

July 2018 Share Package

Utility Contacts

Pam Spettel, Blachly-Lane Electric Co-op, (541) 284-2147, spettelp@blachlylane.coop

Jeff Beaman, Central Electric Co-op, (541) 312-7753, jbeaman@cec.coop

Sharon Crisp, Copper Valley Electric Assoc., (907) 822-8342, crisp@cvea.org

Shelly Yockey, Coos-Curry Electric Co-op, (541) 332-6186, shelly.yockey@cooscurryelectric.com

Sabrina Owens, Escambia River Electric Co-op, (850) 675-7433, sabrina@erec.com

Nikki Dunn Cullen, Florida Keys Electric Co-op, (305) 816-1453, nikkidunncullen@gmail.com

Margaret Ellerbee, Glades Electric Co-op, (863) 531-5004, mellerbee@gladesec.com

Diane Junion, Graham County Electric Co-op, (928) 485-8654, djunion@gce.coop

Theresa Phillips, Lassen Municipal Utility District, (530) 257-6944, tphillips@lmud.org

Andrew Cutler, Oregon Trail Electric Co-op, (541) 524-2858, acutler@otecc.com

Mark Sellers, Peace River Electric Co-op, (863) 767-4644, mark.sellers@preco.coop

Traci Brock, Wasco Electric Co-op, (541) 296-2740, tracib@wascoelectric.com

Garrett Hylton, Wells Rural Electric Co., (775) 752-1518, gwhylton@wrec.coop

More Comfort With Less Air Conditioning



Above, reversible dual window fans provide many ventilation options for comfort.

Top, install the proper size ceiling paddle fan and always turn it off when you leave the room.

Photos by James Dulley

Q: *We like to be cool, but our old air conditioner is expensive to run. Are there ways to use ventilation to stay comfortable without running it as much?*

A: Proper ventilation, both from outdoors and within your house, can make you feel cooler and reduce your air-conditioning. The air temperature in your home is not most important. The cooling sensation on your skin is.

Human nature being what it is, people often incorrectly perceive comfort level by the temperature setting.

Moving air feels cooler than still air at the same temperature, allowing you to set the thermostat a few degrees cooler.

There are two types of ventilation. One is moving indoor air throughout your house with the windows closed. In addition to making you feel cooler, it can balance room temperatures and lower the temperature in some rooms and raise it in others. The other type of ventilation is bringing in outdoor air at times and shutting off the central air conditioning. Both can be effective.

Ceiling paddle fans are commonly thought of as indoor ventilation. It does work well. Run the ceiling fan on medium or high speed with the air blowing down to create a direct breeze on your skin. During the winter, reverse the blade rotation and run it on low speed. This gently circulates the warm air around the room without creating a chilly breeze.

Select the proper-sized ceiling fan or you will waste electricity and gain little comfort. General fan blade length recommendations based on room size are:

- 75 square feet: 36 inches
- 75 to 144 square feet: 36 to 42 inches
- 144 to 225 square feet: 44 to 50 inches
- 225 to 400 square feet: 50 to 54 inches

Running any electric fan can make you feel cooler, but it does not cool the room. It actually heats the room air because all of the electricity used ends up as heat.

When no one is in a room to feel the cooling breeze, switch off any electric

fan, including ceiling fans. Each kilowatt-hour of electricity used by a fan produces 3,414 Btu of heat, which your central air-conditioner has to remove.

Small personal fans can be effective to create a breeze directly on you while you sit in a chair or work at one location. If you buy a small fan, select one that can also be used as a zoning space heater during winter.

Select a multi- or variable-speed fan with a wide range of speeds. A good rule of thumb is you should be able to feel a comfortable breeze at 10 feet away at high speed. You should feel just a slight air movement from 3 feet away at low speed.

A horizontal, reversible dual-window fan provides a wider range of ventilation options for comfort.

Small personal fans are available. Vornado offers one with cageless soft blades that will not harm you if you bump it. It is foldable for portability. Dewalt offers a variable-speed cordless fan with a rechargeable 20-volt lithium-ion battery. It can run for seven hours at maximum speed with 500 cubic feet per minute. Move it with you from room to room.

Setting your central air conditioner blower to "on" can help to balance out room temperatures, but it will not create much of a cooling breeze. Standard blower motors are powerful, and running one continuously heats the air.

Natural outdoor ventilation is effective and free. When you open double-hung windows or an entry door with a storm/screen door, open both the top and bottom sashes a little. This creates a natural vertical air flow, even on a still day, which will mix with the indoor air.

Sit near a window on the windward side and on the first floor if you have a two-story home. Open the window just a little. Open the windows much wider on the other side or on the second floor. This creates a higher velocity of the incoming air for a stronger breeze. ■



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

Copyright 2018, James Dulley

Portable Air Conditioning is a Viable Option



Above, this 12,000 Btuh portable air conditioner uses evaporative technology, so there is no condensation tank to empty. Btuh describes the number of Btus of energy produced or removed in one hour.

Top, the outdoor ends of the ducts are tapered for better air flow. Some units have a handheld remote.

Photos by Sunpentown (top), and James Dulley



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

Copyright 2018, James Dulley

Q: *Are portable air conditioners in various rooms more efficient than using central air conditioning to cool the entire house?*

A: Using a portable air conditioner—or one with a heat pump option—is a good idea, especially if you will be in the same room for an extended time. This also is effective with central air conditioning.

I use a portable heat pump model in my home office for year-round savings. Portable heat pumps look identical and operate similarly to a portable air conditioner. They provide heat during cold weather. This efficient heating source can produce up to 12,000 British thermal units per hour from a 120-volt electrical outlet. Most electric space heaters produce only 5,100 Btuh.

Even though the efficiency of a newer central air conditioner is generally better than the efficiency of a portable model, using one can save money overall.

Run a portable conditioner to cool a frequently used room or two to a comfortable temperature. Raise the temperature setting on the wall thermostat for the central air conditioner four or five degrees higher than normal. This can provide a 10 to 15 percent electricity savings without a major sacrifice in comfort.

During moderate weather, turn off your central air conditioner and use just the portable unit. Generally speaking, an 8,000 British thermal unit per hour model should comfortably cool rooms up to 350 square feet, while a 12,000 Btuh model should cool a 550-square-foot area.

Portable air conditioners are convenient because you can roll one from room to room. It is best to have one for each floor of a multistory house.

Portable air conditioners operate similarly to a window unit. The sound level is similar to a typical window air conditioner, so they work well in bedrooms.

There are two basic portable unit designs. One uses a single duct to the window adapter. This is the simplest system and works well, but it does draw some

cooled or heated room air to the outdoors. I use a one-duct model in my second-floor bedroom to precool it at night. Then I set its thermostat higher so it does not come on much overnight.

The other design uses two ducts, which is more efficient. All of the air flowing through the condenser is drawn from outdoors and exhausted back outdoors. With two ducts, no already-conditioned indoor air is exhausted outdoors. This is more energy efficient, especially when operating a model with a heat pump in the heating mode in winter.

Another feature to consider is how the condensed water is handled in cooling mode. Evaporative models mix the water with the air exhausted outdoors so there is nothing to empty. Other models, which also function well as dehumidifiers without cooling much on the dehumidify setting, capture the water in a small tank that must be emptied. This is basically distilled water in the tank, and can be used to water houseplants.

Select a model with several blower speeds and adjustable directional louvers. When cooling, adjust the louvers to direct the cooled air up at about a 30-degree angle. The cooled air blowing out is denser, so this keeps it from settling at floor level.

A flat adapter panel is used to connect the portable air conditioner to a window with one or two 5-inch-diameter flexible and collapsible ducts. This is where the heat is exhausted outdoors. The window adapter and ducts—which must be moved along with the portable air conditioner—fit easiest in single-, double-hung or slider windows and sliding glass doors.

Use 1-by-1-inch foam weatherstripping to seal the window edge against the panel. Hollow round foam pipe insulation also works well. Use tape or glue to secure the foam to the panel to simplify moving among windows. To use with a casement window, you must make triangular top and bottom end caps to seal in the window opening. ■

Keeping Line Crews Safe

Slow down, move over and be courteous to roadside emergency and utility crews

On March 9, 2018, Washington Gov. Jay Inslee signed HB 2087 into law, an act relating to worker safety on roadways and roadsides. The bill, which passed the Washington House of Representatives and the Washington Senate unanimously, amends statute RCW 46.61—Rules of the Road and went into effect June 7, 2018.

The sections of the statute amended by HB 2087 provide that when approaching emergency or law enforcement vehicles parked alongside the road with their emergency lights on, drivers must reduce their speed when passing the emergency or work zone. If on a multilane road, drivers must move to a lane away from the emergency or work zone.

The amendments updated the list of personnel and vehicles that qualify as emergency or work vehicles to include utility service vehicles making use of flashing lights ... or warning lights with 360 degree visibility.

The statute defines an emergency or work zone as the adjacent lanes of the roadway 200 feet before and after the vehicle displaying the flashing lights.

For two-lane roads, the statute requires a driver to proceed with caution, reduce speed and, if possible, move to the opposite lane, provided there is no oncoming traffic.

For roads with four or more lanes—with at least two lanes going in the same direction—a driver is to proceed with caution and, if possible, change lanes to move away from the lane or shoulder occupied by the vehicle with the flashing lights.

A driver who violates these emergency zone driving restrictions or is driving at a speed greater than the posted speed limit will be ticketed at twice the penalty assessed for a standard traffic infraction.

A driver who drives in an emergency zone in a manner that endangers a worker or property is guilty of reckless endangerment of emergency zone workers. This is a gross misdemeanor punishable by a \$1,000 fine and/or a sentence of up to 364 days in jail, as well as a mandatory 60-day driver's license suspension.

This is a great amendment to the existing statute concerning worker safety for your utility's employees.

Your utility expends many resources to ensure the safety of its employees. Providing you with reliable electric and/or water service is a complicated job that requires special attention to worker safety.

Before each job, crew members make sure everyone understands what work is to be done and review the procedures for doing the job safely. They inspect the equipment they will be using and the protective gear they will be relying on to protect them from potential dangers while working on the distribution facilities.

The goal is to prepare for every possible situation the crew can think of that might present itself.

However, when the job requires the crew to be working beside a roadway, it faces a big unknown: drivers on the road.

That's you and me. Driving down the road, we become the major unknown when it comes to the safety of your utility's employees.

