

November 2019 Share Package

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Low-Cost Air Cleaners Improve Air Quality



There are many types of air cleaners. This four-speed HEPA air cleaner is so quiet you can barely hear it running on low speed.

Photo by James Dulley

Q. What type of air cleaner is most effective?

A. It can be quite difficult to separate the truth from the advertising hype about the effectiveness of various room air cleaners. The sheer size or price of a specific unit does not necessarily indicate it is effective or efficient. The type of filtering material inside is what is most important.

For the most effective air cleaning, particularly during winter, it is wise to use a high-quality central heat pump/furnace air cleaner along with room air cleaners. Some of the newer central air cleaners are effective, but they remove only the particles that get into the duct system.

When your children plop down on a sofa or walk on the carpet, a cloud of allergen particles rises. Some of these particles are relatively large and settle out of the air before they ever get near the furnace return air registers. An efficient room air cleaner can remove many of these particles using minimal electricity.

Instead of relying on advertising information, use the CADR—clean air delivery rate—rating to compare effectiveness. This rating is determined by testing procedures sanctioned by the Association of Home Appliance Manufacturers. The U.S. Environmental Protection Agency and the American Lung Association recognize the CADR data as accurate and realistic.

The first step is to have your household members tested to determine what airborne allergies they have. The effectiveness of different designs of air cleaners and filtering methods varies depending on what particles you need to remove from the room air.

Three of the most common types of particles in room air are household dust, tobacco smoke and pollen. These cover the size range of most other typical airborne particles. CADR ratings have three

separate numbers that refer to these three particles. You may find an air cleaner that is effective for pollen, but not as effective for tobacco smoke.

For example, an electrostatic air cleaner with washable cartridges is great for tiny smoke particles. There is less air flow resistance through it, so its small fan uses little electricity. A media filter is better for removing larger pollen and mold spore particles. A HEPA filter removes most particles, but its powerful fan uses more electricity. HEPA and media air cleaners require periodic filter element replacements.

When selecting an air cleaner, the CADR indicates the maximum size of room for which the air cleaner will be effective. As a guideline, the CADR rating for the specific particle of interest should be at least two-thirds of the square footage of the room. For example, a 10-foot-by-10-foot room would need a CADR of 67 or greater.

For severe allergies, I prefer a HEPA filter media with a carbon element. A HEPA filter is effective for almost all sizes of common allergens, and the carbon removes odors and chemicals. A thick carbon element is best. Select one with several fan speeds for rapid air cleaning before bedtime and quiet slow-speed, more-efficient operation at night.

If your allergy issues are with larger particles, turn off the air cleaner if the room will not be used an hour or more. These larger particles settle back down on furniture and carpeting, and will not be removed to a significant extent with continuous operation.

The following companies offer room air cleaners: Blueair, www.blueair.com; Holmes, www.holmesproducts.com; Kaz, www.kaz.com; LakeAir, www.lakeair.com; and Whirlpool, www.whirlpool.com. ■



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

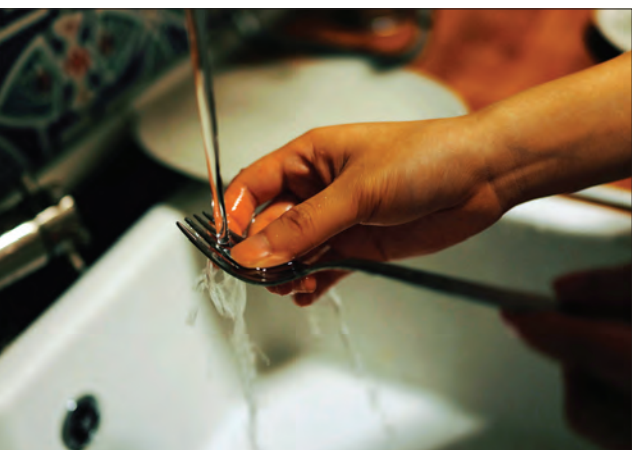
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Common Energy-Saving Claims



Burning wood produces radiant heat, which feels great if you're near the fire. But it can also send large amounts of room air up the chimney.

Photo by Stephane Juban



Washing dishes by hand typically uses more energy than the dishwasher.

Photo by Catt Liu



To ask a question, send an email to **Patrick Keegan** at energytips@collaborativeefficiency.com.
Copyright 2019, Patrick Keegan

Q: Is it true that turning lights off and on uses more energy than just leaving them on?

A: Not true. Turning off lights reduces energy use. Turn off LED and incandescent bulbs every time you leave the room. The situation is a little different with compact fluorescent bulbs. Turning them off does save energy, but can shorten the life of the bulb. The rule of thumb for CFLs is to turn them off any time they won't be used for 15 minutes or more.

Q: Would replacing my old windows with new, more efficient ones really cut my energy use in half?

A: No. While replacing inefficient windows with new, energy-efficient windows can cut the heat loss through windows in half, windows typically account for only about 25% to 30% of your space heating costs. The amount of energy you use for heating and cooling is likely one-third to one-half of your total energy use, so replacing your old windows might only reduce your total energy costs by about 10%. When you consider the high cost of new windows, you may not recoup your investment for 15 or 20 years, or even longer.

Q: Burning wood in my fireplace should save on my heating costs, right?

A: Possibly, but certain conditions need to be met. The wood should be dry and burned efficiently in a properly installed, properly placed, high-efficiency wood stove or fireplace insert. Otherwise, it's likely you will lose as much heat through your chimney as you're distributing throughout the house.

Q: My kids claim using the dishwasher is just as efficient as washing dishes by hand. Are they right?

A: Yes. In fact, it's usually more efficient. Properly used dishwashers use less water while doing a better job. As a bonus, they can save you more than 200 hours a year. For maximum energy savings, make sure your water heater is set to about 120 F and use the most efficient wash/dry settings.

Q: I've heard it's better to heat individual rooms with an electric space heater and keep the doors closed to trap the heat. Is this true?

A: It's possible to save money with an electric space heater if you use it only a few hours a day and reduce your home's thermostat setting by a couple degrees. But space heaters can cause fires, so they need to be used wisely and never left unattended.

Q: Should I close the vents in rooms that aren't being used?

A: Most experts advise against this because closing supply registers forces your furnace or air-conditioning unit to work harder. They advise keeping all your vents and doors open. If your system supplies too much heat to some rooms and too little to other rooms, talk to a heating and air conditioning professional about modifying your ductwork. ■

This column was co-written by Pat Keegan and Brad Thiessen of Collaborative Efficiency. For more information on energy efficiency, visit www.collaborativeefficiency.com/energytips.

An Electric Vehicle Ride-Along

Benton REA used social media to let members follow its electric vehicle on a long trip

I love talking to our members about what they are interested in, particularly when it comes to energy. In recent years, there has been growing interest among our members to learn more about electric vehicles.

A few years ago, I made presentations about EVs at two local chamber of commerce luncheons. I was surprised by the high level of interest on the subject. I didn't expect much interest in our rural communities, where EVs didn't seem as practical yet. I was also surprised by the wide range of perceptions regarding the actual capabilities of EVs.

Benton REA prides itself on being a trusted information source for our members' energy needs. We learned during the early days of net metering and rooftop solar—when interest was growing among our members—that it was helpful to show them an actual solar project and discuss our real-life experience. We built solar demonstration projects at each Benton REA office and hosted classes for our members. We didn't persuade members for or against rooftop solar, but provided them with accurate information so they could make the decision that fit their individual needs and desires.

Benton REA took a similar approach to EVs by buying a fully electric Chevy Bolt for our fleet. Now we can talk about our real-life experiences. Even better, we can use social media to share that experience in real time.

I recently traveled from



Troy Berglund is community development and member relations manager at Benton REA in Prosser, Washington.

Prosser to Spokane to be a speaker on a panel discussing electric vehicle programs and policies in Washington state. It was a golden opportunity to bring our members along for the ride—along with anyone who follows our Benton REA Facebook page.

Our Facebook story began at 6 a.m. in Prosser as I began our journey. With an estimated range of 238 miles, there was plenty of battery power to make the 150-mile trip to Spokane. But I wanted members to see how charging went at multiple public fast-charging stations.

I made stops in Connell on the way to Spokane, and Ritzville on the way back. I also charged to 80% while in Spokane. Of course, I documented the trip and each stop with video updates on our Facebook story and timeline.

