centers show up with the equipment. John Deere also provided equipment in Central Oregon and Washington.

"Our partnership with the equipment suppliers has been instrumental," Doug says. "They have not only provided equipment no matter where we are, but they have donated to the program to support the growth."

BTI books the lab nearly a year in advance to places mostly in the Pacific Northwest, plus Idaho and Nevada locations within 500 miles of Baker City.

**CAT simulators at Baker Technical Institute allow students to learn the controls of various equipment before completing the course in the field.**

## Coursework

Students can achieve four levels in the courses: Intro, 1, 2 and 3. After completing each level, a student is awarded a certificate of completion that shows his or her proficiency earned on each piece of equipment.

"Issuing certificates on how well each student performs allows some to move farther and really learn on their pace," says lead instructor Dave Frazey. "This type of program allows us to meet the students where they are and train them up from there."

When the mobile lab sets up in a community, Doug says the goal is to reach out beyond those taking the course, such as engaging youth in the area to expose them to career options they may not even exist.

About 60 students have graduated from the program since it started in 2017.

The comprehensive course is offered one to two times a year at BTI. In the summer, classes run for eight hours a day for about seven weeks. Evening and weekend courses take about four months to complete the 260-hour requirement.

Dave says when compared to training solely on actual equipment, the use of simulators results in learning skills about twice as fast.

"This allows students to progress at their pace," he says.

On a simulator, students perform certain construction tasks. They practice, then switch into test mode that assesses about 50 skills such as attack angles, fuel consumption, percentage of bucket fill and rate of completion. Instructors can watch the progress remotely, or students can see the results on the screens and print a report of the test results.

Students must meet standards set by Caterpillar to pass each level before they can move to the next.

Following the simulator, students practice on machines with an instructor crew with decades of experience in the field.

## BTI Programs

Since it began five years ago, BTI has continuously added career pathways. Course offerings include culinary, heavy equipment, engineering, health services, agriculture, art manufacturing, welding, construction, natural resources, environmental services, electrician training and truck driving.

Each pathway has an advisory board of people from the particular industry who can provide guidance on necessary skills.

"We can train students better and build capacity for the region when we have these industry leaders," Doug says.

In addition, BTI focuses on outreach through career exploration and STEAM camps for elementary through high school students. ■

*To learn more about the heavy equipment course, call 541-524-2651. BTI also posts updates on Facebook and Instagram. A full course catalog is available online at bakerti.org/course-catalog.*

# Considering Solar Energy

## Is installing a rooftop solar array the right choice for you?

**By Susan Parrish**

Oregon Trail Electric Cooperative invests in providing its members inexpensive carbon-free hydroelectric power from the federally owned Bonneville Power Administration. OTEC also looks to its members' future power needs, including solar and other types of renewables.

Solar power is becoming a viable earth-friendly energy solution. People with enough sunlight, financial resources and space can install a solar array on their roof to meet a portion of their electric needs. More than 11,000 Oregon homeowners are making their own solar power, according to the Oregon Department of Energy.

Abundant sunny days in Eastern Oregon provide optimal conditions for generating ample solar power—except during the winter. But before you invest in a rooftop solar generating system, determine your return on investment. Will your savings be significant enough to make a solar system worthwhile?

### Weighing the Factors

OTEC suggests members carefully consider if rooftop solar is the right choice.

How much you will benefit from a solar array depends on your electric bill, how much electricity you use, incentives for solar, your rooftop solar provider and your roof.

To determine if your roof is suitable for a solar array, consider:

- Does your roof face south or west?
- Is your roof in the full sun or is it shaded?
- Will you need to replace your roof sometime during the 25-year life of the solar panels? If so, replace your roof before you install the panels.
- Have you explored all of your energy-efficiency options? Let OTEC help you discover other ways to save.
- Does your community have restrictions or covenants that prohibit solar panels?

**Dave Phillips watches as his wife, Carol, checks their OTEC meter that measures solar power.**

### Solar Costs and Tax Credits

As solar technology improves, the cost of installing a solar system has decreased. However, it's still a pricey out-of-pocket expense.

In 2009, Dave and Carol Phillips of Baker City paid about $25,000 for the array of 22 solar panels on their shop's roof. Three years later, Jim and Pat Hammett of John Day paid only $13,000 to install 28 solar panels on their barn roof. Both couples installed the systems themselves.

In the past seven years, the cost of residential and commercial solar systems has decreased by more than 41 percent, from roughly $5.15 per watt in 2012 to between $2.50 and $3 per watt in 2019, says Kent Osterberg, who owns Blue Mountain Solar in Cove with his wife, Kay Firor.

The couple, who have installed solar systems in Eastern Oregon for three decades, say current upfront costs of having a residential solar system installed are about $15,000. That's before applying tax credits.

Both the Phillips and the Hammetts benefited from a 30% federal tax credit, a 30% state tax credit and a $500 solar incentive from OTEC. However, the state and OTEC incentives for solar systems have ended.

If you are considering installing a solar array on your roof, do it sooner rather than later because the federal solar tax credit or investment tax credit for residential solar gradually is being phased out. Through 2019, the federal tax credit will continue to allow homeowners to deduct from their federal taxes 30% of the cost of installing a residential solar energy system. But the federal credit will be reduced to 26% in 2020, to 22% in 2021 and will expire December 31, 2021.

### Net Metering

OTEC's net-metering program helps members offset the cost of electricity they buy from OTEC with solar energy they generate at home.

Here's how it works: Members install solar panels on a south-facing roof to generate their own power. When excess power is generated, the extra goes back to the grid and is bought by OTEC, resulting in reduced electric bills. A

Dave and Carol, who live in Baker City, installed 22 solar panels on their shop's roof in 2009.

bi-directional meter measures the difference between how much electricity the member generates and how much OTEC electricity they use.

Dave and Carol checked their OTEC meter on a cloudy June day and discovered it was running backward. Even with cloud cover, their solar panels were generating more electricity than their household was using.

"During the day when the solar panels are generating power, but nobody's home to use it, the power is sent to OTEC's grid," Carol says. "When we get home at night, we're using OTEC's power. This meter keeps track of what it sends out on the line and what it brings in."

## Saving Energy, Recouping Costs

The average American household uses about 1,100 kilowatt-hours a month. To generate that much solar power requires a large solar system, Kent says.

Many homeowners add solar arrays that generate one-third to one-half of their electrical needs.

In the first year after installing their solar system, the Phillips saw their energy costs drop by 30%. In the summer, the Hammetts' solar panels generate more power than they need. Jim says they pay for electricity only during the winter.