These are members of our community who take pride in keeping our lights on or water flowing through all types of conditions. They are always ready whenever there is a job to do. They don't get to wait until it's daylight or it quits raining. If our power or water is interrupted, these dedicated employees are ready to respond and restore service as efficiently and safely as possible. Meanwhile, we're warm and dry in our homes, or in our cars driving down the road where the crews are working.

The passage of HB 2087 recognizes the importance of the work competed by your utility's crews and the importance of the employees' safety.

Whether or not it's the law in your state, next time you're driving down the road and you come across a crew working beside the road, slow down, pass with caution and give the work zone as much space as you can. It's the least we can do for the line crews who do so much for all of us. ■

For more information about each state's move over law, go to <http://drivinglaws.aaa.com/tag/move-over-law/>.



Susan Cutrell is general manager of Parkland Light & Water Co. in Tacoma, Washington, and president of the Washington Rural Electric Cooperative Association.



Crews from Consumers Power Inc. in Philomath, Oregon, replace insulators at a substation near the Oregon Coast.

Photo courtesy of CPI

The Substation of the Future

New patterns of power mean a new job for a utility workhorse

By Paul Wesslund

Solar panels, electric cars, computer hackers, vandals and thieves might not seem to have much in common, but they are all making big changes in your electric service. Those changes have electric utilities talking about the substation of the future.

If everything goes according to plan, you might never even know about those changes, says Tom Lovas, a technical liaison and consultant with the National Rural Electric Cooperative Association.

“The traditional model of generation, transmission and distribution is kind of being turned on its head,” Lovas says. “In the past, power flowed to a substation and then flowed out to the consumer. The substation has now become a point of

information and interconnection, and it’s coordinated in a different way.”

Before making sense of what Lovas means by a substation becoming a point of information, it helps to understand what a substation does.

How Substations Work

That mass of wires and equipment you see behind chain-link fences basically turns high-voltage electricity into lower-voltage electricity that can be used in your home.

Electricity generated at a power plant gets “stepped up” to a high voltage at a substation because that’s a more efficient way for power to make the long-distance journey through transmission lines.

When the current gets close to where it will be used, another substation steps down the voltage for distribution to you and your neighbors.

But that straight-line path for electricity is changing, says an international industry group planning for how the

substation of the future will fit in with the power lines and power plants that make up the electric grid.

“Rather than continually getting bigger, the grid is now increasing in intelligence,” says a 2016 strategic plan of the Centre for Energy Advancement through Technological Innovation. “Customers are increasingly looking for ways to manage their own energy, customizing how they use it and serving as suppliers of energy.”

One example of customers serving as energy suppliers is the fast-growing number of homeowners installing rooftop solar panels. Now, electricity doesn’t just flow from a power plant through a substation to a house. Instead, electricity also flows in the opposite direction—from the house and then back onto the grid as homeowners sell excess solar power back to their utility.

When power flows in both directions, running a utility gets more complicated.

First, there is safety. Lineworkers need to know which wires are energized and

which are not. Electricity traveling in a different direction could put new stresses on old equipment. And utilities need new ways to monitor electric current so they can keep track of new patterns of electricity use and generation.

Predicting Power Outages

Information about where the electricity is coming from and where it's going can be used to improve operations in the utility network, and can make the substation of the future an important part of what the utility industry calls "the smart grid."

Information collected at a substation could keep track of how transformers perform so they could be replaced before they fail, or even recognize power-use patterns to predict an outage.

"We collect zillions of data points of information," Lovas says. "What we're trying to do is make sense of what that information is telling us."

Figuring out how to analyze and use all that data, he says, could improve safety, reduce outages, reduce outage duration and reduce maintenance costs.

We know information can be stolen or misused by cybercriminals, so the substation of the future needs stronger security. And not just cybersecurity. Lovas notes that substation planning needs protection against more old-fashioned attackers such as vandals and copper wire thieves.

As CEATI International wrote in its strategic plan on the substation of the future, "In the new environment, station facilities have to be protected from physical tampering, sabotage or theft and also from malicious threats to data and/or control systems connected to cyber networks."

Lovas also expects the substation of the future will respond to concerns about what substations look like by finding more remote locations or planting trees around them. Underground substations could offer better security, as well as circumvent complaints about the appearance of the wires and equipment.

When will we see the substation of the future? Maybe never, if it's hidden behind a grove of trees. Or, since improvements



After a 10-day, 3,500-mile road trip, a new 20 MVA mobile substation from California arrived at Golden Valley Electric Cooperative in Fairbanks, Alaska, on December 24, 2017.

Mobility to the Rescue

Mobile substations are often less visible to the public, but serve a valuable role. These substations provide interim grid connections and temporary power supplies in a variety of scenarios.

Consumers Power Inc. in Philomath, Oregon, has two mobile substations.

CPI Energy Services Manager Thomas Elzinga says the cooperative benefits from having a mobile substation during substation transformer failures or when substation transformer maintenance is needed.

"Taking a substation offline forces us to move load to other substations, but there are times when the other surrounding substations can't handle all that load safely," Elzinga says. "The mobile sub is brought in to help alleviate some of that additional stress from the other permanent substations."

CPI used both of its mobile substations in 2017 when it needed to replace and repair two transformers.

"In the repair scenario, we ran into the situation where a large account couldn't be serviced by other permanent substations," Elzinga says. "It was only because of the mobile sub and diverting load to other substations we were able

to make long-term repairs."

Golden Valley Electric Cooperative in Fairbanks, Alaska, also relies on a mobile substation for scheduled substation maintenance and upgrade projects. It also comes in handy during extreme temperatures.

"Our mobile is insurance to cover a major failure at substations feeding the smaller communities in our service area, which do not have an alternate nearby substation that could pick up the load," says Senior Engineer Keith Palchikoff. "During the long, dark winters, our members rely on GVEA to power their furnaces and lights. When it's 40 below zero, a catastrophic failure at a substation would be a disaster. Our mobile is designed and rated to start and operate down to minus 60 F."

Fortunately, major failures are rare.

For now, GVEA uses its mobile sub as part of its construction work plan.

"We are refurbishing and upgrading equipment at all our distribution substations," Palchikoff explains. "This requires a substation to be taken out of service for four to six weeks. The mobile allows us to de-energize and refurbish the remote substations."

and advancements are already being installed, maybe it's already here.

"I don't think there's any defined date

when the substation of the future takes over," Lovas says. "It's just a natural progression of things." ■

Now Comes the Hard Part

Negotiations between the U.S. and Canada to modernize the Columbia River Treaty have potential sticking points

By Curtis Condon

On more than one occasion, the Columbia River Treaty renewal process has been compared to a marathon. The first time was more than six years ago, even before the Northwest recommendations for a new agreement were finalized in 2013.

How prophetic.

The process has now entered the negotiating phase and—just as the last miles of a marathon are often the most difficult—chances are this could be the hardest part of the renewal effort.

Let the Wrangling Begin

U.S. and Canadian treaty negotiators met for the first time in Washington, D.C., on May 29-30, 2018.

“Good treaties make good neighbors,” Francisco Palmieri, state department acting assistant secretary for Western Hemisphere Affairs said in a statement released in advance of the first negotiating session. “The United States and Canada have a long, positive history of engagement on the Columbia River. We expect to continue that cooperative spirit when we engage in negotiations starting today.”

State Department Chief Negotiator Jill Smail leads the U.S. negotiating team. The team also includes negotiators from the Bonneville Power Administration, the Army Corps of Engineers, the Department of Interior and the National Oceanic and Atmospheric Administration.

Members of the media were briefed



by conference call following the two-day session in May and asked to refer to the unnamed negotiators and other officials as “senior U.S. government officials.”

“We’re in the beginning stages, reaffirming cooperation,” a senior official said. “We are laying out what our future objectives are at this point.”

The officials declined to provide specifics. Instead, they described their primary objectives in broad terms, which include ensuring reliable and economical hydropower production, managing flood risk and addressing ecosystem concerns.

They also reiterated they are using the 2013 regional recommendations as a blueprint for the negotiations.

An official characterized the first round of negotiations as “very productive.”

With talks off to a good start, many watchers are hopeful of a quick outcome. However, if history is any indication,

there are miles still to go.

Negotiations of this magnitude always take time. The original Columbia River Treaty took nine rounds of talks during the course of almost a year before a final agreement was reached. Back then, there were two primary issues: flood control and hydropower.

Negotiations may take even longer this time around, given there seems to be more moving parts. In addition to flood control and hydropower, negotiators want to better address ecosystem and other concerns. Both sides have different ideas about what those things are and how best to achieve them, which presents lots of opportunities for sticking points.

The Canadian Entitlement

Perhaps no issue is more likely to be contentious than the Canadian entitlement. The term refers to the annual electricity payments the U.S.

Opposite page, Libby Dam in Montana is one of four dams built as a result of the original Columbia River Treaty. The other three are in Canada.

Photo courtesy U.S. Army Corps of Engineers

sends to Canada, as prescribed by the existing treaty.

Scott Corwin is the executive director of the Public Power Council, which has long advocated for changes to the treaty, particularly as it relates to electricity payments sent to Canada.

“There is a lot at stake for citizens of the Northwest,” Corwin said, noting the treaty manages flows, controls flood risk and enhances power production. “For electricity ratepayers in the Northwest, it also determines how much hydropower is sent to Canada from U.S. dams.”

The treaty calls for half of the Columbia River’s downstream electricity to be sent to Canada—currently, about 450 average megawatts and 1,300 MW of capacity. Powerex, a power marketer and subsidiary of BC Hydro, sells the electricity to utilities in British Columbia and elsewhere.

“This is flexible hydropower that could otherwise be used to help meet load demands in the U.S. or help integrate more variable generation, like wind power,” Corwin explained.

The payments averaged \$250 million to \$350 million per year at their height, according to industry sources. They have since declined somewhat.

“In recent years, it has been around \$150 million (a year),” said Corwin.

Almost all of that is paid for by Northwest ratepayers, in the form of higher electric rates.

Corwin said that’s too much. He and others in the industry suggest the payments should be about an eighth or a tenth of what they are today—more like \$15 million to \$18.75 million annually.

“We are cautiously optimistic,” Corwin said. “However, there should be a sense of urgency. Every one to three days there is the equivalent of \$1 million of U.S. ratepayer funds being sent to Canada.”

The next round of treaty talks is August 15-16 in British Columbia. ■



U.S. President Dwight Eisenhower, right, and Canadian Prime Minister John Diefenbaker sign the Columbia River Treaty in January 1961. The treaty was implemented September 16, 1964.

