

RATE DESIGN COMMUNICATIONS

MONTH	YEAR	TITLE	TYPE	PAGE	
JUNE	2017	WEC EYES CHANGES TO ITS RATE STRUCTURE	COOP CURRENTS ARTICLE	1	file:///I:/ProjectGroups/Web/news/June2017.pdf
JULY	2017	NEW RATE DESIGN PROCESS	COOP CURRENTS PRESIDENT'S MESSAGE	2	file:///I:/ProjectGroups/Web/news/July2017.pdf
SEPT	2017	RATE DESIGN	COOP CURRENTS PRESIDENT'S MESSAGE	2	file:///I:/ProjectGroups/Web/news/Sept2017.pdf
OCT	2017	RATE DESIGN LISTENING GROUPS	COOP CURRENTS MANAGER'S REPORT	3	file:///I:/ProjectGroups/Web/news/October2017.pdf
DECEMBER	2017	REFLECTING ON THE NEW REALITY (2017 COMMUNITY MTG)	COOP CURRENTS ARTICLE	11	file:///I:/ProjectGroups/Web/news/Dec2017.pdf
JANUARY	2018	LISTENING FOR CONSENSUS	COOP CURRENTS ARTICLE	1	file:///I:/ProjectGroups/Web/news/Jan2018.pdf
MARCH	2018	RATE DESIGN	COOP CURRENTS PRESIDENT'S MESSAGE	3	file:///I:/ProjectGroups/Web/news/March2018.pdf
APRIL	2018	RATE DESIGN STILL UNDER BOARD CONSTRUCTION	COOP CURRENTS MANAGER'S REPORT	3	file:///I:/ProjectGroups/Web/news/April2018.pdf
JUNE	2018	RATE DESIGN RECOMMENDATION COMING SOON	COOP CURRENTS PRESIDENT'S AND GENERAL MANAGER'S MESSAGE	3	file:///I:/ProjectGroups/Web/news/June2018.pdf
JULY	2018	WITH NEW RATE DESIGN STRUCTURE WEC LOOKS TO THE FUTURE	COOP CURRENTS ARTICLE	1	file:///I:/ProjectGroups/Web/news/July2018.pdf
JULY	2018	WEC PRESENTS NEW RATE DESIGN TO MEMBERS	COOP CURRENTS PRESIDENT'S AND GENERAL MANAGER'S MESSAGE	3	file:///I:/ProjectGroups/Web/news/July2018.pdf
JULY	2018	ANOTHER SAVE THE DATE	BILL MESSAGE		
AUGUST	2018	ANOTHER SAVE THE DATE	BILL MESSAGE		
SEPT	2018	RATE DESIGN COMMUNITY CONVERSATION: SEPTEMBER 19	COOP CURRENTS NOTICE OF MEETING	3	file:///I:/ProjectGroups/Web/news/SEPT2018.pdf
SEPT	2018	RATE DESIGN MEETING SEPTEMBER 19	COOP CURRENTS PRESIDENT'S AND GENERAL MANAGER'S MESSAGE	1	file:///I:/ProjectGroups/Web/news/SEPT2018.pdf
OCT	2018	MEMBERS SPEAK UP AT PUBLIC FORUM ON RATE DESIGN	COOP CURRENTS ARTICLE	3	file:///I:/ProjectGroups/Web/news/Oct2018.pdf
OCT	2018	THOUGHTS AFTER SEPTEMBER'S RATE DESIGN MEETING	COOP CURRENTS PRESIDENT'S AND GENERAL MANAGER'S MESSAGE	1	file:///I:/ProjectGroups/Web/news/Oct2018.pdf
DECEMBER	2018	WEC ANNOUNCES RATE INCREASE IN 2019 AT COMMUNITY MTG...	COOP CURRENTS ARTICLE	3	file:///I:/ProjectGroups/Web/news/Dec2018.pdf
DECEMBER	2018	HOW NEW RATE DESIGN SOFTENS FUTURE RATE INCREASES	COOP CURRENTS PRESIDENT'S AND GENERAL MANAGER'S MESSAGE	3	file:///I:/ProjectGroups/Web/news/Dec2018.pdf
JANUARY	2019	PROPOSED RATE DESIGN	COOP CURRENTS PRESIDENT'S MESSAGE	3	file:///I:/ProjectGroups/Web/news/Jan2019.pdf
WEC ANNOUNCES RATE INCREASE IN 2019 AT COMMUNITY MTG...					VT PUBLIC RADIO'S JOHN DILLON COVERED