The solar power payback period is a calculation that estimates how long it will take for you to break even on your solar energy investment. The typical solar payback period in the U.S. is six and eight years, according to EnergySage.com.

When the state and OTEC credits were in play, Kay says it took Oregon homeowners about seven years to recoup the cost of a solar system. Since those credits ended, it's about a 12-year payback, but only because the 30% federal tax credit is still in place.

In January 2022, when the federal tax credit disappears, the payback time is expected to increase.

Although photovoltaic systems make up less than 1% of electricity generated in Oregon, solar is growing at a faster rate than any other energy resource nationwide. As the cost of installing a solar system becomes more affordable, you might consider investing in solar power.

Before you do, make sure you consider all the costs and factors to determine if solar is a sound investment for your family, suggests Charlie Tracy, OTEC director of engineering.

"Solar is a good choice in some scenarios, but keep in mind that OTEC's power supply is almost entirely carbon free, rates are very competitive and the co-op is locally owned by its members, which has other benefits," he says.

OTEC is working to add locally generated solar power to the supply.

"Our members will one day have access to solar through the co-op directly," Charlie says. ■

# The Outlook for Energy Costs in Rural Alaska in 2019

**By Meera Kohler**

About 15% of all Alaskans live in some 200 rural communities spread across more than 500,000 square miles. 32,000 (33%) of those live in one of 58 communities served by AVEC. Our communities, sadly, have the highest cost of living of anywhere in the United States.

A recent study found that rural households are spending 27% of their annual income on home energy, compared with less than 7% in urban Alaska. Despite world oil prices having fallen, costs in rural Alaska have generally not shown much improvement. Benchmark West Texas crude oil fell as low as $30 a barrel in 2016, and rose to $65 a barrel in 2018. This year, crude oil is at $60 a barrel, indicating that prices may be as much as 10% lower than last year.

AVEC has been an aggressive leader in the battle to combat the high cost of energy.

- We continue to reduce our non-fuel expenses. We reduced our rates five years ago by two cents a kWh, resulting in a reduction in revenue of $1.5 million annually.
- We continue to lead the charge in protecting PCE and the PCE Endowment Fund during these times of state budget deficits.
- We have added several communities in the last few years – Teller, Kotlik, Ekwok, Kobuk, Bethel, Oscarville and Yakutat. Adding communities allows us to spread our fixed costs over more kWh sales.
- We have installed wind turbines – our 36 machines are the largest fleet in the state. Almost 4% of our generation came from wind in 2018. This year we hope to install a third 900 kW wind turbine to serve Stebbins and St. Michael.
- We invested in two sets of tugs and barges and contracted with Vitus Marine to operate them. This reduced our cost of fuel transportation by about 20 cents a gallon, which translates to about 1.6 cents per kWh. This is passed on entirely to our consumers.
- Vitus' entry in the fuel delivery market has lowered fuel costs to everyone in rural Alaska.
- We continue to urge the State of Alaska to develop and implement an energy plan that reduces costs for all Alaskans.
- We continue to spearhead the Alaska Grid project that would develop gas-fired generation on the North Slope and a robust transmission system to deliver low-cost power to urban and rural hubs as well as fish processors, military bases, mines and other resource developers. Since heat and electricity comprise 80+% of the homeowner's energy budget, lowering these costs while supporting job creation would be a huge step toward self-sufficiency and sustainability in rural Alaska.

### So what is the outlook for 2019?

In 2018, the average cost of a gallon of diesel delivered to our tank farms was $3.46, 73 cents more than 2017's $2.73, resulting in an average fuel charge of 25.7 cents per kWh in addition to the average non-fuel rate of 27 cents a kWh.

As 2019 fuel is delivered, we expect the fuel charge to stay flat or decrease after the summer deliveries since the current cost of fuel is a little lower than a year ago.

Quinhagak currently has the lowest fuel charge at 18.93 cents and in Noatak, where fuel must be flown in, the fuel charge is 49.91 cents. Fortunately, Power Cost Equalization lowers the cost to the homeowner to about 25 cents per kWh, but more than half the kWh used in our villages are not eligible for PCE.

We expect the cost of fuel (and therefore electricity) to be flat or slightly lower than in 2018 since the cost of a barrel of crude oil is almost 10% lower than a year ago. We will continue to press for the State to develop a comprehensive energy plan for Alaska that treats all Alaskans fairly and equitably.

# What is the Fuel Cost Charge?

Alaska Village Electric Cooperative rates consist of three parts. The first is a fixed monthly customer charge of $5 for Small Power service. It is higher for Large Power, but only Small Power is discussed here. Almost 80 percent of our services are Small Power, which includes all residential and most commercial customers. Rates in Bethel are different, with the customer charge being higher and the energy charge being lower.

The customer charge covers the cost of the service drop to the customer, the meter and the basic billing cost.

The second component is the energy charge. This is 30 cents per kilowatt-hour (kWh) for the first 700 kWh and 20 cents for any kWh used above 700. The energy charge covers all of AVEC's nonfuel costs: power plant operations, lubricating oil, depreciation, insurance, distribution system operations, generator overhauls, administration, debt service, collections and so on.

The energy charge is the same in all of our communities because, over time, those costs are the same in each community. Our average investment per customer is more or less the same, regardless of the community size. That is because larger, more expensive equipment is needed in larger communities and smaller, less expensive equipment is installed in smaller communities.

The third component is the fuel cost charge. This represents the actual fuel cost per kWh in each location. This cost ranges from 18.93 cents in Quinhagak to 49.91 cents in Noatak, where the fuel must be flown in. The average is 26.24 cents, 4.9 cents more than a year ago. If you used 400 kWh in a month, your electric bill in a "typical" community would be:

| | |
|---|---|
| Customer Charge | $ 5.00 |
| Energy Charge (400 kWh x .30) | 120.00 |
| Fuel Charge (400 kWh x .2624) | 104.96 |
| PCE (400 x .3196) | (127.84) |
| Total bill | $102.12 |

What the consumer pays after PCE averages out to 25.53 cents per kWh, or about 34 percent more than urban Alaska's 19.02 cents. Without PCE, the average rate is three times that in urban Alaska.

AVEC has worked hard to stabilize both the fuel cost and the nonfuel costs across all of our communities. We reduced our rates by 2 cents a kWh in 2010, which has resulted in lower revenue of about $1.5 million every year.

This is a complicated subject, but we do get a lot of questions about how the electric bill is computed and we thought this would be useful in answering some of those questions.