Photo by White House Photo Office, Eisenhower Administration; courtesy National Archives

Columbia River Treaty Q&A

What is the Columbia River Treaty?

It is the 1964 agreement between the U.S. and Canada to work together to manage the flow and storage of Columbia River waters, minimize flood risk and enhance hydropower production for the benefit of both countries.

What is all the fuss about now?

Major provisions of the treaty are set to expire in 2024 unless the two countries agree to renew it. If renewed, the treaty probably will look different than the original. Negotiators are hard at work to modernize it and better address ecosystem issues, as well as tweak the flood control and hydropower aspects of the treaty.

How long will negotiations take?

There’s no way to know how long this phase of the process will take, or if talks will be successful. Negotiations for the original treaty began in February 1960. Negotiators met nine times before an agreement was reached. U.S. President Dwight Eisenhower and Canadian Prime Minister John Diefenbaker signed the treaty January 17, 1961.

What is the likelihood the treaty will be renewed?

It’s too soon to tell. Both sides hope for a smooth negotiating process and an equitable outcome. However, there are many more issues and challenges this time around, including additional ecosystem and cultural concerns.

Why should I care?

There are lots of reasons to care about the outcome of the treaty talks—such as flood protection, hydropower and salmon recovery efforts—but the one thing that directly affects all Northwest residents is the cost of electricity. A new treaty will impact how much you pay for electricity.

FIVE STEPS FOR SAFE DIGGING

Working on an outdoor project? Careless digging poses a threat to people, pipelines and underground projects. Always call 8-1-1 first. Here are five easy steps for safe digging:



1. NOTIFY

Call 8-1-1 or make a request online two to three days before your work begins. The operator will notify the utilities affected by your project.

2. WAIT

Wait two to three days for affected utilities to respond to your request. They will send a locator to mark any underground utility lines.



3. CONFIRM

Confirm that all affected utilities have responded to your request by comparing the marks to the list of utilities the 8-1-1 call center notified.



4. RESPECT

Respect the markers provided by the affected utilities. The markers are your guide for the duration of your project.



5. DIG CAREFULLY

If you can't avoid digging near the markers (within 18-24 inches on all sides, depending on state laws), consider moving your project location.



Source: call811.com

Reservoirs: The Region's Storage Battery

Just like animals in times of abundance gather and store food for the leaner months, hydropower operators store water during wet months in preparation for drier conditions.

Though squirrels may opt for underground storage, hydropower operators store water behind hydroelectric dams in large pools called reservoirs.

Not all dams have reservoirs, but hydropower system operators work together to make the best use of available storage and release water to meet multiple needs year-round.

Serving Multiple Purposes, Providing Many Benefits

Stored water can be released through turbines to generate electricity. While operations change year to year depending on conditions, reservoirs are generally drawn down in winter and early spring to provide power and make room for heavy spring runoff.

In April through August, as snowpack melts, water is stored to prevent flooding and keep communities safe.

Stored water can be released through spillways rather than turbines to increase river flows and help fish migrate downstream to the ocean.

Reservoirs Enable Reliability

Reservoirs act like giant batteries that provide energy when it is needed.

Hydropower operators use the stored water in the reservoirs behind the dam



to adjust the amount of water flowing through the turbines to match electricity use. Power forecasters determine how much electricity will be needed during a given time, and then communicate that to hydropower operators.

The consistent availability of hydropower also helps support other, more variable types of renewable energy sources, such as wind. Dams can quickly ramp up to provide more electricity when the wind drops and can scale back generation when the wind picks up again.

Snowmelt and runoff from upstream mountains in the spring enable reservoirs to be filled. This stored water comes in handy during the drier summer when water can be released to support energy demand and, in some instances, even reduce stream temperatures for the benefit of fish.

Work and Play on a Freshwater Highway

Reservoirs allow barges to move up and down the river, carrying all sorts of materials—from grain to wood chips to garbage. Wheat is brought from Idaho

and Washington to Oregon and even overseas. Barges on the Columbia River move almost half of all the wheat from the entire United States.

The reservoirs created behind dams are also popular places for people to fish, swim, boat and windsurf.

Storage, Spill and Salmon

Water stored in reservoirs can help hydropower operators support the seasonal needs of both young and adult salmon.

In the winter and spring, operators help ensure salmon spawning grounds have enough water for spawning and to keep their nests covered. In the spring and summer, extra water is spilled from the dams to help young fish move quickly downstream to the ocean.

Releasing stored water also helps other wildlife, such as lamprey eels, which are an important cultural resource for some Northwest tribes.

Operating the Columbia River hydropower system to support all these needs is quite the balancing act. Having the storage capacity of reservoirs is critical to its success. ■



Changing Technology Improves Safety

Linemen do more work in less time with fewer injuries

By Courtney Cobb

Seventy-five years ago, a lineman would drive his truck to a job site, strap on his belt and gaff climbers and go to work. Today, lineworkers arrive on scene with specialized trucks and an abundance of safety equipment. Although some of the work and techniques are still the same, today's line crews can work faster and more safely due to advances in equipment and technology.

Evolving Equipment

If a new pole was being placed in 1940, a team would hand-dig a hole and a crew of six to eight people would set it.

"Excavation of pole holes and ditches, setting of poles, wire stringing equipment ... were all done by manual labor and are now accomplished for the most part with mechanical equipment," says Brad Wilson, Central Electric Cooperative director of operations and engineering. "Eventually, A-frame trucks were deployed to help set poles, but up until the 1970s, all poles were climbed with a belt and hooks."

Just imagine in the early 1940s seeing a CEC line crew with linemen on top of poles using strings and pulleys to manually hoist materials and heavy pieces of equipment up to the cross-arms of the pole. Linemen would also use a lot of tools whose operations relied entirely on brute force, such as compression connectors and splicing tools.

Brad says climbing is still prevalent today because there are some older pole placements that do not have truck access. However, today's crews are equipped with new derrick/diggers for pole holes and anchor-drilling as well as boom trucks to set poles, transformers, regulators and



Linemen work on a street light in Sisters in 1949.

any other heavy pieces of equipment.

"Today's crews are equipped with insulated aerial man-lifts, which provide access to tops of poles and equipment," Brad says.

The standard dress for a lineman in the 1940s was blue jeans, a flannel shirt and a wide-brimmed hat. Today's linemen wear as much as 50 pounds of safety gear, including safety glasses, hard hats,

flame-resistant clothing, insulated rubber gloves, safety straps, a fall arrest system and reinforced work boots.

Brad says ergonomically designed equipment and safety gear, with the addition of new trucks and line-building equipment, help linemen complete their tasks more quickly, safely and reliably than in previous generations.

"We are safer today due to improved



Above, a serviceman wears a face shield, fire-resistant shirt and protective gloves while checking a transformer. Right, lineworkers prepare to replace insulators on a 69-kilovolt line.

equipment, safety rule implementation, disciplined safety training, adherence to rules by workers and new technologies,” he says.

Safety for All Crews

As equipment has improved for linemen and crews, so has training.

“Safety for the lineworker is now embedded in their training and everyday work practice,” Brad says. “Lineworkers discuss clearances from lines, hold job briefings—also known as tailboards—before work starts to discuss hazards and electrical sources, and use new technology for mapping.”

The cooperative and electric utility industry continually improves polices and rules to keep crews safe in the field. Brad says many industry rules were developed at the expense of the lives of early workers. He also points out employers’ focus on safety plays a huge part, too.

“As the old adage goes, safety starts at the top,” Brad says.

Lineworkers are required to receive safety training each month on different parts of their job including life-saving skills such as CPR and pole climbing rescues.



Infrastructure Technology

In the old days, the cooperative would receive outage calls from members, then dispatch crews to start patrolling lines, often extending for many miles, to find the broken equipment or downed line. New technologies in place today significantly narrow the span of those patrols and often eliminate them altogether.

CEC has invested in advanced geographic information systems and outage management systems that help crews recognize outages as the first calls come in and crews are dispatched.

“Crew members have access to this information on a mobile device that also contains a map that displays our electrical infrastructure as it relates to the land base for location and protective devices within the electrical system,” Brad says.

Better fault-detection equipment and computer software also help crews find outages more efficiently and create a more reliable system.

Do Your Part to Stay Safe

Electricity is part of our everyday life. While we can’t see it or hear it, we know it is ready to light our way and power our home. To use that power safely, follow these tips:

- ▶ Stay away from downed power lines.
- ▶ Use electric power tools only in dry conditions.
- ▶ Call 811 before you dig.
- ▶ Pay attention to the location of all overhead power lines when working outside.
- ▶ Don’t assume the power is shut off.

“We can now closely predict causes or their location with software from fault current readings, evaluate the system health down to the meter to pinpoint where our problems persist and allocate resources to fix them,” Brad says. ■



COOS-CURRY ELECTRIC COOPERATIVE **SAFETY CAMP**

As part of our commitment to community, Coos-Curry Electric Cooperative is excited to announce a free, one-day Safety Camp program to be held on August 4th & 5th, 2018.

Students entering 1st or 2nd grade are eligible to participate in this hands-on emergency, traffic and pedestrian safety camp in a simulated miniature city. In addition, there will be a personal safety course. Snack and lunch will be provided. Space is limited to the first 25 children each day.

If you are interested please complete the Coos-Curry Safety Camp Application and return to any Coos-Curry Electric Cooperative office. Applications are due no later than July 19, 2018. A CCEC representative will confirm your child's registration date. Due to the limited space we do ask to be notified if you need to cancel to allow room for other children on the waitlist.

Camp will be held at Coos-Curry Electric Cooperative at 43050 Hwy 101 in Port Orford. Registration begins at 8:45 and the day will conclude at 3:30 following the awards ceremony at 3:00pm. Parents/guardians can feel free to either leave the premises or enjoy light refreshments and informative interaction with CCEC staff during class.

Please feel free to call with any questions, (541) 332-6182.

Thank you,

Coos-Curry Electric Cooperative
Safety Camp Committee



COOS-CURRY ELECTRIC COOPERATIVE

SAFETY CAMP

AUGUST 4 & 5, 2018

9:00 AM TO 3:30 PM

43050 Hwy 101, Port Orford

For kids entering 1st & 2nd grade
Space is limited - Register Today!