The trip was very smooth. Two of the three charging station

locations worked with no problems. The third station eventually worked, but only after two of the three charging bays failed to provide a charge. The big takeaway: Plan for extra time in your trip to allow your EV to charge. The charging added an extra hour to my roundtrip to Spokane. I planned for that and ate lunch while the Bolt charged.

Last, but not least, Benton REA takes advantage of its EV to educate its members and the public about the value hydroelectricity brings to our region. Benton REA receives more than 85% of its power from hydroelectricity. Our vehicle wrap highlights that our EV, which has zero tailpipe emissions, is mostly powered by clean, carbon-free hydroelectricity.

We look forward to taking our electric vehicle on more long-range business trips, as well as to local meetings and events. It's been a fun and educational ride. ■



SnapPower Guidelight 2 outlet covers create enough light to help you find your way in the dark without taking up valuable space.

Photo by SnapPower

Small Gadgets, Big Convenience

By Brandon Pomrenke

SnapPower offers a variety of LED night light outlet covers. Different models include those with enhanced safety to protect young children and those with USB charging ports.

The SnapPower Guidelight 2 serves the same function as its predecessor, but the light is now diffused for softer lighting. The new model also is easier to install over different outlet types. There are no batteries or wires to worry about, and it is easy to swap out your old outlet cover quickly. Once power to the outlet is turned off, remove the old cover, screw on the new one, and you're all set.

SnapPower Guidelights are great for small spaces where a lamp won't quite fit, or a hallway that needs a little extra light.

The underside lights turn on only when sensors detect low light. Depending on local electric rates, the combination of sensors and high-efficiency LEDs means each Guidelight2 costs less than 10 cents a year to run.

Guidelight 2 outlet covers are available in two different styles—duplex and decor—and come in white, light almond,

ivory and black.

The Guidelight 2 series offers two additional options: Guidelight 2 Plus and Guidelight 2 Plus for GFCI. The 2 Plus has the same features as the original, but adds dimming settings and a manual off switch. The 2 Plus for GFCI includes the 2 Plus features, but adds room for important ground-fault circuit interrupting outlets. GFCI outlets decrease the likelihood of electric shock around outlets near water, such as the kitchen and bathroom.

For those looking to upgrade outlets, but not in need of a lighted outlet in every space, check out SnapPower's other outlets and switches. Switchlights can be bought for traditional switch or rocker styles. Both include underside lighting and sensors.

Also available are SafeLight and SafePlate options, which include child safety covers.

SnapPower also makes outlet covers with USB charging ports so you don't need to fill a much-needed outlet with a charger.

SnapPower products are available at snappower.com or at Amazon for about \$17.



Furbo Dog Camera

The Furbo Dog Camera includes a 1080p camera that allows pet parents to check on their pet day or night. The 160-degree view means not much is missed.

The device informs you when there is movement in the home, including when your dog decides to chew on furniture or dangerous cords. Furbo says the dog motion sensor also lets the owner see if their pet is suffering from separation anxiety.

Furbo's device also includes two-way audio with a barking sensor. When your dog starts barking, the device sends a push notification right to your smartphone.

If the dog is having a rough day or you just want to give a tasty reward, you're in luck. The Furbo dog camera has a treat-tossing feature. Simply use the app on your smartphone to have your device feed your pet.

The Furbo Dog Camera is available at Shopusfurbo.com and Amazon for \$199.



Wemo Insight Smart Plug

Wemo Insight Smart Plugs turn any outlet into a smart outlet. The device, which is compatible with Amazon's Alexa and Google assistant, can be controlled from anywhere using the Wemo app.

Users can control lights and appliances right from their phone. The smart plug also helps monitor costs by providing up-to-date reports about energy consumption.

Wemo highlights the away mode feature, too, which can turn lights on and off at random intervals to deter criminals.

The Wemo Insight Smart Plug can be combined with other smart devices, such as Wemo's Wi-Fi enabled light switch and the Wemo Mini Smart Plug, which is compatible with Alexa, Google assistant and Apple HomeKit.

The Wemo Insight Smart Plug is available at Amazon, Belkin.com, or Walmart for as low as \$29.99.

Hamilton Beach Open Ease Automatic Jar Opener

Hamilton Beach's automatic jar opener—model 76800—makes opening even the toughest jar lids child's play.

Powered by two AA batteries, the opener can be used for glass jars with lids ranging from 1 inch to 4 inches. Because the device isn't on a stand like many other automatic openers, there's no jar too tall to open.

The automatic jar opener is great for those with arthritis or other dexterity issues. Instead of wrestling with a stuck lid or banging the edges against a corner, simply attach the opener to the lid and press a button.

The opener should be used only on glass jars with screw-on lids.

The Hamilton Beach Automatic Jar Opener is available for \$36.79 at Amazon.



Making Sense of the Choices

Tips for buying new appliances—and how to know which model best suits you

By Paul Wesslund

The Sloboda family needed a new refrigerator, so Brian volunteered to do the shopping. After all, he is a national expert on electric appliances.

He came home frustrated.

Even for the guy whose job title is director of consumer solutions at the National Rural Electric Cooperative Association, there were too many choices.

“Just buy whatever you want,” he told his wife.

Brian finally got to use his in-depth knowledge when he looked over the model his wife, Sami Jo, brought home.

“Why didn’t you get the version that has a camera inside, so you can use your smartphone in the grocery store to see if we need more milk?” he asked.

She had a good reply.

“Because it cost \$500 more,” she said.

Brian told her that was a good reason.

It is the kind of reasoning we all will do in the coming years as we grapple with the newest trend in appliances: connection to the internet.

“The No. 1 problem for homeowners is trying to determine which of the things actually presents value,” Brian says.

For example, when you are on vacation, you can use your smartphone to check whether you have left the oven on or the garage door open.

It Sounds Nice, But Is It Really Worth It?

“There’s a Crock-Pot app,” Brian says. “Does that have value to you? It might, if you use a Crock-Pot a lot.”

“There are infinite possibilities. They sound nice when you first hear about them, but you have to remember you are paying more for those features.”

Web-connected appliances could offer online diagnostics. There might not be strong everyday reasons for a washing machine to be hooked into cyberspace, but if it broke, the manufacturer could log in to figure out what’s wrong. That could help decide the best way to repair or replace the equipment.

Is it worth the extra cost?

“It’s a good feature,” Brian says, “but one you’re only going to use when the appliance breaks.”

If you are longing for lower-tech help in decision-making, look to the yellow and black U.S. Department of Energy’s EnergyGuide label on each appliance.

“It’s one of the single greatest pieces of information that you can find when you buy an appliance,” Brian says.

He says the most useful information is the big dollar figure in the middle of the label. It shows what it will cost to use that appliance for a year.

Brian cautions that the number doesn’t tell you exactly

what you will pay because it doesn’t use your local utility’s kilowatt-hour rate. But it is a perfect way to compare appliances because every appliance’s label is based on the same national average electric rate.

“You can stand in that aisle looking at all the washing machines, and you can scan the entire row and narrow your options down from a dozen to the three or four that use the least amount of money,” Brian says.

Taking Charge of Your Appliances

Dramatic energy-efficiency advances have been made the past several years.

If you see an Energy Star logo in the lower right corner of the label, it means the appliance will use less energy than a standard model.

The upper right corner lists the manufacturer and model number, which you can use for more detailed comparisons with other models.

Brian says to pay attention to the age of your major energy-using appliances. Motors degrade in refrigerators and in heating and air conditioning systems. He suggests upgrading air conditioners and heat pumps older than 10 years, and refrigerators older than eight years.

The Department of Energy offers a handy way to check if it is time to replace your refrigerator. Visit the

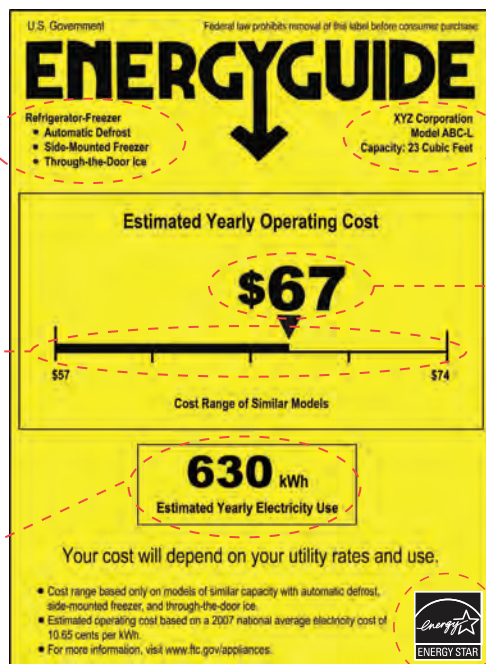
Understanding the ENERGYGUIDE Label

The ENERGYGUIDE label is a great tool that helps consumers compare the energy use and costs of new appliances. Use the sample below to better understand how to use the information found on the label.