# Summer Problem Solvers

*When an electric, gas or water line goes out, so do Graham County crews*

When summer storms roll into the Gila Valley, it takes a lot of dedicated people to keep the power flowing to homes and businesses.

You are probably aware that linemen go out in the bad weather to make repairs, but have you ever wondered how they know where to go?

Dispatcher Jeannie Damron is one of three Graham County Electric Co-op and Graham County Utilities dispatchers that rotates answering calls 24/7.

The dispatcher on call will ask your name and the nature of the emergency. If it is a new issue, dispatchers will get your address, phone number and as much detail as possible about the situation, such as what you saw or heard just before the emergency happened. Dispatchers contact linemen, and gas or water crews that are on call.

In the event of a power outage, a lineman and groundman are called. In the event of a gas leak, the fire department and a gas crew respond to the emergency.

If the outage affects a large number of members, the dispatcher alerts the utility communications manager as soon as crews have been notified. This allows for prompt posting of the outage on GCEC's Facebook page.

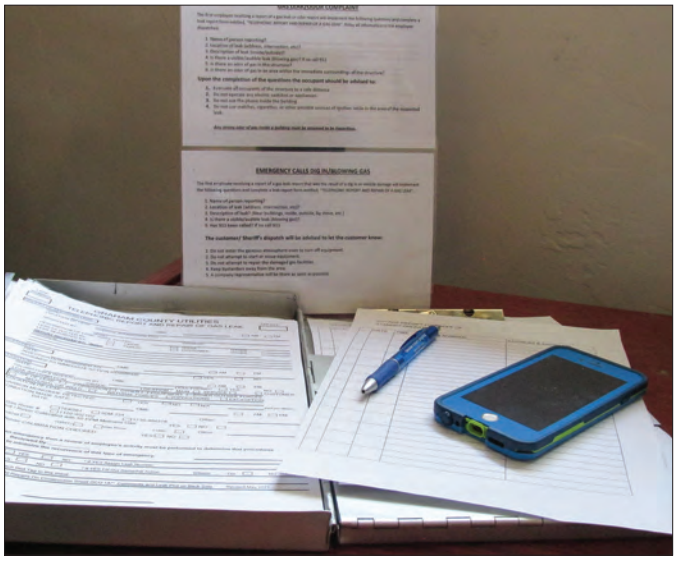
GCEC recognizes the importance of having local dispatchers who know the area, rather than contracting with a call center.

Jeannie has been a dispatcher for more than 28 years. She says in the early years, the wives of the linemen on call acted as dispatchers. When an emergency call came in, the women would tell her husband the location of the incident and communicate the issue. They would use portable home and truck radios to communicate any further issues.

"Things have changed since I very first started dispatching," Jeannie says. "Communication is better because of technology."

The phone system was recently updated to play an outage message. This lets members know GCEC is aware of an outage. It also gives members the opportunity to leave their name, phone number and address in case additional information is needed to help crews isolate the outage.

Once members know GCEC is aware of an outage and is working to restore the utility, members can check back on GCEC's Facebook page for updates and estimated times for restoration of the utility. Using Facebook for outage status updates means fewer incoming calls, which frees up dispatchers to communicate more efficiently with the crews. But remember, outages should never be reported through Facebook. Call 928-485-2451 or 800-577-9266 to report an outage.



**After-hours dispatchers carry a cellphone and a binder with all of the procedures and contacts they need during an outage.**

"It is important to report what you might have seen," Jeannie says. "That helps the crews determine where and what the problem might be."

The better prepared crews are when leaving the plant—with the materials they need to repair the issue—the quicker the outage will be restored.

As storm season approaches, please keep in mind the ways you can help dispatchers and crews. Sometimes patience is all that is needed. Crews work as quickly and as safely as possible to restore your utilities. ■

## 2019 GCEC Foundation Scholarship Recipients

Leigh Dona, Ft. Thomas High School
Caitlin Hinton, Ft. Thomas High School
Alexis Cassady, Mt. Graham High School
Michael Vining, Mt. Graham High School
Danika Derrick, Pima High School
Dante Bryce, Safford High School
Frederico Garcia, Thatcher High School

# Summer Storms Are Dangerous

*High winds, flash floods and lightning can cause a host of safety concerns*

**By Diane Junion**

Summer monsoons often happen when you least expect them. In summer 2017, during a three-hour youth soccer camp at the Safford Middle School field, one of these storms rolled in.

Nichole Brown had dropped off her son at soccer camp and decided to stay to watch the kids practice.

"The rain and lightning came in so quickly," Nichole says. "The coaches had to cancel the camp early. Many of the kids didn't have rides, so everyone started calling parents."

Nichole says the rain was pouring and lightning lit up the sky. She gathered up her kids plus a few more and they all got into her vehicle. All of a sudden the lightning struck and she felt the power line fall on her car.

The energized electric line was draped over her driver's-side mirror and on the car behind her.

"My dad taught us about power safety, and I remembered that you stay in your car if you can," she says.

The mother of one of the boys in her car arrived. Nichole warned her to stay in her car, because the boys were safe as long as they remained inside the vehicle.

Police officers arrived and kept everyone else a safe distance away from the power lines. City of Safford linemen arrived and quickly de-energized the line.

**Brent Wiltbank teaches electrical safety at Dan Hinton School.**

Graham County Electric Co-op employees constantly provide safety instruction to the community. In March, Clint Woods and Brent Wiltbank provided an electrical safety demonstration to students at Dan Hinton School.

It is important for the public to be safe around power lines and know what do in case of an emergency. Stay away from any downed power lines or remain in your vehicle until emergency personnel have deemed it safe to exit your vehicle. ■

A Word About Water

# 15 Ways to Conserve in the Home

*Save money on your utility bill while helping to prevent water pollution*

Water conservation has become an essential practice in all regions, even in areas where water seems abundant. In addition to saving money on your utility bill, water conservation helps prevent water pollution in nearby lakes, rivers and local watersheds. To conserve water in your home:

- Check faucets and pipes for leaks. A small drip from a worn faucet washer can waste 20 gallons of water a day. Larger leaks can waste hundreds of gallons.
- Don't use the toilet as an ashtray or wastebasket. Every time you flush a cigarette butt, facial tissue or other small bit of trash, 5 to 7 gallons of water is wasted.
- Check your toilets for leaks. Put a little food coloring in your toilet tank. If the color appears in the bowl within 30 minutes without flushing, you have a leak that should be repaired immediately. Most replacement parts are inexpensive and easy to install.
- Use your water meter to check for water leaks. Read the house water meter before and after a two-hour period when no water is being used. If the meter does not read exactly the same, there is a leak.
- Install water-saving showerheads and low-flow faucet aerators. Inexpensive water-saving low-flow showerheads or restrictors are easy for homeowners to install. Low-flow means it uses less than 2.5 gallons a minute.
- Put plastic bottles or a float booster in your toilet tank. To cut down on water waste, put an inch or two of sand or pebbles inside each of two plastic bottles to weigh them down. Fill the bottles with water, screw the lids on and put them in your toilet tank, safely away from the operating mechanisms. Or buy an inexpensive tank bank or float booster. This may save 10 or more gallons of water a day. Be sure at least 3 gallons of water remain in the tank so it will flush properly.