With New State Laws, Increasing Costs, and Declining Sales

WEC Eyes Changes To Its Rate Structure

It's ironic that there's such a thing as "static electricity" (defined as an electrical charge typically caused by friction), because there's nothing static — as in "unchanging" — about the electric utility industry these days. New laws, smart meters, electric vehicles, home generation, our members' heightened expectations for reliability and high-quality power, and climate change are making WEC stop and rethink how it charges for its services.

New laws passed by the state legislature require Vermont utilities to offer programs that encourage their customers to reduce their use of fossil fuels — oil, propane, and gasoline. It's a two-prong effort that consists of requiring utilities to increase the portion of renewable energy in their power portfolios (this part doesn't apply to WEC, which is already 100-percent renewable), and encouraging customers to turn to this greener electric grid for such purposes as heating their homes and driving their cars.

WEC fits in here, as we must offer incentives to get people to convert off of fossil fuels and use more electricity. The trouble is, our Co-op is facing a steady stream of rising costs (transmission and regional reliability charges) that are putting upward pressure on our rates. This means our rates really aren't conducive to encouraging members to use more electricity by plugging

in their electric vehicles or heating a room with cold climate heat pump technology. In fact, they discourage this type of use, because under our two-tier system power from WEC is very expensive after the first 200 kilowatt-hours (kWh) per month. WEC established this system a decade

ago to discourage overuse and encourage energy efficiency, and members have been responsive; our members' average monthly usage, at 500 kWh, is among the lowest of all Vermont utilities.

But now that we are in 2017, with new challenges and new laws, WEC must rethink everything about how the Co-op charges

for service. Our accomplishment in becoming 100-percent renewable means that when Co-op members move away from oil or gasoline and use electricity instead, they're reducing their carbon footprint and addressing climate change at the local and individual level.

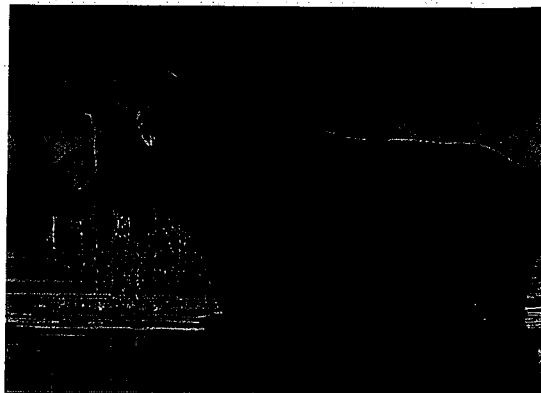
So it's time for WEC to effectively encourage use of electricity where it makes sense! That means changing how we charge.

Besides putting the Co-op in a better position to meet the state's requirements pertaining to fuel switching, there's another reason for WEC to change its financial model: While our costs have been rising, the revenues we collect to pay for them are declining.

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"This is going to be one of the most important decisions the Co-op will make in the modern era."

— Patty Richards



Moose are one of the great, majestic animals of our northern hemisphere, and have been studied, and their habitat monitored, for years by the Jericho, Vermont-based organization, Keeping Track. Founder Susan Morse shared this and many more of her wonderful photos with Washington Electric Co-op members, as guest speaker at WEC's Annual Meeting on May 4. For more on Sue's interesting and important program see our story on page 7.
PHOTO BY SUSAN MORSE, KEEPING TRACK.

'Co-ops Are At Their Best When Members Are Involved'

An Encouraging Turnout for WEC's 78th Annual Meeting

Washington Electric Cooperative has dedicated itself to the goal of instilling an effective workplace culture of safety. This was an important point, stressed by WEC General Manager Patty Richards and appreciated by her audience, at the Co-op's 78th Annual Membership Meeting, held on Thursday, May 4, at Union-32 High School in East Montpelier.