Lists key features of the appliance and the similar models that make up the cost range below.

The cost range helps you compare the energy use of different models by showing you the range of operating costs for models with similar features.

An estimate of how much electricity the appliance uses in a year based on typical use. Multiply this by your local electricity rate on your utility bill to better judge what your actual operating cost might be.



The make, model and size tell you exactly what product this label describes.

What you might pay to run the appliance for one year, based on its electricity use and the national average cost of energy. The cost appears on labels for all models and brands so you can compare energy use.

If you see the ENERGY STAR logo, it means the product is better for the environment because it uses less electricity than standard models.

number of internet-connected devices in the home.

Brian says the aim of the study is to understand the value of internet-connected devices to the consumer so manufacturers can build products the consumer wants.

The study also will look for futuristic-sounding ways co-op members can sign up for optional utility programs to help homeowners decide how they want to use electricity.

“The appliances would be networked together and they would talk to one another,” Brian says. “In a very advanced scenario, the home could actually reconfigure the way appliances are being used depending on occupancy of the home at the moment and the weather conditions.”

That setup could even allow homeowners to decide if they are a person who wants to save as much energy and money as possible, or if they would rather the house be warmer or cooler.

“They won’t have to figure out if they want to set the thermostat back,” Brian says. “The homeowner would tell the system whether they wanted to maximize comfort or maximize savings, then the home would communicate to the utility. That way it won’t be the utility controlling the system. It won’t be the appliance manufacturer. It will be the occupant of the house who is making the decisions.” ■

Source: Federal Trade Commission

EnergyStar.gov website. In the search box, type “flip your fridge calculator.” You will find a link to a page where you can enter your type of refrigerator and its age to calculate how much you would save by buying a new one.

All of these options mean more decisions for consumers. But help is on the way.

Brian says electric co-ops are working with two national laboratories to study the most useful ways to connect appliances with the internet and

with the utilities that provide the electricity. During the next two years, the study will report on how consumers can more easily make decisions on how to use appliances, and even how to enhance cybersecurity for the growing

Understanding Net Metering

Learn More

Net-metering laws vary by state and within states.

Although Idaho has no statewide policy, all three investor-owned utilities operating there have programs in place. Co-ops and municipals do not.

Alaska has mandatory rules, but many smaller utilities are exempt.

In Nevada, Valley Electric Association opted into net metering.

For a state-by-state description of net-metering policies, go to <http://programs.dsireusa.org/system/program/maps>. Click on the state and search "net metering."

By Paul Wesslund

A controversial and misunderstood energy issue is net metering. At its most basic, net metering is a way of measuring and valuing the electricity output of privately owned resources. It requires utilities to buy excess electricity from consumers who generate electricity themselves.

States and electric utilities have established net-metering programs to encourage clean energy generation. But the rules change all the time.

In the first nine months of 2018, states took more than 400 actions to change how they compensate small energy producers, according to the North Carolina Clean Energy Technology Center, which collects net-metering information from around the country.

Some actions strengthened net-metering laws. Others weakened them.

What is net metering?

Net metering is a billing method in which the consumer is charged for any electricity used from the grid, and credited for excess electricity the consumer generated and sent back to the electric grid.

That excess electricity could be produced by solar panels, a windmill or a portable generator. The main source for this extra electricity is from homeowners who have installed solar panels on their property.

Under net metering, whenever their solar system generates more electricity than their home uses, the electric utility must compensate the homeowner for the excess electricity.

How do electric utilities compensate consumers for the excess electricity?

Many net-metering programs require the utility to buy back or credit the consumer's bill for

excess electricity at the same retail rate the utility charges. Other programs allow the utility to credit the consumer at the wholesale cost, which is what the utility pays for power. Some utilities require consumers with privately owned generation to be metered separately. Under net-billing programs, the consumer receives a bill with a credit for the excess electricity subtracted from the total amount due.

Net-metering programs that set reimbursement at wholesale cost rather than retail rates are more likely to ensure appropriate levels of compensation for both utilities and consumers who generate electricity, without negatively affecting other members.

Net-billing programs provide more equitable compensation to the net-metered consumer without leaning on consumers who don't have solar panels or other ways to generate power at home.

Is net metering new?

Net-metering programs have been around since 1983. Thirty-eight states and the District of Columbia have established programs.

To encourage development and use of solar, wind and other forms of alternative energy, states also started passing other laws, such as renewable portfolio standards, which require electric utilities to have certain amounts of their power generated by renewable energy resources.

HOW NET METERING WORKS

Net metering is a billing mechanism that compensates consumers who own private solar panels (or other renewable energy systems) for any excess power that is sent back to the electric grid.



1 A renewable energy system, in this case privately owned solar panels, converts energy from sunlight into electricity.



2 An inverter, which is connected to the electric grid, converts the electricity from direct current to alternating current to make it safe for use in homes.



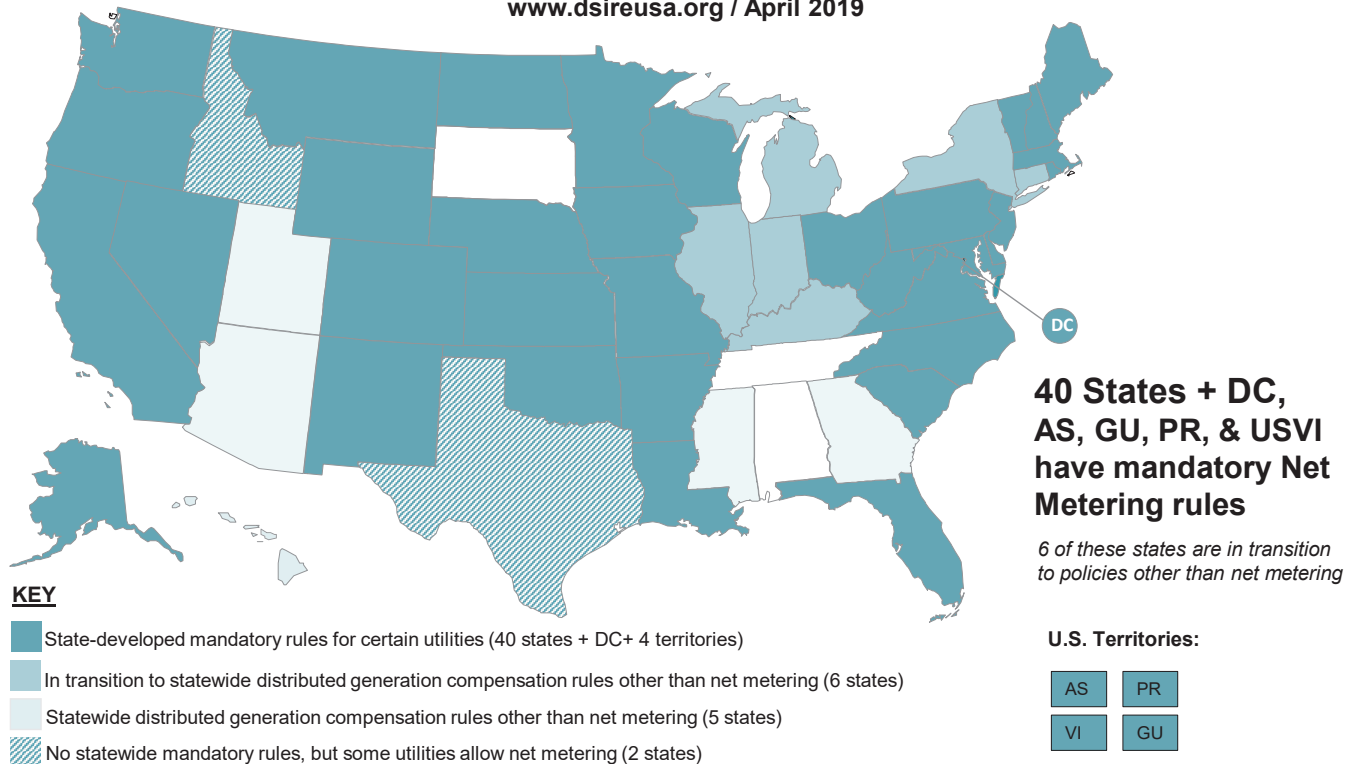
3 The electricity is used to power the home. (It should be noted that solar panels do not provide electricity during a power outage.)