**Only run your dishwasher with a full load to conserve water and save on your electric bill.**

- Insulate your water pipes. It is easy and inexpensive with pre-slit foam pipe insulation. You will get hot water faster and avoid wasting water while it heats up.
- Take shorter showers. To cut down on water use, turn off the shower after soaping up, then turn it back on to rinse. A four-minute shower uses 20 to 40 gallons of water.
- There is no need to keep the water running while brushing your teeth. Turn off the water after you wet your toothbrush. Fill a glass for mouth rinsing.
- Rinse your razor in the sink rather than running water. Fill the sink with a few inches of warm water to rinse it.
- Automatic dishwashers and clothes washers should be fully loaded for optimum water conservation. Most makers of dishwashing soap recommend not pre-rinsing dishes, which is a big water savings. With clothes washers, avoid the permanent press cycle, which uses 5 gallons for the extra rinse. For partial loads, adjust water levels to match the size of the load. Replace old clothes washers. New Energy Star-rated washers use 35 to 50 percent less water and 50 percent less energy per load. If you are in the market for a new clothes washer, consider buying a water-saving front-load machine.
- Minimize use of kitchen sink garbage disposal units. In-sink garbage disposals require lots of water to operate properly, and add considerably to the volume of solids in a septic tank. That can lead to maintenance problems. Start a compost pile as an alternate method of disposing of food waste.
- When washing dishes by hand, do not leave the water running for rinsing. If you have a double basin, fill one with soapy water and one with rinse water. If you have a single-basin sink, gather washed dishes in a dish rack and rinse them with a spray device or a pan of hot water. Dual-swivel aerators are available to make this easier.
- Do not let the faucet run while you clean vegetables. Rinse them in a stoppered sink or a pan of clean water. Use a dual-swivel aerator.
- Keep a bottle of drinking water in the fridge. Running tap water to cool it for drinking is wasteful. If you are filling water bottles to take on outdoor hikes, consider buying a LifeStraw personal water filter, which enables users to drink water safely from rivers, lakes or any available body of water. ■

Add skirting around your manufactured home to save money on your electric bill.

## Use Energy Wisely

# Give Your Manufactured Home a Checkup

### Tip-Offs to Problems

How can you tell if your manufactured home needs energy-efficiency improvements? It may be a good candidate if:

- It was built before 1994 and especially 1976, when there were no construction standards.
- You feel drafts on windy days.
- The air near the floor is noticeably cooler than the air closer to the ceiling.
- You have trouble keeping your home warm in the winter and cool in the summer.

Improving your home's energy efficiency is important, regardless of the type of home you own. For manufactured homeowners, tackle these efficiency measures to improve comfort and save money.

- Replace the electric furnace with a high-efficiency heat pump. Of all energy-efficiency upgrades, this will give you the greatest return on your investment.
- Caulk around windows and replace weatherstripping to help keep Mother Nature out and conditioned air in.
- Replace door weatherstripping and install a door sweep. This is simple. Poor-fitting weatherstripping allows for significant air leakage. Add a door sweep or draft snake at the bottom of exterior doors to help stop drafts.
- Add skirting.
- Inspect the underbelly. Repair or replace damaged or missing insulation, which protects your ductwork and helps seal your home.
- Check your ductwork. It carries heated and cooled air from the unit to the vents. Cracks in seams cause this air to leak out, costing you money. If your ducts are exposed, use duct mastic to seal ductwork and keep conditioned air where it belongs.
- Remove window air conditioners in the winter. Air leakage occurs through and around the unit. An alternative is to install a specially designed cover on the interior and exterior of the window unit.
- Add a cool roof coating to reflect up to 85% of sunlight, lower the indoor temperature and reduce air conditioning costs. White or light-colored coatings can be applied by roller or brush.
- Install LED bulbs, which use dramatically less energy and last eight to 10 times longer than traditional bulbs. But remember: Even though LED bulbs use less energy, turn them off when not needed to save money. ■

Safety First:

# Stay Away from All Downed Power Lines

Downed power lines are dangerous and potentially deadly. Like a ripple in the water, electricity from a downed line flows into the ground in a big circle up to 35 feet away. This means even getting near a downed power line can be deadly.

Stay clear of all downed power lines or electrical equipment. Assume all cables and wires are energized and stay away. Call 911 and FKEC at 305-852-2431 to report fallen power lines that present a clear and imminent danger to you or others.

- Stay away from flooded areas, or standing water and debris, which could potentially conceal "energized" electrical wires.
- Stay away from downed or sagging power lines, and do not touch anything that is on or near a power line (i.e., trees or tree limbs, cars, ladders).
- Keep children and family pets away from areas where lines may have fallen (backyards, fields, schoolyards, etc.).
- If a power line falls across a car that you're in, stay in the car. If you MUST get out of the vehicle due to a fire or other immediate life-threatening situation, do your best to jump clear of the car and land on both feet. Be sure that no part of your body is touching the car when your feet touch the ground.

Photo by Brain Tiedemann

# Portable Generator Proper Use and Safety

Improper use of portable generators can cause serious injury to residents, repair crews, and damage to homes and appliances. Before use, take time to inspect your generator and learn about the potential dangers associated with use. This is also a good time to check your extension cords to make sure they are in good condition.

Follow these tips to generate power AND safety when using a generator.