"WEC has gone 575 days without a workplace accident," Richards announced. "We really want to celebrate that accomplishment,

especially because we work in what can be quite a risky industry."

The 241 members, guests, and others gathered for this annual event applauded vigorously, clearly understanding the often-stressful working conditions for WEC's staff, particularly the line workers and other Operations employees, and were grateful for their service, which is often referred to as "keeping the lights on."

Just moments earlier, Richards and WEC President Barry Bernstein

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Washington Electric Cooperative

East Montpelier, VT 05651

Inside

Looking at the next CWP, WEC has rebuilt 50 miles of line under the current Four-Year Construction Work Plan, and now it's time to prioritize projects for the next funding cycle. Page 6.

It's called Button-Up for a reason. WEC's approach to the requirement that utilities provide fossil fuel reduction programs emphasizes tightening up our homes. There are other opportunities, too. Page 3.

RECs revisited. Despite misunderstandings about the program, RECs boost renewable energy development. Selling RECs also helps the Co-op keep its rates under control. Page 6.

The old days. A member writes nostalgically about 'Grandma's Co-op Freezer.' Page 3.



WEC rights-of-way provide sunlit, fertile browsing territory for deer. This doe (above) was enjoying herself in a remote ROW in East Topsham.

President's Message

The Way Forward

Rate Design Study Contends With Opportunities and Obligations

By Barry Bernstein

Just as most Vermonters I talked with were packing their bags and looking for a dry, sunny spot to retreat to, the sun came out and the temperatures soared into the 90s. It was a very wet spring and a long winter and I guess we'll just have to get used to some unusual weather patterns. At least it didn't stop us from having a great turnout at WEC's Annual Meeting in May, held this year at U-32 Middle/High School, to benefit the seventh- and eighth-grade class trip to Washington, D.C.



New Rate Design

Last month your Board of Directors and WEC management began the process of devising a new rate design, our first in more than 12 years. A rate-design is not a rate increase. We do not collect more money; we collect the same amount of revenue, just in different ways.

Your board is undertaking this effort as we try to balance the different obligations and mandates we have, which sometimes conflict with each other. We expect the rate-design discussion to take us through this summer, and we will look to involve our

members in the process. Ultimately, we expect the result to be that some members will experience higher electric bills while others will see their bills decrease. The likelihood is that our monthly member charge – which everyone pays – will rise, and that our initial block of affordable energy for all members will change in size and price and our more-expensive second-tier price will be reduced. We don't yet know the details and numbers for these expected changes.

Our story on page one provides further information.

History

In 1990 the leadership – your Board of Directors and general manager – changed at WEC. The new leadership was strongly committed to helping our members lower their electric bills through energy efficiency and conservation. We worked with Blair Hamilton and Beth Sachs, the founders of Vermont Energy Investment Corporation (VEIC) and later Efficiency Vermont, to design one of the first utility efficiency programs in the U.S. The program included fuel switching – off electric heat, which had become expensive with a price trajectory continuing to rise, to propane or oil. While that formula has been reversed over time as the costs of fossil fuels have fluctuated and their carbon output has become a critical environmental problem, one principle remains the same: a kWh saved is less expensive than having to generate one. It's the amount of your electric bill that's important, not necessarily the rate you pay per kWh.

We have always recommended starting with an energy audit of your home. The results can guide you as you determine how to invest what may be limited funds for home improvement. Tightening up the envelope of your home by weatherizing it, replacing old appliances with new ENERGY STAR® ones, and switching to LED lighting provide the best financial return.

In 2000, WEC had jumped at an opportunity to divest from our ownership in Vermont Yankee and simultaneously work toward having a 100-percent renewable power portfolio (again, one of the first utilities to do so in the country). The WEC board made a commitment to getting our power from renewable sources, from sources as close to our territory as possible, and procuring power that was economically priced over the long

term. We were already receiving hydro from our Writingsville generating station, hydro and wood from the Vermont small power producers, and in 2005 began generating power from our new landfill-gas-to-electricity plant in Coventry.

Your WEC Board is working diligently to balance all these competing interests, and revisiting and altering our rate design is where that balance will be found.