4 If the solar panels produce more electricity than the home needs, the consumer is compensated for excess electricity sent back to the electric grid.

Net Metering

www.dsireusa.org / April 2019



What makes net metering challenging?

For electric utilities, the basic challenge with net metering is policies that require them to pay high costs for what is often low-value power.

The reason it is low-value power is you cannot count on it. There is no solar energy at night and no electricity from wind during calm weather.

Renewable energy advocates argue net-metering rates are a great way to support green power. But utilities say it is not fair for them to have to buy electricity from a rooftop solar owner at a rate that covers around-the-clock service when that is not what the homeowner is providing.

Results from that imbalance are where the net-metering

issue gets complicated. The economics of net metering create a subsidy for rooftop solar owners paid for by those who don't have any solar panels.

The cost difference between buying wholesale electricity at retail rates didn't matter much at first. But solar energy is booming, potentially reshaping the effect net metering could have on the energy industry. The number of rooftop solar installations grew 63 percent from 2012 to 2015, according to the National Rural Electric Cooperative Association. As a result of that growth in potential net-metering use, many states started rethinking net-metering rules.

Another result is the utility's ability to plan for its basic job supplying reliable

and affordable electricity. The engineers and accountants who run an electric utility that provides power 24/7 need to place a higher value on dependable electricity, rather than from several homeowners who may or may not generate excess electricity when it is needed.

Net-metering payments don't cover the costs of setting up a billing system, paying taxes or any of the utility's other fixed costs.

What are alternatives to net metering?

Tax credits for installing renewable energy systems and dedicated research funds aimed at lowering costs for alternative energy are options to support renewables without

implementing net metering.

Electric cooperatives are leaders in community solar programs, which offer members the opportunity to participate in renewable energy programs that are more affordable and reliable than privately owned solar panels.

Community solar arrays can be sized and priced to fit consumer demand, reducing risks of cross-subsidization.

As the energy industry continues to undergo major changes—whether to technology, renewable energy use or other emerging trends—publicly owned utilities will continue working with all customers to ensure delivery of the safe, affordable, reliable energy our communities depend on. ■

Invested in the Community

Consumer-owned electric utilities are committed to making a difference in the lives of their neighbors

Compiled by Pam Blair

For consumer-owned electric utilities, service means much more than delivering power to members. It is about the power of community connections.

The utilities and their employees devote time in the areas they serve, building relationships and community partnerships. After all, the women and men who work there also live there.

Here are ways cooperatives, municipalities and PUDs in the region make a difference in the communities they serve.

Alaska Village Electric Cooperative, Anchorage, Alaska. AVEC donates to annual spring cleanups, provides reflective trail markers and supports holiday celebrations, sled dog races, search and rescue, and educational and cultural events.

Barrow Utilities and Electric Cooperative Inc., Barrow, Alaska. BUECI donates \$70,000 annually to support athletic, scholastic, cultural and safety activities such as the Christmas and Fourth of July Games, which highlight Native Alaskan traditional athletic contests, the city's New Year's Eve fireworks display, and school trips for the football and basketball teams. The co-op hangs Christmas streetlight displays around public buildings, sponsors local radio programming and uses utility equipment to offer free grave digging in the frozen tundra.

Blachly-Lane Electric Cooperative, Junction City, Oregon. Each year the co-op supports local schools, libraries, youth sports, veterans' groups, community centers, granges and food banks through its donations program.

Central Electric Cooperative, Redmond, Oregon. CEC and its employees support more than 50 organizations and causes,

including childhood health and development, veterans' outreach and food banks. The co-op donated poles and labor to help repair the Oregon Youth Challenge obstacle course.

Clatskanie PUD, Clatskanie, Oregon. Employees and board members donated \$3,200 to local food banks. Employees volunteer on Chamber of Commerce and food bank boards. The crew installs Christmas decorations in Clatskanie and Rainier. Employees provided safety demonstrations at health and safety fairs. The PUD sponsors the Share the Warmth energy assistance fund to help customers.

Consumers Power, Philomath, Oregon. CPI donated to more than a dozen local nonprofit organizations. CPI also presented electrical safety demonstrations to school and community groups.

Coos-Curry Electric Cooperative, Port Orford, Oregon. CCEC plans and hosts a one-day safety camp for first and second graders. The co-op collected 5,000 pounds of canned food.

Harney Electric Cooperative, Hines, Oregon. Employees volunteer to run fair gates and cook burgers at the Harney County Fair. The co-op sponsors 4-H Carcass of Merit awards for two county fairs in Oregon and Nevada.

Kotzebue Electric Association, Kotzebue, Alaska. KEA donates to Special Olympics, Mothers Against Drunk Drivers, the Salvation Army, the Food Bank of Alaska, and Boys and Girls Club. It sponsors Little League softball and youth basketball teams, provides annual scholarships for high school graduates, sponsors a radio swap-and-shop show, puts on the community's New Year's Eve fireworks show and hangs Christmas lights on Main Street. Employees help



West Oregon Electric Cooperative, Vernonia, Oregon

Above, employees installed a pole at the Mist-Birkenfeld Rural Fire Protection District main station for emergency management purposes. The fire department will use the pole as a radio tower to facilitate communications when phone lines are down.

organize local snowmobile races and run the Kobuk 440 sled dog races.

Lane Electric Cooperative, Eugene, Oregon. LEC hosted veterans and their spouses for a lunch at the cooperative to thank them for their service. The co-op awarded \$20,500 in scholarships and participated in the Oakridge Keg and Cask Festival, McKenzie Chainsaw & Arts Festival, Lowell Blackberry Jam Festival and Veneta Light Parade.

Lassen Municipal Utility District, Susanville, California. LMUD sponsors Spring Home, Garden and Outdoor Recreation Show and supports Magical Country Christmas, Lassen County Fair Parade, Safe and Sane Uptown Trick or Treat, Lassen Land and Trail Trust Kids Nature Camp, Lassen County Fair



Golden Valley Electric Association, Fairbanks, Alaska

At left, for the 29th year, GVEA adopted families for Christmas. It also gave away trees in celebration of Arbor Day. Through its GoodCents round-up program, GVEA has distributed more than \$1 million to non-profit organizations in its service area.

Raft River Electric Cooperative,

Malta, Idaho. The co-op donated toward a new sound system for the Raft River High School auditorium. RREC also sponsors a community color run and provides safety demonstrations during Ag Days.

Tillamook PUD, Tillamook, Oregon. The PUD awarded \$75,000 in grants

Kiddies Day and Soaring Eagle Blue Star Moms Main Street Banners.

Midstate Electric Cooperative, La Pine, Oregon. Nearly 100 students participated in MEC's Career Days, learning about careers at the co-op. MEC supports economic development, veteran, youth, emergency service and community programs.

Mt. Wheeler Power, Ely, Nevada. The co-op offers a workshop that helps low-income families complete state paperwork for one-time energy assistance.

Northern Lights Inc., Sagle, Idaho. Through its Operation Round-up program, NLI's Community Trust funds local food banks, fire departments, schools and community-based organizations. NLI also sponsors blood drives.

Oregon Trail Electric Cooperative, Baker City, Oregon. OTEC awards 32 scholarships a year, sponsors students to the Rural Electric Cooperative Youth Tour and the Idaho Youth Rally, and teams up

with community partners to deliver free books to local children through the Dolly Parton Imagination Library.

Parkland Light & Water, Tacoma, Washington. The utility provides energy assistance through Project Round-Up to help customers in need with their utility bills. PL&W participates in Touch-A-Truck—where kids get up close to big vehicles—provides utility awareness at Garfield Days Street Fair and awards an annual scholarship to a graduating senior. Employees donate to Winterfest, a jacket and toy drive for children from families struggling to make ends meet.

Plumas-Sierra Rural Electric Cooperative, Portola, California. PSREC sponsors youth and Christmas stocking programs for children. Employees buy, cook and serve food at community dinners. They also host food, toy and coat drives, and participate in Adopt-A-Highway cleanups.

to nonprofits for economic development projects. Employees and their families assembled food and gift baskets for 18 families, and donated to school districts to help students in need of supplies.