- NEVER operate a generator INSIDE your home or in other enclosed or partially-enclosed spaces, including GARAGES
- DO NOT leave a running generator unattended; turn it off at night and when away from home
- NEVER connect generators directly to household wiring without first installing a TRANSFER SWITCH. This prevents backfeeding which could electrocute utility workers making repairs. FKEC offers "GenSafe" — A device installed behind your electric meter, allowing you to safely connect a portable generator to your home's existing wiring. *www.fkec.com/FormService/GenSafe.cfm*
- Make sure your generator is properly GROUNDED and used with a Ground Fault Circuit Interrupter (GFCI)
- Use only extension cords that have a THREE-PRONGED plug and are rated for the intended load
- Install battery-operated carbon monoxide (CO) ALARMS or plug-in CO alarms with a battery backup
- Do NOT OVERLOAD the generator
- The Consumer Product Safety Commission recommends generators be positioned at least 20 FEET from doors, windows, and vents to prevent CO from entering the home

*Source: www.esfi.org*

FL-152

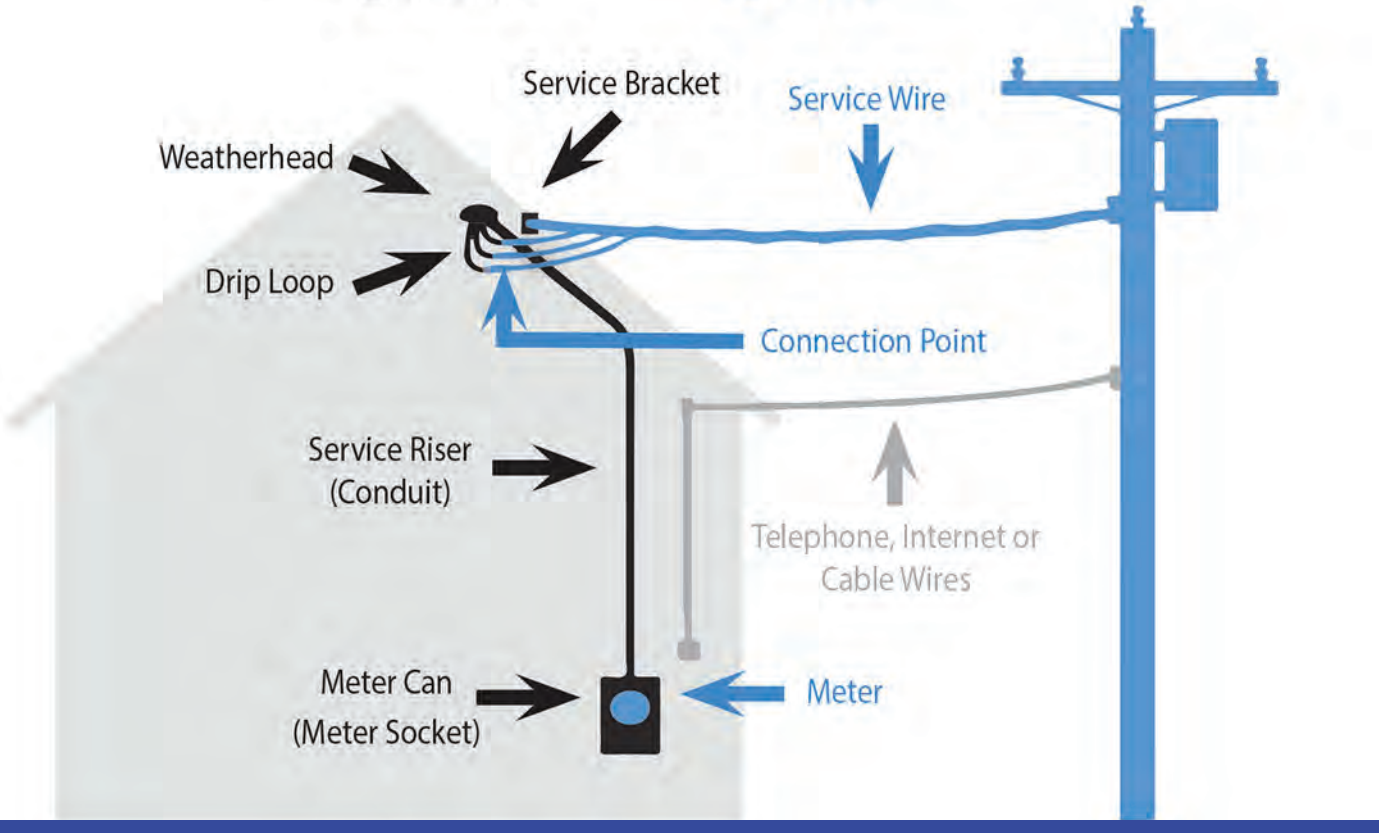
# Maintaining Reliable Service... Together

FKEC works year round to maintain a strong electrical system and 99.99% reliability. However, to help ensure safe delivery of power to your home, it is important our members understand where FKEC's maintenance responsibilities end and the member's begins.

The co-op is responsible for servicing and maintaining all facilities up to the point of delivery, which is normally the weatherhead. Any damage to these lines or equipment up to the point of delivery, including the meter, will be corrected as quickly as possible by FKEC and at the Cooperative's expense.

All wiring and equipment after the point of delivery belongs to the member-consumer and maintenance is your responsibility. This includes the meter can, service riser (conduit), attachment hardware, weatherhead, and all associated vegetation management. Members should contact an independent electrician to make any necessary repairs or improvements. If you inadvertently damage or notice that damage has occurred to FKEC electric facilities, it is the member's responsibility to give prompt notice to FKEC. Call 305-852-2431 or 800-858-8845 if you see a power line down or other damaged equipment.

## What's Yours/What's Ours



# Heating, Cooling a Matter of Degree

**By Abby Berry**

Weather can have a major impact on energy bills. When outdoor temperatures become extreme, your heating and cooling equipment works harder to keep your home comfortable.

The energy experts at Glades Electric Cooperative use degree days to anticipate heating and cooling needs for you, our member-consumers. Never heard of a degree day? You're not alone.

Degree days measure how cold or warm a location is by comparing the average of the high and low (mean) of the outdoor temperatures recorded in that location to the standard U.S. temperature, which is 65 F. The assumption is we don't need heating or cooling to be comfortable when the outdoor temperature is 65 F.

The more extreme the outdoor temperatures, the higher the number of degree days—and the higher the number of degree days, the higher the amount of energy used for space heating and cooling.

With summer in full swing, let's look at cooling degree days.

Cooling degree days are a measurement of how hot the temperature is on a given day or during a period of days. With summer temperatures rising, you likely require more cooling for your home or business, which results in more cooling degree days. Variations in electric bills often follow closely with degree days, which is why electric utilities use this data to anticipate energy demand.

Degree days are tracked for a variety of reasons. Farmers can better plan the planting of crops and timing for pest control, and weather experts can better assess climate patterns.

To view degree days for our area, visit www.energystar.gov and search "degree days calculator."

If charts and data aren't your forte, here are a few tips to help you save on energy bills this summer:

- Set your thermostat as high as comfortably possible.