WEC then added a contract from the Sheffield Wind project that provides 10 percent of our power and fits in nicely with the fact that WEC is a winter-peaking utility. Home-installed net metering systems have become

very important, too. By the end of 2017 we anticipate that these systems – ranging in size for a modest 5 kilowatts (KW) to 500 KW – will provide some 4.4 megawatts (MW) of power, which is almost 30 percent of our peak energy demand. That's a major contribution that net metering Co-op members make to the grid that serves us all.

The State Now A Factor

WEC still believes that the best place to start economizing on home energy comes through weatherization, efficiency, and conservation. These investments give you the best return on your dollar. But now there's another consideration: WEC and all Vermont's electric utilities are now mandated by the Vermont Legislature to help their customers/members to switch off fossil fuels, even for purposes outside the normal realm for electric utilities, such as driving cars and heating homes. We fully embrace that effort, especially because, since our power is 100-percent renewable, using Co-op electricity instead of fossil fuels truly makes a difference.

However, we must look closely at how we can be successful in this effort. New technologies such as heat pump hot water heaters, cold climate heat pumps, and electric cars can help Vermont reach its 90-percent-renewable goal in all energy sectors by 2050, and we will continue to stress the benefits of being efficient such as by investing in the weatherization of our homes. At the same time as we balance these new mandates and goals, we must also ensure we collect the revenues we need to meet our costs.

Good News

Electricity is still one of the best buys for our money, providing lights, refrigeration, power for our furnace and boiler fans, computers and

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Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

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To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Members Write

Co-op Currents welcomes letters to the editor that address any aspect of WEC's policies and operations, or any matters related to electricity. Readers can write to wecmembers@wec.coop, or Co-op Currents, P.O. Box 8, East Montpelier, VT 05651. Letters to the editor will not be published in the Annual Meeting (April) issue.

Who Remembers Grandma's Co-op Freezer?

Editor, Co-op Currents:

Long ago, as far back as I can remember, WEC displayed and sold electrical appliances at the East Montpelier office. I recall going there with my grandparents to pay the bill. Apparently folks hand-carried things to save the postage. Or, was it more of a social thing? Either way, I recall seeing the new appliances on display, all white.

At that time the consumption of electricity was encouraged and the modern thing to do. They had a very long chest freezer with two hinged lids and the nameplate proudly displayed on the front: "CO-OP." In 1988, when we moved into the home my grandparents had occupied, the freezer was still here. We, with great effort, moved it and eventually sold it because we had a newer one.

Recently, while reminiscing with my siblings about our youth, we fondly remembered our Grandmother and how she always had ice cream cones for the children. (Something we did not get at home.) The hinges of that freezer had a distinctive squeak when the lids were raised, which like the Pied Piper brought us running.

I'm curious if anyone still has one of those old freezers, running or not, so that I might hear and record that friendly sound from years ago. Even if you don't, I'll bet some of

you remember that sound and are thinking about Grandma and ice cream, "Granite City REAL Ice Cream."

If you know the whereabouts of such a freezer, please give me a call at 802-272-7929 or shoot me an e-mail at rbridges1951@gmail.com

Thanks,
Rob Bridges, Plainfield



We thank Mr. Bridges for writing. Certainly there was a time when the Co-op sold electric appliances – and not just household items like "Grandma's Co-op Freezer" but farming supplies, too, for the milking parlor for example. Electric co-ops across the U.S. helped their members modernize their lifestyles, achieve more income stability, and join their more urban compatriots in a world gone electric!

The Co-op's archives contain photos and advertisements harkening back to the days when part of the mission for WEC and other rural electric cooperatives was to make modern appliances available to people who had just recently been using washtubs and scrubbing boards.

Button-Up, For Saving Money and Cutting Carbon

Washington Electric Cooperative's Button-Up Program is off and running!

And it provides Co-op members a great opportunity to get financial and technical assistance from WEC and Efficiency Vermont for improvements that will make their homes more comfortable, more energy efficient, and reduce their consumption of fossil fuels.