United Electric Cooperative, Heyburn, Idaho. UEC participated in the "Sleep in Heavenly Peace" program, setting up bed kits for kids who don't have beds. Through the co-op's annual Mitten Tree, members and employees bring in winter apparel to give to local children. UEC hosts a food drive to benefit local food banks and shelters, donated turkeys to Kat Country for an annual drive, contributed to the Festival of Trees, sponsors students to the annual Youth Rally, offers academic scholarships and a summer internship, and provides free safety demonstrations for the public. It also supports local schools, sports and 4-H students. Employees and their families participate in Adopt-A-Highway cleanups. ■

2019 **Annual** Meeting



Saturday, November 23

registration begins at 11 a.m., lunch at noon, meeting at 1 p.m.

Fort Dalles Readiness Center

402 E Scenic Dr., The Dalles OR 97058

Are You Prepared?

In case a severe storm knocks out power for an extended time, you need to plan ahead

By Christina Sawyer

It's your worst-case scenario. A major storm has caused significant damage to power lines, and your electricity may be out for several days. You're low on everything: food, pet supplies, toilet paper, batteries, diapers and medication.

Imagine how you would feel in this situation. While you can't prevent the storm, you can prepare so you have the tools and resources to weather the storm when severe weather occurs.

If a severe storm is expected with high winds and heavy snow, you may need to take extra steps to safeguard your family. Fully charge all cellphones, laptops and devices so you have maximum power in the event of an outage.

If you plan to use a small generator, make sure it's rated to handle the amount of power you will need, and always review the manufacturer's instructions to operate it safely. Be sure to buy extra fuel and store it in a safe location.

In the event of an outage, turn off appliances, TVs, computers and other sensitive electronics. This will help avert damage from a power surge and prevent overloading the circuits during power restoration. Leave one light on so you

will know when power is restored.

If using a small household generator, consider using LED holiday lights to illuminate a living area. A strand of 100 white lights draws little energy yet produces considerable light. Solar lights also work if they can receive some sunlight during the day for charging.

Plan for activities that don't require electricity to pass the time. Include board games, a deck of cards or a great book in your emergency kit. They will help the time go by faster.

Allow ample room for utility crews to safely perform their jobs, including on your property. Keeping the area around your meter clear could speed up the restoration process and will help keep crews safe from hazardous conditions.

Advanced planning and preparation for severe weather events can lessen their impact and reduce stress and anxiety when it's time to weather the storm.

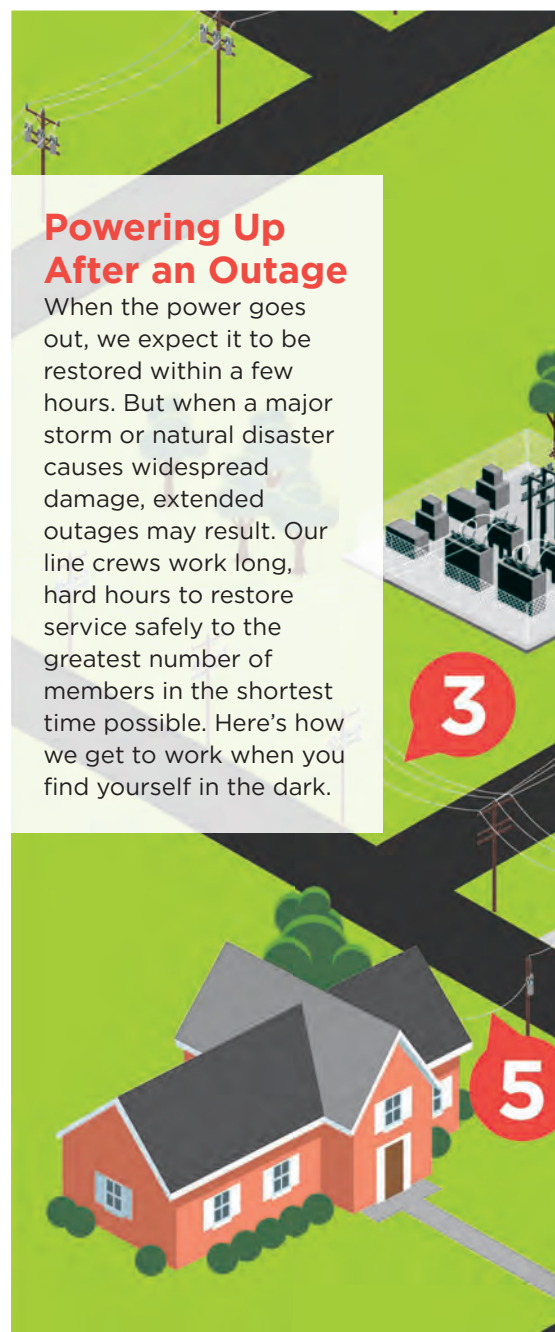
Follow the Mt. Wheeler Power Facebook page—a great source for outage updates—and download the Mt. Wheeler Power app to quickly report an outage from the palm of your hand.

Keep your account number and meter number in your emergency kit. This information allows our after-hours service center to pinpoint your home's location, significantly reducing restoration time. Another useful place to find co-op news and information is Mt. Wheeler Power's website, www.mwpower.net.

Act today. There's power in planning. ■

Powering Up After an Outage

When the power goes out, we expect it to be restored within a few hours. But when a major storm or natural disaster causes widespread damage, extended outages may result. Our line crews work long, hard hours to restore service safely to the greatest number of members in the shortest time possible. Here's how we get to work when you find yourself in the dark.



PREPARATION CHECKLIST AND RESOURCES

- ▶ Stock up with a three-day supply of nonperishables: canned foods, energy bars, peanut butter, powdered milk, instant coffee, water and other essentials.
- ▶ Stock adequate sanitation and hygiene supplies including towelettes, soap, hand sanitizer, diapers and toiletries.
- ▶ Ensure your first-aid kit is stocked with pain relievers, bandages and other medical essentials, and make sure your prescriptions are current.

- ▶ Set aside basic household items you will need, including flashlights, batteries, a manual can opener, and portable, battery-powered radio or TV.
- ▶ Organize emergency supplies so they are together in an easily accessible location.

The Department of Homeland Security offers several resources to help you prepare for major weather events and natural disasters. Visit www.ready.gov/make-a-plan.



1. High-Voltage Transmission Lines:

Transmission towers and cables supply power to transmission substations (and thousands of members), and they rarely fail. But when damaged, these facilities must be repaired before other parts of the system can operate.

2. Distribution Substation:

A substation can serve hundreds or thousands of members. When a major outage occurs, our line crews inspect substations to determine if problems stem from transmission lines feeding into the substation, the substation itself or if problems exist further down the line.

3. Main Distribution Lines:

If the problem cannot be isolated at a distribution substation, distribution lines are checked. These lines carry power to large groups of members in our local communities.

4. Tap Lines:

If local outages persist, supply lines (also known as tap lines) are inspected. These lines deliver power to transformers, either mounted on poles or placed on pads for underground service, outside businesses, schools and homes.

5. Service Lines:

If your home remains without power, the service line between a transformer and your residence may need to be repaired. If you experience an outage, please give us a call so we can isolate the issue.



VEA's dispatch and engineering center in Pahrump earned LEED Gold Certification, which is unusual in a rural area, according to the U.S. Green Council.

Jeff Scheid photos

VEA Building Earns Coveted LEED Gold Designation

Valley Electric's dispatch and engineering building in Pahrump has been certified as LEED Gold by the U.S. Green Building Council.

"LEED stands for Leadership in Energy and Environmental Design, and that is exactly what VEA did when undertaking this amazing project," said Daniel Huard of Humann Building Solutions, LLC, who assisted VEA with the application. "When you look at what VEA has done for energy efficiency in Pahrump, it is amazing how great a leadership organization that they are."

Four levels of achievement are possible in the LEED ranking system – certified, silver, gold and platinum.

Huard said it is unusual for a building in a rural area to achieve gold status, and a primary reason the dispatch and engineering building did not attain platinum status is because of its location. Platinum is typically awarded

Dispatch, Engineering building singled out



Special steps were taken in the construction of the building to improve energy efficiency.

in more densely populated urban areas.

"The project earning Gold Certification is additionally amazing in that we typically see LEED Certifications happening in urban settings," said Huard.

VEA was recognized for its efforts to construct and operate the building with a focus

on energy efficiency, low CO₂ emissions, water conservation and solid waste reduction. In the U.S., people spend about 90 percent of their time indoors, and green buildings like the dispatch and engineering center have better indoor air quality and lighting than in most buildings. The building was completed in 2015.