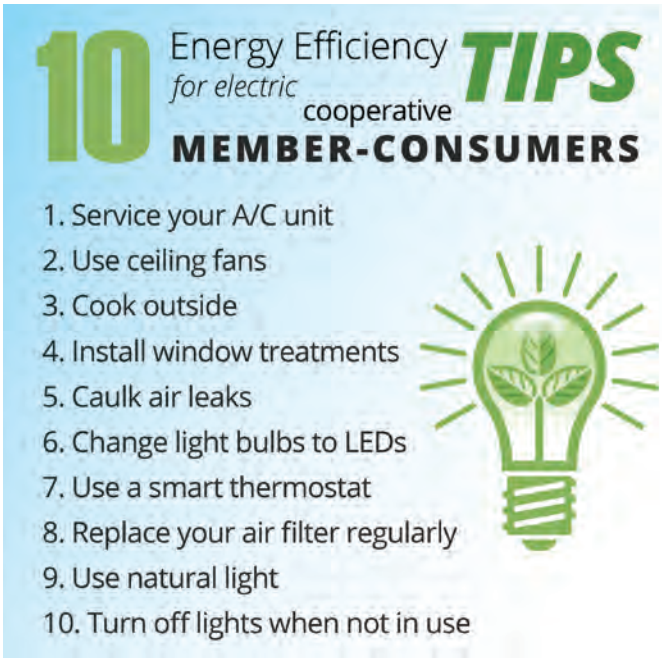
The smaller the difference between the indoor and outdoor temperatures, the lower your cooling costs will be. The U.S. Department of Energy recommends setting your thermostat to 78 F when you're home and higher for when you are away.

- Turn off ceiling fans when you leave a room.
- Close window coverings, such as curtains and blinds, during the day to block sunlight.
- Use caulk and weatherstripping to seal air leaks around doors and windows.

If you have questions about your energy use or want to learn more ways to save, call GEC at 863-946-6200 or stop by one of our offices. You can use our SmartHub app to track your daily energy use. Visit www.smarthubapp.com to get started or go to the Apple app store or Google Play store on your mobile device to access your account information.

For regular installments of energy-efficiency tips, follow us at Facebook.com/GladesElectricCooperative.

Glades Electric Cooperative is here to help. ■



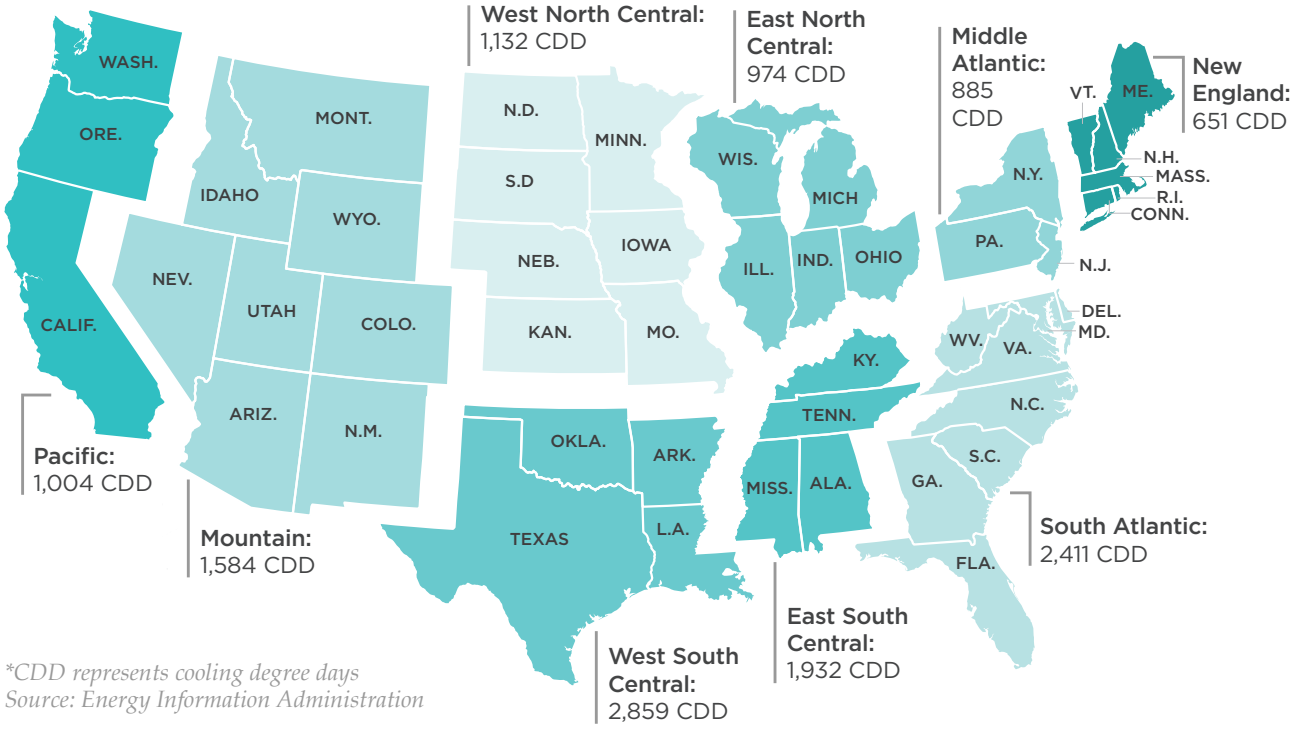

## Glades Electric Cooperative,

Whether it is installing a smart thermostat in your home, replacing your lights with LED bulbs, or simply turning off the lights when leaving a room, Glades Electric Cooperative encourages member-consumers to conserve energy in different ways. Even closing the window shades on the sunny side of your home in the summer can help lower your energy use.

It is important to remember energy efficiency isn't only at the consumer level. Your electric cooperative practices energy efficiency at our offices, and so does Seminole Electric Cooperative, GEC's wholesale energy provider.

Seminole owns and operates power plants on behalf of its nine member distribution electric cooperatives, including GEC. The more efficiently Seminole's facilities run, the more energy can be delivered to the end consumer at a lower cost. This is why Seminole is committed to constantly improving the efficiency of its plants and other facilities.

Cooling degree days measure how hot the outdoor temperature was on a given day or during a period of days. The map below shows measurements of U.S. cooling degree days in 2018 by census region. Extreme outdoor temperatures bring a higher number of degree days, which results in higher energy use.