Your Touchstone Energy® Cooperative 
The power of human connections®

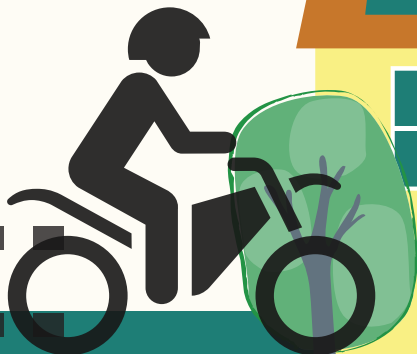
For info call:
541-332-6182

or visit

www.ccec.coop

to download an
application

Free Program for Kids
in Emergency and
Traffic Safety
Courses



A variety of light-emitting diode bulbs are available for your home. They cost less to use and last longer than incandescent or compact fluorescent bulbs.

Adobe Stock



Shining Light on Energy Savings

With LEDs, the future of bulbs is bright

By Derrill Holly

When it comes to lighting, the potential for energy efficiency is just too great to ignore. Around the home, changing bulbs can change your electric bills, and the monthly savings can add up quickly.

“Lighting-efficiency upgrades have long been the poster child of energy efficiency,” says Alan Shedd, director of energy solutions for Touchstone Energy Cooperatives.

That’s because consumers regularly use dozens of bulbs in fixtures out of necessity and convenience.

According to the U.S. Department of Energy’s Energy Information Administration, nearly 130 billion kilowatt-hours of electricity are consumed by residential lighting each year, representing about 9 percent of all home energy use.

As light emitting diode design options increase, prices are coming down. More consumers see LEDs as an alternative to carbon filament incandescent bulbs first popularized by Thomas Edison in the 1880s.

“The economics make sense,” Alan says. “When LED lamp products were \$20, it was a tough sell. Now for a couple of bucks you can get a lamp that saves energy and lasts 10 times longer.”

To get an idea of your potential for energy savings, complete a home inventory. Don’t just count fixtures. Count bulbs, check wattage and determine whether they are dimmable, three-way or require special bases. Also note the type of bulb now in use: incandescent, halogen, compact fluorescent, or straight or circular fluorescent tubes.

There’s a good chance your total bulb count for the average single-family home will be between 50 and 75, including hallways, garages and storage areas.

Savings Add Up

In 2009, 58 percent of U.S. households had at least one energy-efficient bulb indoors. By the spring of 2016, 86 percent of all households used at least one CFL or LED bulb. Nearly 20 percent of all households had completely abandoned incandescent bulb use.

Since passage of the Energy Independence Act of 2007, electric cooperatives and public power districts—including Blachly-Lane Electric Co-op—have promoted energy efficiency in lighting by sharing information on potential savings.

The federal law mandating a 25 percent increase in lighting efficiency led many U.S. manufacturers to phase out incandescent bulbs of 100 watts or more.

Halogen varieties available for residential applications can produce excessive heat. That becomes more of a consideration during cooling season, when HVAC systems get their most use.

In recent years, manufacturers have focused more research on lighting efficacy, energy efficiency and cycle longevity. That's led to major increases in the projected hours of use and lower failure rates.

While LED lighting was initially expensive and limited to warm white or a few color temperatures and designs, market acceptance and continued research have forced prices down, and led to an expanded variety of products.

Cool white, soft white, dimmable, decorative, three-way, decorative and color are now among the options. LEDs take up an increasing share of shelf space in the lighting sections of hardware, discount and home improvement stores.

Lumens, Not Watts

Cashing in on lighting efficiency gets easier if we rethink the way we buy and use lighting products.

Many consumers resist switching from ounces to grams, miles to kilometers or Fahrenheit to Celsius when discussing measurements and temperatures. But when it comes to lighting, thinking lumens instead of watts makes sense. It could save you dollars and cents.

According to Alan, education—or re-education—is the key. Once a consumer knows lumens are a measurement of the amount of light given off by a bulb, they understand that the lower the lumens, the dimmer the light.

“Sure, lumens can be confusing,” says Alan. “We didn’t grow up with that. But showing that a 1,000 lumen lamp is equivalent to a 60-watt incandescent bulb is a short-term fix.” ■

As a Blachly-Lane member, take advantage of lighting energy savings with our direct install program. Call (888) 883-9879 to schedule an in-home visit from an energy-efficiency technician, who will replace all incandescent and CFL bulbs with LEDs, install hot-water-saving showerheads, and advanced power strips. There is no charge to you.

Save Energy with LEDs

LED lights last up to 30 times longer than incandescents, reducing the need to replace bulbs in high or hard-to-reach places. Below are LED lighting suggestions for your home.



Living Room Lamps

Table or floor three-way lamps using LED bulbs provide 620, 1,600 or 2,150 lumens of soft white light and deliver up to 25,000 hours of light.



Kitchen

Dimmable recessed LED conversion lights add a warm glow of up to 1,200 lumens for kitchen workspaces and add far less heat to your kitchen. Each bulb could last 10 years.



Bedrooms and Hallways

Long-life LEDs are ideal for ceiling fixtures. A 9-watt LED produces the same 800 lumens of light as a 60-watt incandescent, and uses about 80 percent less energy.



Bathrooms

Omnidirectional LED globe bulbs are designed to provide a warm glow ideal for bathrooms. A 6-watt bulb produces 450 lumens and lasts up to 15,000 hours.



Outdoors

A 6-watt, 500 lumen LED bulb can replace a 40-watt incandescent bulb. Designed to last up to 30,000 hours, it could be a one-time switch.



Cody Tripp flags traffic while his crewmates trim trees along Blachly-Lane power lines. West Lane Tree Service is now handles the job of clearing trees from the Blachly-Lane right-of-way.

Story and photos by Pam Spettel

A Change of Ways

Blachly-Lane contracts out tree trimming work

Managing trees and brush is a long-standing fact of life at Blachly-Lane, so when two members of the co-op's right-of-way crew were reassigned to new positions to use their growing skills and talents, a change came to the right-of-way program.

Under the supervision of Blachly-Lane right-of-way Foreman Chris Parker, West Lane Tree Service now maintains Blachly-Lane's right-of-way on a contract basis. West Lane owner George Schrader and his crew of Colten Wilcut, Hayden Wilkinsen and Cody Tripp are responsible for an important part of the co-op service reliability efforts.

Hayden and Colten both grew up in the Triangle Lake area, and Cody came from the Crow area not

far away. They all like working close to where they grew up.

"We know the area because we're from here," says Colten, the crew leader. "Working out here feels more like a family. Sometimes the members talk our ears off; it's part of what we do to keep them happy. We like to do little favors for them."

"The members really appreciate it a lot more than the work we do trimming trees and brush for individual customers in town," says Hayden. "They know that what we're doing is helping to keep their power on. People thank us a lot, and that sure makes it easier to do the work."

George is also local, living in Elmira. Before he



Hayden Wilkinsen clears trees from lines that may impact electric service.

started West Lane Tree Service, he was a helicopter pilot who fought fires. His experience working around high-voltage lines brings a positive dimension to the work for Blachly-Lane.

“The Blachly-Lane contract is working out nicely for us,” George says. “It keeps these young men working every day. It’s nice to have the guaranteed work. We offer our employees a good family wage with benefits and a retirement plan. Residential tree work fluctuates with the economy. When we can offer consistent work like this, it keeps a higher standard of professionalism with our crew members. Chris Parker is outstanding to work with. The communications are great.”

Chris also likes the new direction with West Lane.

“The contract is working out really well for Blachly-Lane,” says Chris. “Not only is it an efficient way to get the job done and keep costs down, but these guys working here know our members and want to make them happy.”

“As hard as we work to keep our lines clear of limbs and brush, we still depend on our members as service reliability partners. We appreciate when members call and let us know when they’ve got trees growing up into the lines, or ones that will soon. We can get out there and take care of it before



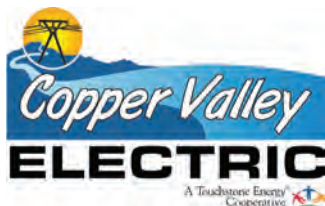
it becomes a problem. Not all of our members know that we offer a \$50 credit toward a power line friendly tree for each one we remove that poses a threat to our electric system reliability. It’s our way to thank them for keeping an eye out.”

Hayden has a few more words for Blachly-Lane members.

“We appreciate the work,” he says. “It’s nice to have the opportunity to work out here. Your lines have been taken such good care of that it helps us as we step in now. Thanks for letting us do what we do to keep your power on.” ■

Above, from left, West Lane crew members Colten Wilcut, Cody Tripp, Hayden Wilkinsen and George Schrader.

Top, Colten chips debris from overhead work.



CVEA Members Enjoy the Co-op's New Tour Program



Above, CVEA representatives and Valdez tour participants pose for a photo overlooking Solomon Lake
Opposite, tour participants as they toured the Glennallen Diesel Plant, Valdez Diesel Plant, the Cogeneration Plant, Solomon Gulch Hydroelectric Plant, and the Allison Creek Hydroelectric Project

Photos by Sharon Crisp

On Tuesday, June 12, and Wednesday, June 13, CVEA held its second round of member tours in Glennallen and Valdez, respectively. The Member Tour Program was developed to be one more tool in the members' communication toolkit and an opportunity for CVEA members to gather information, learn how the system works, and ask any questions they have in a small, informal setting.

Tours have historically been available to VIPs and special groups upon request, but the opportunity has now been made available to all members. According to John Duhamel, CVEA CEO, "This program is important to us as we believe everyone who is interested in the facilities, as member-owners, should be able to see them and learn about them."

Participants in the Copper Basin District visited the Glennallen Diesel Plant and the newly built Operations Garage, while the Valdez tour lasted the better part of the day and included a trip to the Valdez Diesel Plant, the Cogeneration Plant, the dam at Solomon Lake, Solomon Gulch Hydroelectric Plant, and the Allison Creek Hydroelectric Project.

According to members in attendance, the tours were

extremely well organized, informative and fun. One member commented, "it was such a treat to get a tour of Solomon Lake. I'd never been up there and it was not only beautiful but so interesting to see the dam, dike, spillway, and the huge penstocks going down the mountain. The view was spectacular on the beautiful sunny day."

Due to low attendance in the Copper Basin District, the tour in Glennallen will now be held only once each year, in the spring. Copper Basin tour dates will be announced each year at the annual meeting in May.

The tour in the Valdez District will continue to be offered twice a year; once in the spring and once in the fall. The next available tour date in Valdez will be Tuesday, August 28, 2018.

Registration is required and will begin roughly 60 days prior to each tour date. Space will be limited to 20 members for each tour.