Special steps were taken in the construction of the building to improve energy efficiency including:

► **Roofing.** A high SRI material was installed to reflect radiant energy away from the building to reduce "heat island effect."

► **Water Conservation.** The project's landscaping was carefully planned to use native and adapted species of plants and shrubs because of their ability to survive in Pahrump's hot, dry climate. Also, the water fixtures used resulted in a 41 percent reduction in water use.

► **Energy Systems.** The heat and air systems were installed and calibrated to reduce energy use and operating costs.

"It's an honor for VEA to be recognized by this prestigious certification," said Dick Peck, Interim CEO. "Being certified as LEED Gold says a lot about VEA's commitment to sustainability." ■

Cooperative Status Under Attack

The electric cooperative network of more than 19 million members nationwide is making its voice heard in Washington, D.C., to show support for passing the Revitalizing Underdeveloped Rural Areas and Lands Act (House Bill 2147 and Senate Bill 1032).

Passage of this bill is vital for nonprofit, member-owned

electric cooperatives to retain their tax-exempt status and avoid burdensome taxation of grants they may receive to rebuild electrical infrastructure following a disaster, or to expand services, such as broadband, to underserved areas of rural America. This is what cooperatives do best.

“Electric cooperatives and other consumer-owned

utilities play an important role in delivering affordable power to rural communities across Oregon and our nation,” Rep. Greg Walden said.

Unfortunately, the Tax Cuts and Jobs Act that Congress passed in 2017 resulted in unintended consequence, which the RURAL Act will fix. The current law contains provisions that count federal, state and local grants as nonmember income and, therefore, potentially taxable. Previously, these types of grants were defined as capital, not income.

To be considered tax-exempt, electric cooperatives must receive at least 85% of their income from members. If, for example, a cooperative receives a Federal Emergency Management Agency grant to help its system and members recover from damages following a major storm, this additional financial support could be considered taxable income if the FEMA assistance increases the co-op's nonmember income over the 15% limit.

The last thing members need following a major storm is a rate increase because their cooperative has received a grant that is considered taxable income.

This is what's happening to our friends at Douglas Electric Cooperative, who sustained major damage during last February's brutal snowstorm in Southern Oregon.

DEC sustained damages

in excess of \$10 million and requested FEMA support. The millions in federal disaster grants that are supposed to help the co-op recover could now put Douglas Electric in danger of losing its tax-exempt status. This would cause significant hardship on its members.

A bipartisan group from Oregon's congressional delegation has taken a leadership role in supporting this legislation. U.S. Reps. Walden, Earl Blumenauer, Peter DeFazio and Kurt Schrader have signed as cosponsors of this important bill. U.S. Sen. Ron Wyden—the ranking member of the Finance Committee—is key to passing this vital legislation that affects millions of hard-working Americans, no matter what side of the aisle they are on.

This is a call to action because our work is not over until the RURAL Act is passed. Please help support this legislation by sending a message to Sen. Wyden asking him to support this bill. ■



Learn more about the RURAL Act by scanning this code with your cellphone or tablet.



Oregon Trail Electric Cooperative crews pitch in to help Douglas Electric Cooperative crews following a devastating snowstorm in February.



THE DECADE IS ALMOST OVER

Replace your water heater before it fails.



10 years is the average lifespan of a water heater

Heat pump water heaters use only 50% of the energy of a standard electric water heater.

With Clatskanie PUD's \$600 instant rebate, you can get a new 50-gallon water heater installed for only \$1,499. Replace your aging heater with a top model before December 31, 2019.

New heat pump water heaters include:

- 10-year warranty
- 50% savings on water-heating costs
- Leak-detection technology

SAVE \$600!

CALL GREAT NORTHWEST INSTALLATIONS AT 1-800-309-5211

Income-qualified customers may be eligible for a free water heater. Call 888-883-9879 for details.

Invigorating the Community

Glades Electric Cooperative contributes \$193 million to the local economy and supports 293 jobs for families in the community

Glades Electric Cooperative does more than power homes, businesses and towns. It's a driving force in the local economy, supporting hundreds of jobs each year in our communities.

The value of Glades Electric Cooperative's contribution to the area's economy was detailed in an economic impact study conducted by the National Rural Electric Cooperative Association, examining the five years from 2013 through 2017.

It found Glades Electric Cooperative contributed more than \$193 million to the economy during that time.

Glades Electric Cooperative's economic contribution also was measured in the number of jobs it creates and supports. On average, Glades Electric Cooperative supports 293 jobs a year in local communities. This includes not only co-op employees such as linemen,

member services representatives, staking engineers, substation, system operations, accounting and human resources personnel, but the vendor and contractor jobs GEC supports.

Thanks to these jobs, Glades Electric Cooperative is able to serve the community and support families.

Glades Electric Cooperative serves the community in other ways, too.

As a cooperative, consumers are members. Glades Electric Cooperative returns any excess revenue collected back to members through capital credits and to the community through charitable contributions.

The economic impact study reported that Glades Electric Cooperative returned more than \$4.3 million to the community's families and businesses during those five years.

Furthermore, the study found Glades Electric Cooperative generated more than \$44.1 million in local tax revenue. That revenue—which goes to state and local governments—is reinvested, strengthening the community's schools and other essential services.

The impact of Florida's electric cooperatives on the state's economy is astounding. In a separate economic impact study conducted by NRECA, findings indicate Florida's electric cooperatives contributed more than \$11.6 billion to the economy and supported more than 15,000 jobs for Florida families per year, on average, from 2013 to 2017.

Back in 1944, members of the community came together to form Glades Electric Cooperative so they could bring power to the community, fuel economic growth and create jobs.

Nearly eight decades later, Glades Electric Cooperative continues to do just that, serving as a driving force for the economy in Florida's Heartland. ■

From 2013 through 2017,

GLADES ELECTRIC COOPERATIVE:



A Word About Water

Changing Behavior Crucial to Saving Water

Being vigilant in inspecting equipment and changing behaviors can help you use less water. Consider these tips.

- Check faucets and pipes for leaks. A small drip from a worn faucet washer can waste 20 gallons of water a day. Larger leaks can waste hundreds of gallons.
- Check your toilets for leaks. Put a little food coloring in your tank. If the color appears in the bowl within 30 minutes without flushing, you have a leak that should be repaired immediately. Most replacement parts are inexpensive and easy to install.
- Use your water meter to check for hidden water leaks. Read the house water meter before and after a two-hour period when no water is used. If the meter does not read exactly the same, there is a leak.
- To reduce water waste, put an inch or two of sand or pebbles inside each of two plastic bottles to weigh them down. Fill the bottles with water, screw on the lids and put them in your toilet tank, safely away from the operating mechanisms. An option is an inexpensive tank ball or float booster. This may save 10 or more gallons of water a day. Be sure at least 3 gallons of water remain in the tank so it will flush properly. If there is not enough water to get a proper flush, users will hold the lever down too long or do multiple flushes to get rid of waste. Two flushings at 1.4 gallons is worse than a single 2-gallon flush.
- For new toilet installations, consider buying low-flush models, which use 1 to 2 gallons a flush instead of as much as 7 gallons. Replacing a 4.75-gallon-per-flush toilet with an ultra-low volume 1.58-gallon flush model represents a 70% savings in water flushed and cuts indoor water use by about 30%.
- Don't use the toilet as an ashtray or wastebasket. Every time you flush a cigarette butt, facial tissue or a small bit of trash, you waste water.
- Insulate your water pipes. It is easy and inexpensive with pre-slit foam pipe insulation. You will get hot water faster and avoid wasting water while it heats up.
- Take shorter showers. Turn off the shower after soaping up, then turn it back on to rinse. Long showers use 5 to 10 gallons every minute.
- Install water-saving showerheads and low-flow faucet aerators. They are inexpensive and easy to install. Low-flow means it uses fewer than 2.5 gallons a minute.
- When shaving, fill the sink with a few inches of warm water and rinse your razor in the sink. This will clean your razor with far less wasted water.
- For optimum water conservation, use your dishwasher and clothes washer for full loads only.



Don't waste water while brushing your teeth. Turn off the water after you wet your toothbrush. Fill a glass for rinsing.