WEC's and EVT's 2017 Button-Up Program supports the following home improvements and energy-switching, energy-saving alterations:

- Weatherization, starting with home

energy audits to identify the best energy-saving investments for your home, and then assistance in financing those improvements;

- ENERGY STAR heat-pump water heater installations;
- Solar hot water systems;
- Pellet boiler installations for home heating;
- Cold climate air source heat pumps (ccHP)

that help people cut back on the usage of their fossil fuel heating systems. ccHP installations should

be preceded by an energy audit and the home-performance improvements the audit indicates, so that the heat pumps can provide their greatest impact. Heat pumps can also be used to cool your home on hot summer days.

Levels of assistance vary for these Button-Up projects. In some cases, members who qualify as low-income can receive additional funding

Approved projects will be assisted on a first-come/first-served basis, as WEC and EVT have targeted specific goals (numbers of projects) in each category. Therefore, members are advised to act quickly.

Find out more here: <http://www.washingtonelectric.coop/button-up/> or contact the energycoach@wec.coop for more information today.



President's Message

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entertainment systems, charging our cell phones and cordless phones, and serving as battery backup for net metering systems when little or no sun is available. Compare your monthly electric bill with the cost of cell phones and internet services for your family!

On average our members use 490 kWh/month, one of the lowest levels of usage in the state. Almost 80 percent of our members use 700 kWh per month or less. Your electric power is also available whenever you want it: 24 hours a day and seven days a week with the exception of outages (most of which are caused by storms). I cannot

say the same for my phone or internet services. Added to the bargain is that your power is 100-percent renewable.

Hard Facts

- WEC collects an inadequate 17 percent of our fixed costs from our monthly member charge
- WEC has experienced flat to declining kWh sales for the past several years, a national trend for utilities but one that started early at WEC. This is largely due to the success of energy efficiency and conservation programs, which WEC has aggressively supported.
- In less than six months, net metering installations and permit applications

received in 2017 exceed our total net metering installations from over the past 12 years. Yet with the wholesale power market at a record low, WEC loses 12 cents/kWh due to power generated by net metering installations. That translates to a loss of more than \$600,000 – equivalent to a 4-percent impact on rates.

- WEC is committed to supplying its members with 100-percent renewable power now and for the foreseeable future. WEC has made investments in renewable generation, such as hydro and our landfill gas plant, and we have also secured long-term contracts from renewable power sources (wind and hydro). This power

will serve members for the next 20 years and beyond!

Our state is committed to 90-percent renewables in all energy sectors in 2050 and has given the electric utilities an important role in helping ratepayers reduce their fossil fuel use. We now must embrace that, as an opportunity and as an obligation.

Your WEC Board is working diligently to balance these many competing interests; revisiting and altering our rate design is where that balance will be found. We plan to engage the membership through articles in Co-op Currents, and possibly a membership meeting sometime soon. This is a path we'll all need to forge together.



Annual Meeting

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had made a related point when they handed out this year's service awards, which are presented to employees who have reached length-of-service milestones with the Co-op. It's a feature of each year's Annual Meeting. This year's unusually large number of recipients provided evidence of stability and commitment between employee and employer that helps WEC achieve its mission of providing excellent service to its members – and, just as important, being a good place to work.

Service Award recipients in 2017 were:

Ten years: First Class Lineworkers Doug desGrosseilliers and Kyle Sands; Equipment Operator Class A Donnie Singleton; Information Database Technician Sandy Gendron; Member Services Supervisor Susan Golden; Finance & Administration Director Cheryl Willette.

Fifteen years: Member Services Representative Elaine Gonier.

Twenty-five years: Utility Field Technician Class A Mike Patterson.

Thirty years: Operations & Construction Services Manager Brent Lilley.

These are the people – many of them WEC members as well as employees – who build, maintain, and repair your power line system (Doug, Kyle, Donnie, and Brent); continually plan and re-engineer an infrastructure that's spread across 41 central Vermont towns to cost-effectively achieve dependability and efficiency (Mike); update and maintain the digital mapping system that, among other benefits, helps the Co-op respond to outages and restore your power as quickly as possible (Sandy); respond to member phone calls, process member-related information, and help members get answers to their questions and concerns (Susan and Elaine); and oversee the \$14-million budget of Vermont's fourth-largest electric utility (Cheryl) – a utility with heightened



Students at U-32 Middle/High School helped cater WEC's Annual Meeting to earn money for the seventh-and-eighth-grade class trip to Washington, D.C. They did a wonderful job serving and attending to WEC members' needs. Plus, it's always great having young people around!