*CDD represents cooling degree days
Source: Energy Information Administration

**This map shows data for cooling degree days, which are used to measure and compare outdoor temperatures over periods of time. For example, a day with a mean temperature of 80 F has 15 CDD because the U.S. standard temperature is 65 F. If the next day has a mean temperature of 83 F, it has 18 CDD. So, the total for those two days is 33 CDD.**

# Seminole Electric Committed to Energy Efficiency

GLADES Electric Cooperative, Inc.
"Neighbors Working for Neighbors"
Your Touchstone Energy® Cooperative

Seminole Electric COOPERATIVE, INC.
IN PARTNERSHIP WITH THOSE WE SERVE

At its simplest, a power plant uses heat to generate electricity. Plants use many different types of fuel to generate heat, including natural gas, steam and coal.

Regardless of the fuel type, Seminole's goal is to maximize the amount of heat generated using the least amount of fuel. The less fuel needed to generate electricity, the cheaper the energy provided to member-consumers at the end of the line.

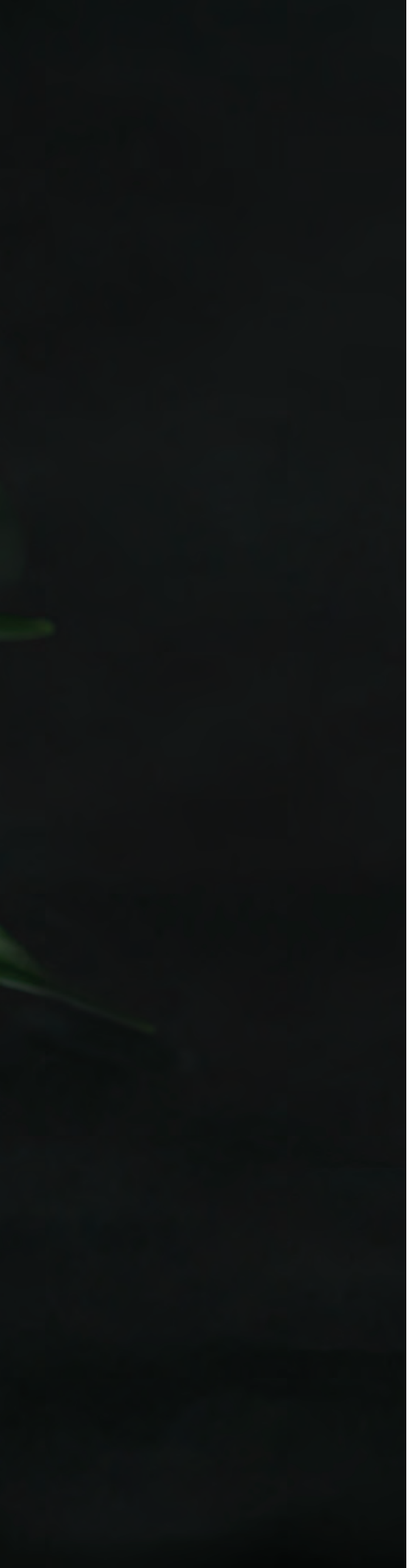
Seminole also looks to new technology to explore more energy efficiency. For example, smart thermostats can help you save money on your electric bill by controlling your home's temperature throughout the day. In some homes, smart thermostats can be accessed by power providers to make community-wide temporary adjustments on the hottest and coolest days of the year.

This helps offset the demand for electricity.

Seminole and its members are exploring smart thermostats and other new technologies to make further energy-efficiency improvements across the electric grid.

Seminole also provides energy-efficiency videos for its members and their members at the end of the line. Visit www.seminole-electric.com to view more on how to save.

Like Glades Electric Cooperative, Seminole is committed to energy efficiency. The more energy we conserve, the more we all save.



# COURTING CANNABIS

## When the city of Needles staked its economic future on marijuana, the local utility quickly adapted

*By Matt Williams*

Needles is a sleepy outpost on the western side of the California-Arizona border in the Mojave Desert. Travelers on the famed Route 66 highway might stop to eat or stay overnight, but only about 5,000 people call it home.

Like many small towns scattered across rural America, Needles was slowly withering as railway traffic declined, local storefronts closed and jobs disappeared.

Prospects were bleak.

But everything shifted after California changed its policy on marijuana several years ago and a slew of large-scale cannabis investors discovered the cheap electricity available in Needles.

A "green" rush is now underway.

"Our low prices, which we believe are the lowest in the Southwest U.S., is the real gravity that caused this and made it possible to happen," said Needles City Manager Rick Daniels about the wave of cannabis companies. "It's really the low power rates."

### The Situation

Sophisticated, professional cannabis growers started moving to Needles in full force in 2016, when California voters approved legalization of cannabis for adult recreational use.

In the past 3½ years, Needles has approved more than 80 land-use permits for cannabis facilities. Fourteen facilities are up and running—many of them cavernous, climate-controlled indoor warehouses for plant cultivation and manufacturing. Almost 200,000 square feet of space is in use, and another 550,000 square feet are pending or under construction.

Needles officials, after some initial trepidation, have mostly embraced the booming business. It has created 350 new jobs, increased local property values and boosted household income by about 25% in one year.