- With clothes washers, avoid the permanent press cycle, which uses an extra 5 gallons of water for the extra rinse. For partial loads, adjust water levels to match the size of the load. Replace old washers. Energy Star-rated models use 35% to 50% less water and 50% less energy per load. If you are in the market for a new washer, consider buying a water-saving frontloader.
- Minimize the use of kitchen sink garbage disposal units. In-sink garburators require lots of water to operate properly and add to the volume of solids in a septic tank, which can lead to maintenance problems. Start a compost pile as an alternate method of disposing of food waste.
- When washing dishes by hand, do not leave the water running for rinsing. If you have a double basin, fill one with soapy water and one with rinse water. If you have a single-basin sink, gather washed dishes in a dish rack and rinse them with a spray device or a pan of hot water. Dual-swivel aerators make this easier.
- Don't pre-rinse dishes before loading the dishwasher. Most soap manufacturers do not recommend pre-rinsing.
- Don't let the faucet run while you clean fruits and vegetables. Instead, rinse them in a stoppered sink or a pan of clean water. Use a dual-setting aerator.
- Keep a bottle of drinking water in the refrigerator. Running the tap simply to cool it for drinking is wasteful. ■

Source: www.earteasy.com/live_water_saving.htm



Reduce heat in the kitchen by frying your Thanksgiving turkey outdoors, but follow the safety precautions listed at right.

Use Energy Wisely

Prepare Your Holiday Feast With an Eye Toward Efficiency

Baking pies, roasting a turkey and heating side dishes for your family's Thanksgiving feast can be hard on your electric bill if you rely on your oven to do all the work. This year, consider using your stovetop, barbecue grill, microwave oven, slow cooker, toaster oven, pressure cooker, electric skillet, and even your blender or food processor to prepare your bird and trimmings. Here are tips for a more energy-efficient Thanksgiving.

- Give your family a treat by smoking, grilling or frying your turkey outdoors. It is a quicker way to cook a bird, and the flavor is a nice change from a traditional, oven-roasted turkey.
- Use the microwave to heat vegetables, potatoes and other side dishes.
- Consider serving some food that doesn't need to be cooked. The turkey, dressing and potatoes will be hot. Add variety by preparing a few cold salads and raw vegetables with dip. Experiment with simple desserts, such as frozen peanut butter pie or no-bake cheesecake.
- When you use the oven, resist opening the door. Every time you peek inside you let out heat, and the oven has to work harder to get back to the proper temperature.
- Bake everything at the same time: pies, bread, turkey and potatoes. The more your oven can do at once, the less time you will need to use it. Leave enough space between items for air and heat to circulate.
- Choose glass or ceramic pans for the oven. They cook food at temperatures as much as 25 degrees lower than metal pans.
- The burners on your cooktop will work more efficiently if you match the size of the burner to the size of the pot. Placing a small pot on a large burner wastes heat from the part of the burner that does not touch the pot.
- Clean the burners and the oven. If you use the self-cleaning function on your oven while it is still hot after you use it to prepare a meal, it will use the residual heat and work quicker. ■

Keep It Safe

Prevent a Turkey Fryer Fire

Thanksgiving is the peak day for home cooking fires. When you fry foods, you increase this risk.

A fried Thanksgiving turkey is a tasty treat, but you should use caution when using a large fryer.

Remember these safety facts:

- ▶ Turkey fryers can easily tip over, spilling hot oil across a large area.
- ▶ Use your turkey fryer only outdoors on a sturdy, level surface well away from things that can burn.
- ▶ Make sure to have a 3-foot zone that is kid- and pet-free around your turkey fryer to protect against burn injuries.
- ▶ An overfilled cooking pot will cause oil to spill over when the turkey is placed inside. Determine the correct amount of oil needed by first placing the turkey in the pot with water.
- ▶ A partially frozen turkey will cause hot oil to splatter. Make sure your turkey is completely thawed before you fry it.
- ▶ Turkey fryers can easily overheat and start a fire. Check the temperature often with a cooking thermometer so the oil won't overheat.
- ▶ The pot, lid and handles of a turkey fryer can get dangerously hot and cause burn injuries. Use long cooking gloves that protect hands and arms when you handle these items.



When frying a turkey, check the temperature often with a cooking thermometer. Fryers can easily overheat and start a fire.

For more information and free fire-safety resources, visit www.usfa.fema.gov.

TRAINING FOR WAR

By Jodi Helmer

Although World War II glider infantry units were often overlooked, Frank Blazich Jr., curator of military history at the National Museum of American History in Washington, D.C., believes these soldiers were integral to victory.

Those glider pilots wore wings with the letter G on the center shield on their uniforms.

"Some guys liked to say the 'G' didn't stand for glider, it stood for guts," Frank says. "It took a lot of guts to fly a plane when your job was to crash it and survive—and, for the most part, the brave men who did it, did it without recognition."

Almost all of the training took place at Laurinburg-Maxton Air Base in Laurinburg, North Carolina, a mere 25 miles from the Marlboro Electric Cooperative headquarters.

Building a Base

The Germans were already using airborne troops when Maj. Gen. William C. Lee from Dunn, North Carolina, observed military technologies being used in Europe. He became enamored with the use of parachutes and gliders, and began lobbying the U.S. Army to add an airborne unit.

The attack on Pearl Harbor in December 1941 heightened interest in using gliders.

The U.S. military transitioned its stance from considering the possibility of a small glider force to giving Lee the green light to create the U.S. Army Airborne, which

included thousands of gliders and personnel, making the units a huge component of the military almost overnight, Frank says.

"Airborne warfare was still coming into its own, especially for the United States military," explains Charlie Knight, curator of military history at the North Carolina Museum of History in Raleigh. "Initially glider pilots trained in a couple of other places, but when things started gearing up for Operation Overlord, the Army moved all of the training to Laurinburg because of the proximity to the airborne training that was going on at Fort Bragg."

The Laurinburg-Maxton Air Base was built on a 600-acre parcel near the North Carolina/South Carolina border. The base—which opened in 1942—was a joint project among the state government, the U.S. Department of War and the Civil Aeronautics Administration—the predecessor to the Federal Aviation Administration—and was designed as a temporary training base for glider infantry.

North Carolina had more established military bases and trained more than 2 million



troops from all branches of the military during World War II—more than any other state—says Knight. Thousands of soldiers came from across the nation to train at the Laurinburg-Maxton Air Base.

"During the Second World War, the U.S. military established just hundreds and hundreds of military installations across the United States," Frank says. "A lot of these were never designed with the intention of becoming permanent bases. They were really created for a national



June 6, 1944, marked the Allied invasion of Normandy in World War II. Referred to as Operation Neptune, it is one of the largest seaborne invasions in history. Airborne troops, many in silent gliders, landed behind enemy lines to cut off reinforcements and interrupt supply lines.

emergency, which World War II certainly was.”

The Waco Aircraft Co. in Troy, Ohio, manufactured the CG-4A gliders. Companies such as Steinway & Sons Pianos, H.J. Heinz Pickle Co. and Anheuser-Busch built the parts.

Fashioned from a combination of lightweight tubular steel, plywood and fabric, the gliders were often called “flying coffins” and “tow targets” because of their basic—and

far from bulletproof—construction. The instrument panels contained nothing more than a compass, altimeter, airspeed indicator, and turn and slip indicators.

Pilots received only basic training in how to use two steering wheels and rudder pedals to direct the aircraft to their destination.

Laurinburg-Maxton Air Base was the largest training base in the world for CG-4A glider pilots.

“Some of the glider infantry personnel would have received training at Laurinburg-Maxton in mounting up into the glider and going off to a training location, but training was basically, ‘Sit your butt there and when you land, get out and you fight,’” Frank says. “That’s an oversimplification, but the glider infantry had no major training at all, and definitely didn’t have the same degree of flight training

as a fighter pilot or a bomber pilot.”

The lack of training led to disasters in earlier battles.

Frank notes the first time gliders were used in battle was during Operation Husky in 1943. When American troops invaded Sicily, their own ships shot at them. Several gliders went down in the ocean and soldiers drowned.

“The soldiers were rushed in the battle, and it was a disaster,” he says.

Preparing for Battle

Instructors doubled down on training at the air base, adding night flight training to teach pilots how to command a plane that had no lights.

The pilots flew training routes between Laurinburg-Maxton, Asheville and Camp Mackall in Hoffman, North Carolina. The gliders flew around the triangle of cities and landed back at Laurinburg-Maxton Air Base. With additional training, the glider infantry was ready for battle.

The plan to invade Normandy required the main forces to hit the beaches on the English Channel. The Army wanted to get forces behind enemy lines—both to keep the Germans from advancing and to prevent them from being able to send in reinforcements, Knight explains.