If you have questions regarding this program or any CVEA member program, contact Sharon Crisp, CVEA Director of Communications, at 907-822-5506, 907-835-7005, or email crisp@cvea.org. ■





There's more to powering the community than flipping a switch.

Photo by Evening-tao/ Freepik

Maintaining Your Power

Year-round operations by line crews ensure safe, reliable power for for members

Wells Rural Electric Co. line crews overcome several challenges to ensure safe, reliable electricity is almost always available to power our members' lives.

While WREC realizes tremendous benefits from the federal hydropower resources in the Pacific Northwest, the cooperative also sits at the end of a long transmission system. Our crews are responsible for maintaining and operating more than 1,400 miles of energized line weaving through 10,000 square miles of service territory. That's a lot of line covering a lot of ground.

Despite those challenges—and the fact that WREC crews do not control the weather or transmission issues outside of our system—the average WREC member goes without power for less than .001 percent of any given year.

That's the product of several factors, not the least of which is a comprehensive preventive maintenance plan operations employees execute year-round.

WREC's crews constantly patrol power lines and use system data to identify potential problem areas so they can make repairs or upgrades and prevent an outage.

This summer, WREC crews and contractors are working

on several projects and system upgrades that will improve the reliability and quality of service members receive.

One of the bigger projects is in Ruby Valley. It is a continuation of upgrades that started last summer. WREC is replacing another 100 old poles with new poles—for a total of 200 between 2017 and 2018—and shortening line spans and increasing conductor spacing. That project started in June. It is scheduled to wrap up by the end of August.

Crews also are replacing shallow underground cable in the Mary's Mountain area through August.

Starting in late summer or fall, WREC will upgrade street lighting in Carlin to improve efficiency and light quality.

Finally, WREC will replace transmission poles on the "69 Line" that are weathered or have been damaged by woodpeckers. That project will start September 15 and run through October.

Some of these projects will help improve reliability in more remote areas, while others will improve the quality of service for entire communities.

While it might seem like a simple process, these projects are great examples that a lot more work goes into turning on a lightbulb than flipping a switch. ■

OTEC Looks to the Friendly Skies With Drones

By Andrew Cutler

They are cost effective, can be operated with an iPad and could be a game-changer for electric utilities. Utilities across the nation are using drones. Oregon Trail Electric Cooperative owns two.

“The plan is to use the drones for structure inspections to identify maintenance issues,” says Jay Tanzey, OTEC manager of GIS/staking and regulatory compliance.

A drone can make a significant difference with inspections. Its cameras allow the operator to see potential trouble before it becomes a hazard or causes an outage.

A good case in point is OTEC’s 78-mile-long power line between John Day and Burns. The line is inspected biannually. That means an OTEC lineman must traverse the entire length of the line, often over and through rugged territory, in a journey that can take weeks or months.

“It takes 20 to 40 minutes or more to get to each pole,” Jay says.

A drone could do the same job in less time and reduce the need for climbing inspections.

“You can do a more thorough structure inspection,” Jay says. “When we see something that needs looked at more closely, we can get closer without having to send a crew out there.”

During inspections, one of the harder places to examine from the ground is the top of the wood cross arms.

“You can have issues on the top of the cross arm you can’t see,” says Rick Jensen, OTEC manager of safety and loss control. “That line can look good from the ground, and then that cross arm could come apart, causing an outage.”

A drone can fly close enough and identify if the cross arm has rotted.

Using the drones for power line inspections is far more cost effective, too.

“In the past, we have used helicopters



This photo taken from a drone shows the condition of a pole and its equipment in the La Grande district.

to do that,” Rick says. “The drones could take the place of that.”

Drones can also be used for accident investigations and basic scouting along power line corridors.

“Once you fly the line and identify a trouble area, you can see what material and tools you need before you go in,” Rick says.

Drones can also be used to inspect transformers.

“One of the recent inspections we had was taking a look at information on transformers,” Jay says. “They all have an identification plate on them. We fly them up and get the serial number.”

The cooperative is studying other uses.

“It is all new,” Rick says. “Developing a program that best fits our members’ needs at OTEC is our next step with the drones.”

One challenge for the cooperative is the amount of training necessary to secure a license to fly the drones. Rick and Jay are both qualified to fly the cooperative’s two drones. They say the online drone training and final test was equivalent to flight school.

“I actually went through drone ground

pilot school, and it consisted of several months of knowledge and testing online,” Rick says. “The amount of information you have to learn is like becoming a pilot, minus the flying time.”

For commercial firms to use drones, they must have Federal Aviation Administration-certified, unmanned aircraft system-licensed pilots.

“You don’t have to be licensed to fly the drone for recreational use, only for commercial use,” Jay says.

Another limitation to drone use are government regulations. A drone can only be flown within line of sight, or where the operator can actually see the vehicle.

“The technology has raced past where we are, as far as regulations,” Rick says. “Once regulations are relaxed, we will find more and more applications for drones.”

Jay says drones could be a decisive tool in the future.

“I would like to see us get to a point where we drone a lot more,” he says. “For example, every time we build something new, someone comes in behind the crew with a drone so we have a digital record of everything we are doing.” ■

OTEC Takes Precautions to Minimize Fire Risks

By Lisa Jacoby

Electricity and dry fuel can be an explosive combination. Oregon Trail Electric Cooperative works to reduce the risk of those two combustible elements that could combine to cause a wildfire.

“There are inherent fire risks with operating an electrical utility,” says Kelly Jobs, OTEC system engineer. “We have to do everything we can to minimize that risk.

“Like most others who live in Eastern Oregon, OTEC employees also enjoy the outdoor recreational activities our region offers. The last thing we want is to have our facilities contribute to starting a forest fire.”

OTEC has 2,774 miles of distribution line and 114 miles of transmission line. The No. 1 way the utility reduces fire risk is to minimize the number of line contacts on the system, such as a tree branch coming into contact with the line. When this happens, the result is a high-temperature electrical arc. Large amounts of current flow through the object, which causes excessive heating and possible ignition.

Kelly says one way to prevent this is to aggressively trim trees, especially in forested and dryland areas. The width of the swath, however, depends on what land the powerline crosses. It could be anywhere from 15 feet to 60 feet wide.

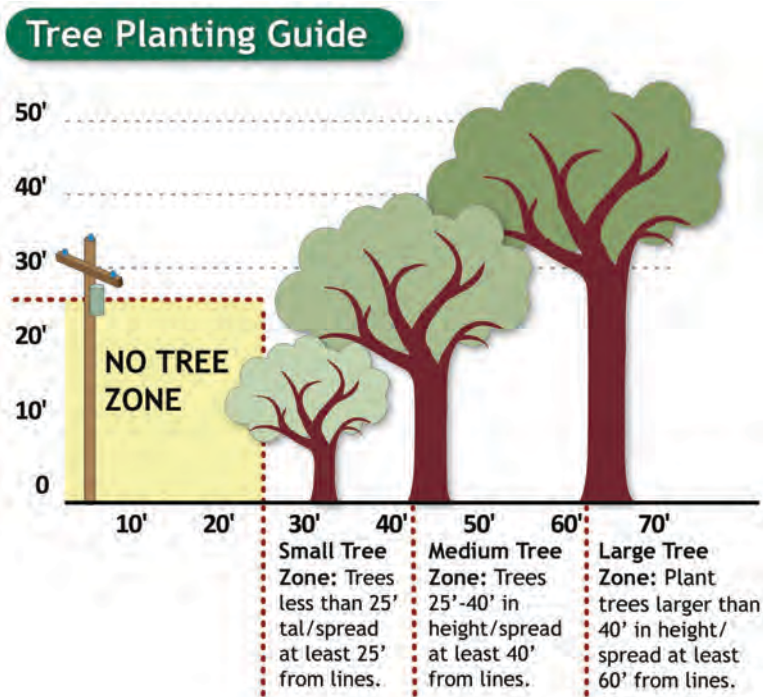
The Oregon Public Utility Commission mandates that electric utilities maintain minimum clearances between power lines and trees for the duration of the trimming cycle. For example, a distribution line requires 5 feet of clearance from trees at all times, and transmission lines require 10 feet of clearance. This takes into account high winds, snow or ice loading, or other abnormal occurrences. Because the trim cycle is two to three years, trees need to be cut back several additional feet to compensate for growth.

“The public may believe that aggressive trimming is unnecessary when, in fact, it is not OTEC’s option to do less,” Kelly says.

While OTEC can’t prevent all contacts, the utility maintains a tree-trimming schedule as well as routine line inspections and maintenance. Animals also can cause problems. OTEC installs animal guards to keep critters away.

Most electrical contacts—at least 70 to 80 percent—are temporary faults, meaning the problem goes away as soon as the line is de-energized by a circuit breaker.

“Similar to your circuit breakers in your home, OTEC also



Any tree in or near a power line right-of-way that poses a safety or reliability threat may be trimmed or removed. Prevent trimming or cutting of your trees by planting the right tree in the right place.

has circuit breakers on our power system, just bigger,” Kelly says.

Since most faults are temporary—such as a tree branch hitting a line and moving away—OTEC automatically recloses circuit breakers before locking out, which becomes an outage. In the winter, utilities try to reclose two to three times. In the summer, when fire danger is at its peak, OTEC only attempts one automatic reclose in forested and dryland areas before sending a crew to inspect the cause.

Permanent outages, which occur less than 30 percent of the time, are caused by more extensive damage, such as a tree falling through a line or a car knocking over a pole.

Another preventative measure OTEC employs is ensuring fuses and circuit breaker trip settings are sized appropriately. If the setting is too high, there is a longer burn time before the breaker de-energizes the line. A setting that is too low can result in unnecessary outages during heavy load times, such as extreme cold or heat.

“A correctly-sized fuse or circuit breaker will best balance reliability, safety and fire risk,” Kelly says. ■

The Outlook for Energy Costs in Rural Alaska in 2018

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 \$50 a barrel in March of 2017. This year, crude oil is at \$65 a barrel, indicating that prices will be as much as 30% higher 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 seven years ago by two cents a kWh, resulting in a reduction in revenue of \$1.5 million annually.
- 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 34 machines are the largest fleet in the state. 4% of our generation came from wind in 2017, even after adding Bethel and Yakutat. This year we will be installing two 900-kW wind turbines to serve Bethel, Oscarville and Napakiak and St. Mary's, Andreafsky and Mt. Village. We are making progress on a project to add one of these 900-kW turbines in Stebbins as well, which will serve both 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 is 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 2018?