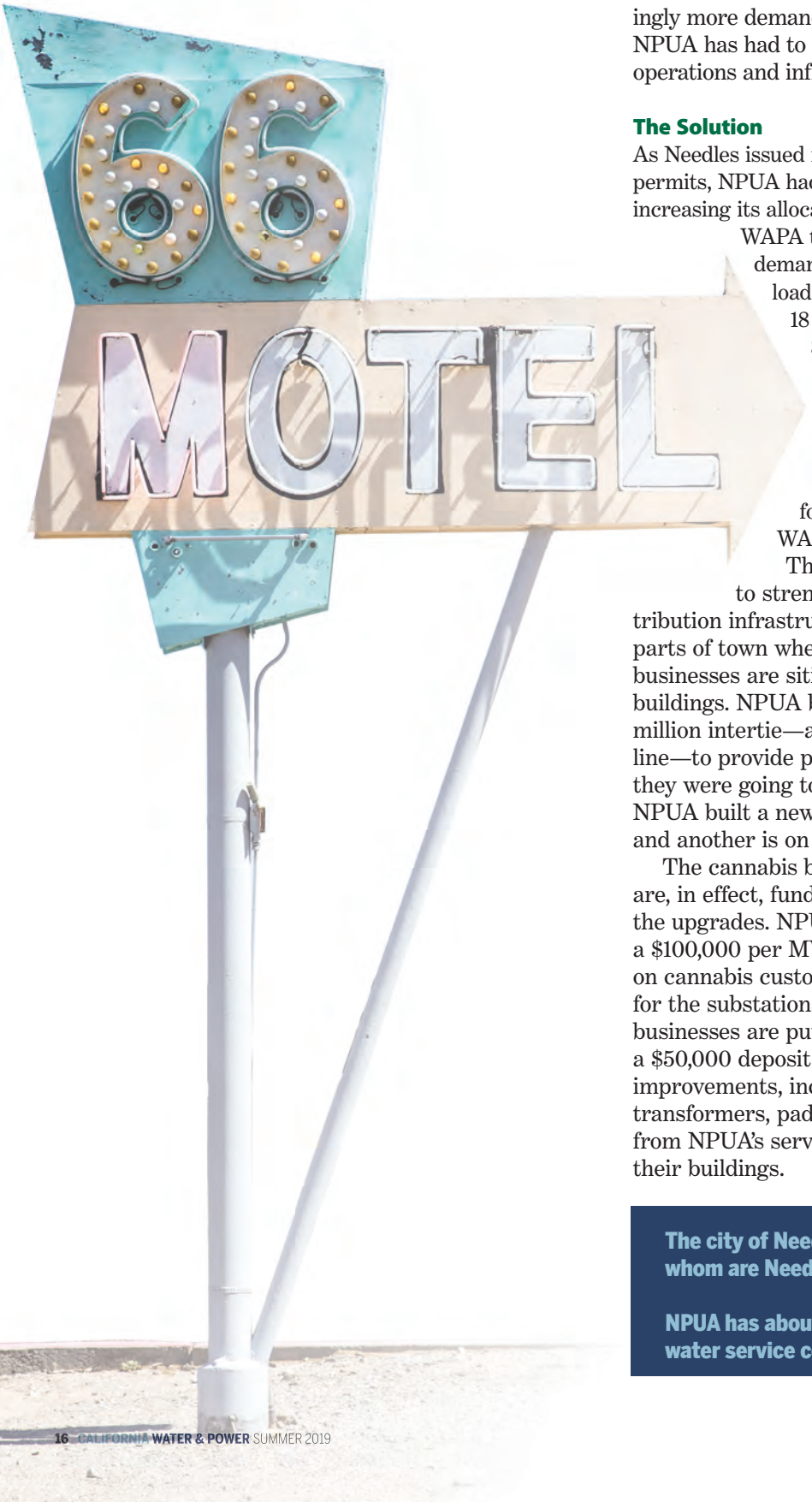
Retail stores, restaurants and motels are coming back, and Needles is collecting more sales tax.

Needles leaders realized those incoming businesses would have big impacts to core city services.

"The first thing we learned was these guys are big power drinkers," Daniels said.

Power constitutes about 70% of the cannabis growers' production costs. A typical 20,000-square-foot warehouse uses the same amount of electricity as 700 to 800 residential homes.

The Needles Public Utility Authority—the local municipally owned utility—buys 54% of its power supply from the Western Area Power Administration, the federal entity that markets and delivers hydropower from the nearby Colorado River. Needles pays only 1.5 cents per kilowatt-hour for that power, and just 5.5 cents for non-renewable energy. Consequently, Needles is able to charge its business customers, including the cannabis companies, 9.2 cents a kWh. That's less than what most other utilities in the West charge




their customers, Daniels said.

Affordability is a key driver. It brings the cannabis companies to Needles. But with increasingly more demand for power, NPUA has had to scale up its operations and infrastructure.

## The Solution

As Needles issued more building permits, NPUA had to continue increasing its allocation from WAPA to meet the demand for more load—moving from 18 megawatts to 35 MW and then 60 MW, made possible after upgrading some transformers on WAPA's line.

The utility had to strengthen its distribution infrastructure in the parts of town where cannabis businesses are siting their new buildings. NPUA built a $1.7 million intertie—a 69-kilovolt line—to provide power where they were going to develop. NPUA built a new substation and another is on the way.

The cannabis businesses are, in effect, funding most of the upgrades. NPUA instituted a $100,000 per MW surcharge on cannabis customers to pay for the substations. The new businesses are putting down a $50,000 deposit for onsite improvements, including the transformers, pads and wiring from NPUA's service lines into their buildings.

With more load, NPUA's electric sales revenue has increased 24%, said Rainie Torrance, NPUA's assistant utility manager and the brains behind the utility's recent expansion, according to Daniels.

The utility has used the added revenue to buy bucket trucks, standardize its equipment and hire more staff. They have added two apprentices and will hire a job planner this year.

This work has greatly improved system reliability while continuing to maintain affordable rates, Daniels said.

"We've seen outages drop dramatically and we're in the middle of a pole replacement program that will further improve system reliability," Daniels said. "That's made possible by the increase in revenue. It then allowed us to address a backlog of maintenance and system modernization. It also has allowed us to create some loops in our system. Overall, it has been a net plus to not only the new businesses, but also existing customers."

## The Lessons Learned

Needles buys its power three to six months in advance. As more cannabis operations come to town, Daniels said it has been challenging to calculate how much base load is needed versus buying from spot markets. After some initial stumbles, NPUA is getting better at projecting loads as new businesses come online.

Needles also has found the

**The city of Needles has about 50 employees, about half of whom are Needles Public Utility Authority,**

**NPUA has about 3,000 electric customers and 1,700 active water service connections.**

*Marijuana growing operations require large amounts of power, which Needles Public Utility Authority is addressing with additional infrastructure.*

cannabis businesses aren't nearly as dependent on water as they are power. A big indoor grow operation recycles most of the water it uses and consumes about five times as much as the average residential home. Needles is siting one new well and patching some of its water lines. The impact on water sales and consumption hasn't been significant.

The city also has adapted to the cash transactions the cannabis businesses tend to deal in. City Hall has enhanced security at its payment counter and bought a cash-counting machine. Growers pay their bills by appointment to maintain public safety.

As the economic renaissance continues, Needles is investing conservatively, Daniels said. It is being careful to not build unneeded infrastructure. The average cannabis business in Needles requests about 2 MW of capacity, but the actual consumption has been about 70 percent of that.


*Helping power Needles businesses are NPUA crew Lineman Apprentice Michael Willis; Linecrew Supervisor Justin Scott; Linemen Jim Willis and Thomas DeLeon; former Needles mayor, councilmember, utility board member and Needles Sheriff's Department Murl Shaver; Lineman Apprentice Michael Evans; and contractor Josh Stewart.*

NPUA is still building for the peaks at the same time.

"We don't allocate power that we don't have, and we don't spend money that we don't have in the bank," Daniels said. **CWP**