The Germans controlled almost all of Europe. France had fallen, and the Germans occupied most of it. To take the war to Hitler, American and Allied troops had to get onto the continent again.



Above, even loaded with troops and equipment, gliders descended almost silently behind enemy lines to cut off reinforcements and supplies, and to deliver Allied equipment. Below, Laurinburg-Maxton was the largest U.S. glider training facility.

“The Germans knew it was coming; they just didn’t know exactly where, so they had forces spread out all along the English Channel,” Knight says. “George Patton was given command of a phantom army, which worked magic, basically convincing Hitler that Patton

was going to be in command of the invasion force. So he was looking for Patton to come in a completely different area than where the invasion actually came there at Normandy.

“When the divisions hit the five beaches there on the coast of Normandy, the Germans really were not ready for them. They didn’t run into some of the more elite German divisions. Hitler refused to release the reserves to go over and counter the Normandy landings because he thought that was a diversion and Patton was going to be leading the main thing up to the northeast.”

The Army turned to its airborne unit to land behind enemy lines in the surprise attack. Frank says gliders offered significant advantages over dropping parachute

troops over their target.

Unlike airplanes that roared overhead to drop off paratroopers, gliders had a stealth factor. The aircraft, often referred to as “silent wings,” could be released miles from their destination, allowing soldiers to surprise their enemies.

Glider infantrymen also could land together, Frank notes. Paratroopers who jumped together often landed in different spots. Men could not jump from planes with equipment. Gliders solved those problems.

“The advantage to a glider is that the troops are concentrated,” Frank explains. “It’s the equivalent using helicopters for the same purpose. Your helicopter lands and 20 soldiers get off with their weapons and equipment, ready to fight. It was



the same idea with a glider. You could keep all these soldiers together. If they come at night, you won't know they're coming. And gliders could carry things like anti-tank guns, anti-aircraft guns, communication equipment, medical supplies and even Jeeps. It lands and soldiers have everything they need to go into battle."

Allied Victory

The Laurinburg-Maxton Air Base became the premier training ground for airborne units. Both the 82nd Airborne and 101st Airborne divisions trained at the base.

Their tactical exercises were so impressive that plans were hatched to use the units during the planned invasion of Normandy.

On June 6, 1944, the first wave of glider pilots rode in on silent wings to deliver anti-tank guns and support troops. As American, British and Canadian forces landed on the beaches of Normandy, additional gliders—and almost 4,000 of glider infantrymen—flew to help launch Operation Overlord. The glider units blocked German troops from reaching the beaches and cut off their access to reinforcements.

The U.S. Army airborne troops suffered significant casualties, but the D-Day invasion was a success. It went down in history as the turning point in the war.

Glider pilots and infantry continued training at Laurinburg-Maxton Air Base, but their tenure did not last long. The base was moved to



CG-4A gliders hauled and delivered personnel, supplies and equipment—and even a little joy around the holidays.

inactive status as the war in Europe drew to a close.

In 1945, the base closed, and the pilots were discharged or transferred to other bases. Most of the buildings were deconstructed and the land was converted to civilian use.

"[The base] was never intended to be permanent," Knight says. "It was just meant to survive the duration of the war. All of the buildings were constructed very cheaply,

but the airstrips remained."

The former air base is now the site of Laurinburg-Maxton Airport, but retains its roots as an airborne training site. The U.S. Army parachute team, the Golden Knights, uses the former military base as its main training facility.

While almost all traces of the base have disappeared, Frank hopes an appreciation for the role both Laurinburg-Maxton Air Base and the

glider pilots and infantry who trained there remains.

"Today, we have night vision and all this electronic communication," he says. "Back then, it was flimsy gliders that could not stop bullets, and every glider for himself. The paratroopers get all of the glory. A lot of brave men died who we forget about today, and they did it without recognition. It's almost a totally forgotten piece of our history." ■

Make the Most of Your Perishable Foods

Keep food longer and make snacks fun by freeze drying

By Robin Howard

Preserving food has deep roots in the South. In a geography hit hard by war, political upheaval and the Great Depression, survival often meant preserving whatever food you could grow.

With the era of victory gardens behind us, many of us became used to going to the grocery store for inexpensive canned, boxed or frozen food.

That is, until The Great Recession gave us a wake-up call.

During the recession, food became more expensive, and money didn't go as far. For some families, preserving food seemed like a good idea again. Many of the folks who dug out their grannies' old canning rigs to save money on food found they enjoyed the other benefits of preserving food, including reducing food waste, controlling allergens, and eliminating preservatives and chemicals.

While adventurous home chefs have revived canning, others have experimented with a more

modern method of preserving food: freeze-drying.

If freeze-drying conjures up nostalgic images of space food, I must break the news: It's not a new process.

The Incas freeze-dried crops as early as the 15th century. They would freeze corn and potatoes by placing them in high crevices in the cold mountains above Machu Picchu. After the crops froze solid, water vapor trapped inside slowly evaporated due to the high altitude. The result was freeze-dried corn and potatoes that would last until the next harvest.

With the industrial revolution came the first freeze-drying machine. Created to preserve scientific specimens, the device was later used to preserve blood for transport during World War II.

In 1968, freeze-drying entered the

common lexicon when Apollo astronauts made the wise decision not to leave Earth without dessert. As a culture, we became fascinated with astronaut ice cream. How did they do it? How does it taste? How long would it keep? With the invention of the home freeze dryer, we now have some answers.

How Freeze Drying Works

Industrial strength freeze dryers such as the ones NASA used to create arid blocks of Blue Bunny are about 20 feet long and 9 feet high. You probably wouldn't want one in your pantry. However, today's home freeze dryers are about the size of a microwave.

Inside a thick Plexiglas door are small metal trays on which you place thin slices of food. The temperature inside the machine lowers to -40 degrees F, freezing



food rapidly. The appliance's powerful vacuum then removes water vapor as it gradually warms, leaving food that has all of its original flavor and nutritional value, but is dry enough to crush into a powder.

Most freeze-dried food, such as ice cream, is fun to eat as it is. Freeze-drying makes everything crunchy and intensely flavored. However, you can rehydrate food by spritzing it or soaking it in warm water until it returns to its original consistency.

If appropriately stored in tight containers or vacuum-sealed bags, freeze-dried food can last up to 25 years with no temperature control.

Foods That Freeze Dry

While canning food has limited applications, almost any food can be freeze-dried. All fruits, vegetables and meats can be freeze-dried, as can eggs, pasta, casseroles and some desserts, including ice cream and marshmallows.

There are even stories of people rescuing wet smartphones and waterlogged books by running them through a freeze dryer.

The only foods that don't do well in a freeze-dryer are foods with high sugar content, such as honey; and high fat content, such as butter.

Is It Worth the Expense?

Portable freeze dryers cost between \$2,000 and \$3,000. Each 24-hour freeze-drying cycle requires about 1,200 watts of energy an hour, at a cost of about \$3 a day. These mini machines can freeze dry about 4 pounds of fresh food in a batch, or about 900 pounds of food a year if run continuously.

There are maintenance issues to consider, as well. Most home freeze dryers have an external vacuum pump that requires an oil change after every cycle. Changing the oil isn't hard—and it can be filtered and re-used—but it does add to the expense.

If you're only going to use your freeze dryer a few times a year, the cost won't make sense. If you're dedicated to building a cache of meals for emergencies, road trips or everyday use, it could pay for itself relatively quickly.

If saving money is your primary motivation, the key to making a home freeze dryer payoff is organization: Plant a well-planned garden, take advantage of bulk sales and batch cooking so there are leftovers.

Depending on your situation, there are plenty of other ways a home freeze dryer

might make life easier. For example, if you own an RV, packing freeze-dried meals for road trips can quickly save you enough to justify the appliance.

Food allergies are a common reason for the growing popularity of freeze dryers. Food allergies affect 13 million Americans, or one in 12 children. If you or someone in your family has to carefully avoid certain ingredients, packing freeze-dried meals to rehydrate at home, school or while traveling can be a lifesaver.

Pet owners also are jumping on the freeze-drying bandwagon. With the rash of pet food recalls in the past several years, more people are making pet food at home. Home freeze dryers allow pet parents to control the ingredients in their dog or cat's food and treats, eliminating allergens and avoiding unsafe ingredients.

In the end, freeze-drying may not be any less labor-intensive or money-saving than other methods of food preservation. However, practical benefits may be a significant advantage for some people.

After all, how can you put a price on the ability to make your own astronaut ice cream? ■