In 2017, the average cost of a gallon of diesel delivered to our tank farms was \$2.73, 17 cents more than 2016's \$2.56, resulting in an average fuel charge of 21.3 cents per kWh in addition to the average non-fuel rate of 27 cents a kWh.

As 2018 fuel is delivered, we expect the fuel charge to increase after the summer deliveries since the current cost of fuel is significantly higher than a year ago. Brevig Mission currently has the lowest fuel charge at 17.21 cents and in Noatak, where fuel must be flown in, the fuel charge is 45.62 cents. Fortunately, Power Cost Equalization lowers the cost to the homeowner to about 22 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 higher in 2018, since the price of a barrel of crude oil is 30% higher than a year ago. We will continue to press for significant changes in how the State develops an energy plan for the entire state. We will press for fair and equitable treatment of all Alaskans.

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 17.2 cents in Brevig Mission to 45.62 cents in Noatak, where the fuel must be flown in. The average is 21.30 cents, a penny 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 .2130)	85.20
<u>PCE (400 x .2965)</u>	<u>(118.60)</u>
Total bill	\$91.60

That averages out to 23.00 cents per kWh, or about 31 percent more than urban Alaska's 17.58 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 non-fuel costs across all of our communities. Looking back over the last 17 years, we have reduced our non-fuel costs per kWh from 28.2 cents in 1999 to 25 cents in 2017. We reduced our rates by 2 cents a kWh in 2010, which has resulted in lower revenue of almost \$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.



Flooded areas and downed power lines can create hidden dangers. Stay away from downed power lines.

Electrical Safety During and After Storms

Answers to frequently asked questions

Severe storms and natural disasters can cause a variety of electrical safety hazards in and around our homes. Lightning, downed power lines and floods are just a few of the serious safety concerns associated with storms.

Unfortunately, many of these electrical safety hazards remain long after the storm itself has passed.

To help protect you from storm-related electrical hazards, the Electrical Safety Foundation International and Graham County Electric Cooperative offer answers to common storm safety questions.

Lightning

What should I do if I am caught outside during a lightning storm?

Move to a low point. Lightning hits the tallest available object, so get down low in a crouched position if you are in an exposed area. Stay away from trees. Avoid metal. Don't hold onto metal items like bats, golf clubs, fishing rods, tennis rackets or tools. Stay away from metal sheds, clothes lines, poles and fences.

Stay away from water, including pools, lakes, puddles and anything damp—like grass.

Don't stand close to other people. Spread out.

Is there any sort of warning before lightning strikes?

Not necessarily, but sometimes. If you feel a tingling sensation or your hair stands on end, lightning may be about to strike. Do not lie down. Instead, crouch down, tuck your head and cover your ears.

What should I do if I encounter a lightning storm while driving in my car?

Slow down and use extra caution. If possible, pull off the road into a safe area.

Am I safer in or out of my car?

Do not leave your vehicle during a thunderstorm. A vehicle is considered safe during a thunderstorm if it is

fully enclosed with a metal top such as a hard-topped car, minivan, bus or truck. While inside a safe vehicle, do not use electronic devices, such as radio communications.

The storm is still raging outside. Are we safe from lightning if we stay inside the house?

To avoid lightning strikes while indoors, stay away from windows and doors.

If possible, unplug electronic equipment before the storm arrives. Avoid contact with electrical equipment and cords during storms.

Avoid contact with water and plumbing, including sinks, baths and faucets.

Can I talk on the telephone during an electrical storm?

Use corded telephones only for emergencies. You can use cordless or cellular phones.

I have an outside dog. Is it OK to leave him outside during a lightning storm?

Doghouses are not lightning-safe, and chained animals can easily become victims of lightning strikes. You should bring your pets inside to protect them.

Power Lines

What should I do if I encounter a downed power line?

If you see a downed power line, move at least 10 feet away from the line and anything touching it. The human body is a ready conductor of electricity.

The proper way to move away from the line is to shuffle away with small steps, keeping your feet together and on the ground at all times. This will minimize the potential for a strong electric shock. Electricity wants to move from a high-voltage zone to a low-voltage zone—and it could do that through your body.

What can I do to help someone who has come in contact with a downed power line?

If you see someone who is in direct or indirect contact with the downed line, do not touch the person. You could become the next victim. Call 911 instead.

Can I use something that is not metal to try to move a downed power line myself?

Do not attempt to move a downed power line or anything in contact with the line by using another object, such as a broom or stick. Even non-conductive materials such as wood or cloth, if slightly wet, can conduct electricity and electrocute you.

What should I do if I see a downed power line in the street while I am driving my car?

Do not drive over downed power lines. Call 911.

What if a power line comes down onto my car or I didn't see it until I've driven into it?

If you are in your car and it is in contact with the downed line, stay in your car. Tell others to stay away from your vehicle.

If you must leave your car because it is on fire, jump out of the vehicle with both feet together and avoid contact with the car and the ground at the same time. This way you avoid being the path of electricity from the car to the earth. Shuffle away from the car.

Is a downed power line still dangerous if it has come down in water, like a pool or pond?

Water is a conductor of electricity. Any amount of water—even a puddle—could become energized. Be careful not to touch water—or anything in contact with the water—near where there is a downed power line.

Flooded Areas

My basement has flooded and there is standing water. Is it safe to go down there?

Use extreme care when stepping into flooded areas. Submerged outlets or electrical cords can energize water, posing a lethal trap.

My washer, dryer and a few other appliances got really wet during the flood. Can I start using them again after they dry out?

Do not use electrical appliances that have been wet until they have been examined by a qualified service repair dealer. Electrical equipment exposed to water can be extremely dangerous if re-energized without proper reconditioning or replacement.

Does a flood affect my home's electrical system, too, or just the appliances?

Electrical items such as circuit breakers, fuses, ground-fault circuit interrupters, receptacles, plugs and switches can malfunction when water and silt get inside. Discard them if they have been submerged. Have a licensed, qualified professional replace them.

Does it make a difference if the flood was caused by stormwater or by a leaky water pipe?

Damage to electrical equipment can result from exposure to floodwaters contaminated with chemicals, sewage, oil and other debris.

No matter what caused the flood, electrical appliances should be examined by a qualified service repair dealer

before being re-energized. Electrical items that were submerged should be discarded and replaced by a licensed, qualified professional.

Can flooded outside areas be dangerous too?

Yes. Downed power lines or submerged outlets from adjacent homes could energize the water. Use extreme caution when entering any flooded area.

Post-Evacuation

The storm is finally over. Can I go home now?

First and foremost, do NOT return home until instructed by the appropriate local authorities.

Once they give the go-ahead:

- Return home during daylight hours, especially if power has not been restored.
- If you smell gas, leave the premises and notify emergency authorities immediately. Do not turn on lights, light matches or engage in any activity that could create a spark.

I've been told by my local authorities that I can return home now, but could there still be electrical dangers in and around my home?

Yes. Even if you have been authorized to return home, you should take precautions to protect yourself from electrical hazards posed by downed power lines, flooded areas, and water-damaged appliances and electrical equipment. ■

Use Energy Wisely

Take a Vacation From High Power Bills

Changing habits can yield big energy savings

Soaring temperatures and sultry summer nights can cause electric bills to skyrocket. This summer, take a vacation from high electric bills by making your home and your family's habits more energy efficient.

Beat the Heat

Air conditioning helps beat the sweltering summer heat, but according to the U.S. Department of Energy, it accounts for as much as 50 percent of the average household electric bill. Proper maintenance and smart use of your home's cooling system will help keep your electric bill in check.

First, make sure your air conditioner's external unit is clean and free of debris. Clear away dead leaves or overgrown plants and weeds to enable the unit to perform as it should.

Second, change the air filters in your home quarterly, or more often in homes with allergy sufferers or smokers. Fresh filters not only reduce the strain on your cooling system, but improve air quality.

Third, DOE recommends you set your home's

thermostat as high as possible, while maintaining a comfortable environment for your family.

Bumping the thermostat up at least two degrees can make a noticeable difference on your power bill. Investing in a programmable thermostat can lead to even greater savings by automatically adjusting it so the cooling system runs more often when you are at home and less often when you are away.

Made in the Shade

Windows are not only great sources of natural light in your home, but great sources of heat during the summer. Curtains, blinds and shades are some of the most cost-effective ways to make your windows and home more energy efficient.

Window coverings offer low-cost, stylish solutions to shield the sun's rays and keep the interior of your home cool and comfortable.

Proper weather stripping and caulking around window panes and casings also will improve the function of your windows by keeping the cool air in and the hot air out. Solar film applied to your home's existing windows will further repel the summer heat.

Daily Grind

Today's appliances are more energy efficient than in the past, performing better and using less electricity. However, most major appliances give off heat when in use. During peak daytime temperatures, the residual heat from appliances can put an unnecessary strain on your home's cooling system and send your power bill soaring.

Cooler temperatures in the early morning or late evening make these ideal times for running the dishwasher or washing and drying clothes.

When possible, turn off your dishwasher's drying cycle. This prevents even more residual heat from warming your home and saves on your power bill.

Washing clothes in cold water and hanging them out to dry also will reduce your household energy consumption and residual heat.

As your summer heats up, go online to www.erec.com for more ways to lower your power bill. You can also visit www.TogetherWeSave.com to find out how little changes around the house can add up to big energy savings. ■



Minimize the strain on your home's cooling system during hot, summer months by washing and drying clothes in the early morning or late evening when temperatures are cooler.

A Word About Water

Ten Ways to Conserve in the Yard and Garden

Simple practices can make a big difference in use

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 pollution in nearby lakes, rivers and local watersheds.

To conserve water in the yard and garden:

- Plant drought-resistant lawns, shrubs and plants. If you are planting a new lawn or overseeding an existing one, use drought-resistant grasses. Many beautiful shrubs and plants thrive with far less watering than other species. Replace herbaceous perennial borders with native plants, which use less water and are more resistant to local plant diseases. Plant slopes with vegetation that will retain water and help reduce

runoff. Group plants according to their watering needs.

- Put a layer of mulch around trees and plants. Mulch slows evaporation of moisture while discouraging weed growth. Adding 2 to 4 inches of organic material—such as compost or bark mulch—will increase the ability of the soil to retain moisture. Press the mulch down around the dripline of each plant to form a slight depression. It will prevent or minimize water runoff.

- Don't water the gutter. Position your sprinklers so water lands on the lawn or garden, not on paved areas or structures. Also, avoid watering on windy days. Wind can blow sprinklers off target and speed evaporation.

- Water your lawn only when it needs it. A good way

to see if your lawn needs watering is to step on the grass. If it springs back up when you move, it doesn't need water. If it stays flat, the lawn is ready for watering. Letting the grass grow taller—to 3 inches—will promote water retention in the soil. Most lawns only need about 1 inch of water each week. During dry spells, you can stop watering altogether and the lawn will go brown and dormant. Once cooler weather arrives, the morning dew and rainfall will bring the lawn back to its usual vigor. Although this may result in a brown summer lawn, it saves a lot of water.

- Deep-soak your lawn. Water long enough for the moisture to soak down to the roots, where it will do the most good. A light sprinkling can evaporate quickly and tends to encourage shallow root systems.

- Water early or late in the day. Early morning is generally better than dusk since it helps prevent the growth of fungus. Early and late watering also reduce water loss to evaporation. Watering early in the day is the best defense against slugs and other garden pests.

- You can greatly reduce the amount of water used for shrubs, beds and lawns by strategically placing soaker hoses, installing a rain barrel water-catching system and installing a simple drip-irrigation system. Avoid over-watering plants and shrubs, which diminishes plant health



When your lawn needs to be watered, give it a deep soak so the water will reach down to the roots. At the same time, you can give the kids a chance to have some summer fun.



Keep mulch around the bottom of trees to slow the evaporation of moisture and discourage weed growth.

and causes leaves to yellow. When hand watering, use a variable spray nozzle for targeted watering.

- Don't run the hose while washing your car. Clean the car using a pail of soapy water. Use the hose only for rinsing. This simple practice can save as much as 150 gallons of water when washing a car. Use a spray nozzle when rinsing for more efficiency.

- Use a broom, not a hose, to clean driveways and sidewalks.

- Check for leaks in pipes, hoses, faucets and couplings. Leaks outside the house may not seem as bad since they are not as visible. However, they can be just as wasteful as leaks indoors. Check frequently to keep them drip-free. Use hose washers at spigots and hose connections to eliminate leaks.

Water conservation comes naturally when everyone in the family is aware of its importance. Parents are encouraged to take the time to teach children simple water-saving methods around the home that can make a big difference. ■



Above, Escambia River Electric Cooperative's Mike Henderson—wearing the insulated gloves used on the job—gets a high-five from Byrneville Elementary School students after his Safety City demonstration that highlighted safety equipment linemen use to keep them safe on the job.

Byrneville Elementary Students Treated to an Electrifying Day

In May, Escambia River Electric Cooperative conducted a Safety City demonstration for Byrneville Elementary School kindergarten and first-grade students. Students learned the many benefits—and potential dangers—of electricity. They listened carefully to the safety tips and enjoyed seeing the live demonstration that teaches electrical safety through the adventures of the “electrifying couple” of Neon Leon and Lightnin’ Liz. Safety City is a valuable educational program that teaches the importance of safety when using electricity.





Photo by David Kay

An Ounce of Prevention is Worth a Pound of Cure

As the old saying goes “an ounce of prevention is worth a pound of cure.” This concept definitely applies to minimizing power outages.

FKEC is constantly inspecting its equipment and performing routine maintenance to prevent outages and solve problems before they occur. Most recently we completed the annual helicopter inspection of FKEC’s entire transmission system. The aerial inspection is part of FKEC’s routine preventative measures and includes the survey of all 1,619 transmission poles and the associated lines and pole top equipment.

With eleven miles of the route crossing open water and many of the land-based poles in hard to reach places, FKEC hires Haverfield Corporation, a utility contractor with an experienced helicopter crew, to inspect the poles by air to save time, money and labor.

“Like all our inspections, this survey identifies, anticipates and prevents problems before they occur,” says Tom Anthony, FKEC Director of Power Supply and Delivery. “Maintenance and prevention of equipment failures on our transmission system is particularly critical since it carries electric power from the mainland to our islands, and a failure could cause a wide spread outage.”

While our transmission system stood strong during impact

last year from Hurricane Irma, a small increase in wear-and-tear was noted in the inspection. Repairs to all problems identified during the inspections are scheduled and are either made by FKEC linemen from the ground or, when possible, made directly by contract crews from the helicopter.

Scheduled Repair in Marathon

Recent inspections of our transmission system in Marathon have identified potential equipment failures caused by damage from Hurricane Irma. Emergency repairs to our overhead 138,000 volt transmission system from Knights Key to Coco Plum began in mid-June and are estimated to continue through October. The critical work will take place during day light hours, Monday through Saturday, and in most cases will require a single lane closure of approximately 600-900 feet in the north bound right lane. To minimize inconveniences, FKEC is working with all the appropriate authorities to keep traffic flowing safely.

Preemptive maintenance like this is imperative to preventing power outages before they occur and allows FKEC to provide its members with the most reliable electric service possible. Thank you for your cooperation and patience while we make this critical repair.



What to do Before and During a Power Outage

Photo by Lisa Baxter

You Should Know

- FKEC signs mutual aid agreements and works with storm restoration professionals to ensure outside assistance should our area be hit by a major storm.
- Immediately after a storm FKEC evaluates the entire power system. Restoration time depends on the condition of the transmission system serving us from the mainland. Even if our local system is relatively undamaged, our service from FP&L may be interrupted. If so, full power cannot be restored until the mainland connection is repaired.
- Restoration work is organized to restore power to the greatest number of members in the least amount of time. FKEC also prioritizes restoring power to life and safety situations and essential community services.

- ✓ **Make sure FKEC has your current phone numbers.**
When you call FKEC the phone system automatically matches your phone number to your electrical equipment. For faster restoration, make sure the number(s) you are most likely to call from to report an outage are registered to your account. To update *your information* visit www.fkec.com/Forms/update-contact-info.cfm or call 305-852-2431
- ✓ **Make sure FKEC can access your meter equipment.**
To make repairs FKEC must have 24 hour access to your meter.
- ✓ **If your power goes out, check your breakers first.**
Approximately 33% of all power outages are caused by breaker issues inside the home, which are the responsibility of the member to resolve.
- ✓ **Report the outage by calling or texting.**
Call 305-852-2431 or Text "outage" to 45183 to report your outage. Note, your mobile number must be pre-registered with FKEC to report via text. www.fkec.com/Cooperative/report-outage.cfm
- ✓ **Safety first!**
Stay clear of all downed power lines and electrical equipment. Call 911 to report a downed power line if you feel the situation presents a clear and imminent danger. Then report the wire down to FKEC by calling (305) 852-2431.

Showing How Much We Care

Glades Electric Cooperative volunteers join United Way 2018 Day of Caring effort

More than 300 volunteers participated in the 2018 Highlands County Day of Caring hosted by the United Way of Central Florida. Five Glades Electric Cooperative employees joined the effort.

The May 16 event was an opportunity to learn about the needs of the community and encourage volunteerism throughout the year.

GEC's team consisted of Sara Teele, member services representative; Phillip Albritton, journeyman lineman; Kyle Altman, lead lineman; Paul McGehee, director of business development; and Tracy Vaughn, director of operations.

Partnering with Heartland National Bank volunteers and Habitat Job Supervisors Mike Simpson, Cory Howitt and Robert Shotts, GEC employees spent the day cutting, measuring, stapling,

gluing and hammering the outside walls in place for a Habitat for Humanity home.

Future homeowners Virgil and Tenicia Cooper joined the effort. Habitat for Humanity believes that by participating in the building process, homeowners achieve the strength, stability and independence they need to build a better life for themselves and their families.

Habitat for Humanity—founded in 1976—partners with community residents and businesses across the world to build or improve a structure approved applicants can call home.

GEC employees are dedicated to supporting our communities, fulfilling the sixth cooperative principle, Concern for Community. As “Neighbors Working for Neighbors,” GEC finds a way to lend a hand whenever possible. ■





Glades Electric Cooperative employees worked on framing a Habitat for Humanity home during the United Way of Central Florida's 2018 Highlands County Day of Caring on May 16. Above, future homeowners Tencia and Virgil Cooper with GEC's Kyle Altman, background left, and Phillip Albritton. Left, Sara Teele wields a glue gun. Below, the team works at the job site.



Interconnection Agreements Required

Electric cooperatives are responsible for maintaining a safe, reliable electric grid to power the communities they serve.

As more consumers install grid-connected distributed generation systems such as solar panels and small wind turbines, electric co-ops are helping members while maintaining the safety of the grid.

Grid-connected generation systems allow you to power your home or business with renewable energy. The system must be connected to the grid to keep power flowing when the sun does not shine or the wind does not blow.

In most cases, these systems must be interconnected to feed excess power back into the electric grid.

Cooperative members interested in distributed generation

systems for their home or business should contact Glades Electric Cooperative before making the investment. We want to help you choose a system that includes the safety and power quality components necessary to keep you, GEC crews and members of the community safe.

If a storm hits and a power outage occurs, distributed generation systems

must be able to properly disconnect from the electric grid to ensure lineworkers are not injured or electrocuted while restoring power.

An interconnection agreement must be reviewed and signed before your distributed generation system is connected to the electric grid. The agreement is intended to ensure safe, reliable and quality electric service for all.

In addition to safety concerns, members interested in distributed generation systems should contact GEC Engineer Travis Turner to review applicable metering rates.

When grid-connected systems generate more electricity than you can use, the excess electricity is fed back into the grid and used elsewhere.

This means your utility bill will be adjusted to

reflect the additional power your system provided.

Beginning in July, GEC will pay accounts for production moved to the grid at the same rate GEC pays Seminole Electric for its deliveries.

“We will likewise bill these accounts for all deliveries to them at their applicable rate class like all other members,” CEO Jeff Brewington says. “The amount of the two transactions will be netted on each monthly bill, which could result in an account credit.”

The way electricity is generated and used is evolving. Glades Electric Cooperative is here to help. Let’s work together to ensure a safe, reliable electric system.

If you have questions about grid-connected generation systems, please contact Engineer Travis Turner or Chief Assistant Margaret Ellerbee at (863) 946-6200, or email tturner@gladesec.com or mellerbee@gladesec.com. ■

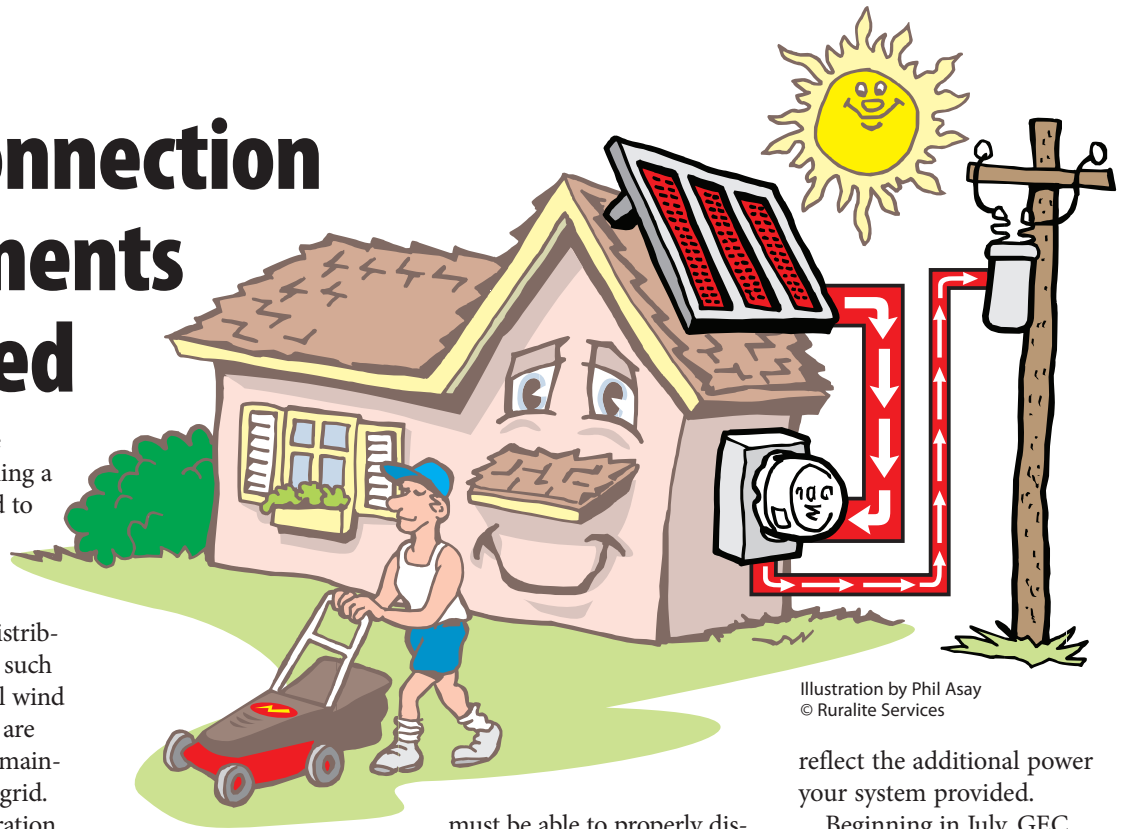
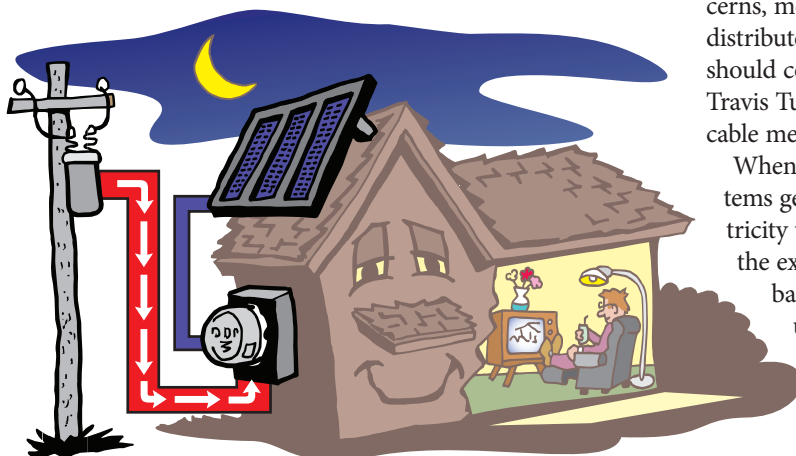


Illustration by Phil Asay
© Ruralite Services



Feds Must Invest in Rural America

Congress needs to pass the Farm Bill and fund rural development programs

By Dan Riedinger

Here is a simple fact we know all too well: The 21st-century economy runs the risk of leaving much of rural America behind. It is a concern shared by electric cooperatives all across the country because their strong community ties give them a bird's-eye view of the quality of life of the members they serve.

Rural America grows most of the food, generates much of the power and manufactures many of the goods used throughout the country.

When the modern economy threatens to leave much of the country on the wrong side of the ledger, that is bad news regardless of where you live and work.



Commentary

By Dan Riedinger



Today, fewer than 15 percent of U.S. businesses are located in rural areas and small towns. Bank loans for amounts less than \$1 million—primarily to family-owned small businesses and farms—have dropped by nearly half since 2005.

These are warning signs for the basic building blocks of the economy that serve as the foundation of America's economic stability.

The solution is not simple, but it is within reach. It will take a concerted, long-term commitment from Congress and the administration to reverse this trend. The Trump administration and Congress already have taken significant steps to jump start programs that bolster the rural economy. That is helping turn the tide in many communities. But reversing this trend requires a sustained focus across the executive branch and Capitol Hill.

The omnibus budget bill Congress approved earlier this year is providing key resources and tools to foster development of energy, telecommunications and other essential services in rural America, including \$600 million for high-speed internet access in underserved regions.

Other sections of the omnibus bill fully fund low-interest government loans or enhance the efficiency of permitting for rural electric programs to improve grid reliability.

These are positive steps, but there is more work to do.

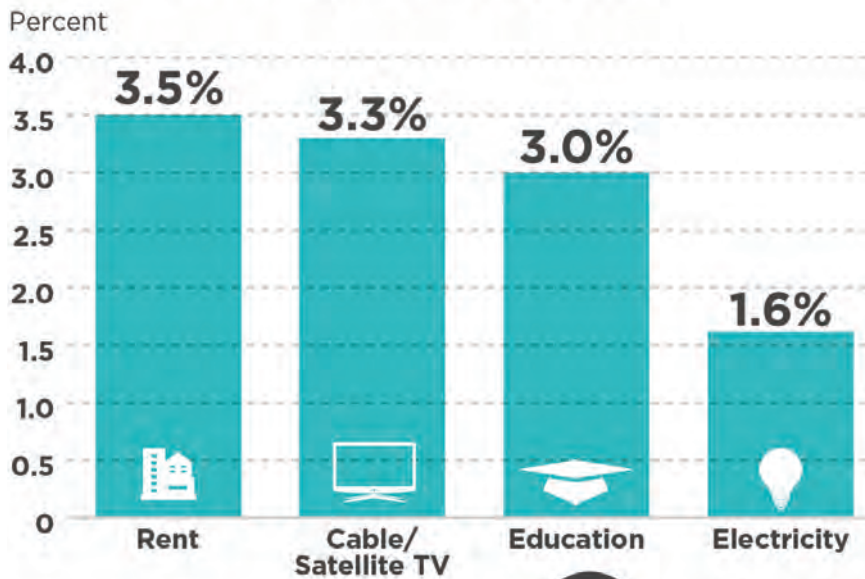
As local businesses built by the consumers we serve, electric cooperatives have meaningful ties to America's rural communities. They are making strategic infrastructure investments to give



ELECTRICITY REMAINS A GOOD VALUE

The cost of powering your home rises slowly when compared to other common expenses. Looking at price increases over the last five years, it's easy to see electricity remains a good value!

Average Annual Price Increase 2012-2017



Sources: U.S. Bureau of Labor Statistics Consumer Price Index



AMERICA'S ELECTRIC COOPERATIVES

communities the flexibility to adapt to tomorrow's energy needs, investing \$12 billion annually in the areas they serve.

That is why cooperatives have launched community microgrids, lead the nation in the deployment of community solar facilities and have invested in new XPRIZE carbon capture research.

But it takes more than smart energy infrastructure to rejuvenate rural communities. Cooperatives also leverage public-private partnerships to enhance the quality of life.

During the past two decades, cooperatives have partnered with community stakeholders through the U.S. Department of Agriculture's rural economic development programs on hundreds of projects to build essential infrastructure, renovate hospitals, build

libraries and expand businesses.

Cooperatives also use the Rural Energy Savings Program to work with consumers on energy-efficiency solutions for their homes to save money on their energy bills.

A major piece of legislation moving in Congress offers an opportunity to bolster these important public-private programs while giving rural America an additional boost: the Farm Bill.

As Congress continues discussing the Farm Bill, it should support a stronger rural America and enhance key rural development programs by including:

- Additional funding for rural broadband grants and loans. A reliable, modern grid and vibrant rural communities depend on a robust communications infrastructure.

- Ample support for proven rural economic development programs.

- A focus on accelerating energy innovation to build new renewable energy resources and modernize the electric grid.

- Continued funding for rural electrification programs.

The need to invest in rural America is real for all of us. So, too, are the opportunities for our leaders to make a meaningful difference in its trajectory. ■

Dan Riedinger writes on consumer and cooperative affairs for the National Rural Electric Cooperative Association, the national trade association representing more than 900 local electric cooperatives. From growing suburbs to remote farming communities, electric co-ops serve as engines of economic development for 42 million Americans across 56 percent of the nation's landscape.

Move Over for Power Crews

PRECO line crews are required to work on the side of the road daily — and often in the middle of the night. Handling high voltage electricity is dangerous enough by itself. Whenever drivers pass too closely to linemen and trucks the danger increases.

Florida law requires vehicles to change lanes or slow down when approaching not only police cars, ambulances and sanitation vehicles, but bucket trucks, tow trucks and other utility vehicles. By slowing down and giving them a little extra space to work you are giving workers a cushion of protection.

Florida's Move Over Law:

- When driving on a roadway with multiple lanes going in the same direction, move out of the lane closest to the stopped vehicle. If you can't safely move over, slow down to 20 mph below the posted speed limit
- On a two-lane roadway, slow to 20 mph less than the posted speed limit. If the speed limit is 20 mph or less, slow down to 5 mph
- Violating the Move Over law can result in a fine and points on your license.

When the power goes out, so do our line crews, so please help keep them safe by moving over or slowing down.



Energy Efficiency Tip of the Month

Here's a cool tip for your fridge!
Cover liquids and wrap foods stored in your refrigerator. Uncovered foods release moisture, causing the compressor to work harder.

Source: energy.gov