WEC Engineering & Operations Director Dan Weston (above) is always on hand at the Co-op's public meetings to answer questions about poles and wires and WEC's service. At U-32 he was accompanied by his daughter, Tehya, a sophomore at UVM.

responsibilities to its customers because they're actually the owners of their electric co-op.

The members saluted these workers with a well-deserved round of applause.

Elections; issues aired

The Annual Meeting is a fundamental part of the Co-op's year, and highlights the democratic, egalitarian nature of electric cooperatives. People who share a rural lifestyle gather together for an excellent meal, neighborly conversation, and discussions with the leaders and policy makers of the company that provides the modern necessity of electricity.

Attendance has increased steadily in recent years, and this year reached 241. Robust attendance was the main reason the Co-op sought a new location for 2017. U-32 Middle/High School provided a spacious and comfortable facility, and abundant parking.

General Manager Richards was enthusiastic. "Co-ops are at their best when their members are involved and participate," she said. "So we've put survey cards out on the tables, because we want you guys to keep coming. Use the cards to tell us why you come, and we'll keep doing it!"

For many longtime WEC members, the meeting is an annual rite of spring, following a long winter and a tedious mud season. It features a good meal, compliments of the Co-op, more than a dozen useful door prizes provided by local companies, and, always, an interesting guest speaker.

This year's speaker was renowned naturalist Susan Morse, the founder of Keeping Track®, a nonprofit that researches and educates people about wildlife and is a leading advocate for practices and policies that nurture and protect, rather than imperil, the bears, moose, lynx, caribou, muskox, and other species in our northern hemisphere. Sue's talk, accompanied by dozens of her award-winning photographs, was titled *Animals of the North*. It was exceptionally well received. (See "A Beautiful Planet," page 7.)

Annual Meeting is also when WEC concludes the election of candidates for the Board of Directors. There were just three candidates for the three seats available on the board. The ballot boxes closed at 7:30, and the results were added to the majority of the ballots, which were sent by mail. Elected to three-year terms were: incumbent and WEC treasurer Don Douglas of East Orange (745 votes);

first-time candidate Jean Hamilton of Plainfield (735 votes); and incumbent Mary Just Skinner of Middlesex (699 votes).

Also featured were officers' reports. (Their official reports were published in *Co-op Currents*' April 2017 issue, which is available at the WEC website.) Among their major points were these:

- **Treasurer Don Douglas** explained the Co-op's obligation to collect sufficient margins (revenues exceeding expenses) through members' electricity rates to ensure WEC's ability to repay its lenders. Think of this as financial elbow room above and beyond the required regular payments. Eventually, though, some of the accumulate margins make their way back to Co-op member/owners through "capital credit" returns, or distributions. Since WEC met the threshold for making these distributions and started the repayment program the Co-op has returned \$5.3 million to its members. Noting the 6.52-percent provisional rate increase WEC instituted in January, which the Co-op believes will be approved by the Public Service Board and made permanent at a modified 5.95-percent, Douglas said, "It's quite likely that your rate increase will be partly offset by your



David Magida (above, left) was an exemplary, involved member of WEC's Board of Directors for nine years, ending with the May 4 Annual Meeting as he chose not to run for re-election. Above, Board President Barry Bernstein presents an award, honoring Dave for his many contributions to the Co-op.



The Co-op is always pleased to welcome dignitaries, statewide political leaders, and the state legislators who serve WEC members at the Annual Meeting. Above, Board President Barry Bernstein (left) is pictured with Vermont Attorney General TJ Donovan.



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While some business gets transacted, the Co-op's Annual Meetings are also social affairs. Above, Jim Meiers (left), of the Cooperative Finance Corp., chats with Cheryl Willette, WEC's Finance & Administration Director (center), and Beth Ouellette, a member of Washington Electric's Member Services team.

capital credit return next November." Douglas estimates that the 2017 capital credits will offset about 4 percent of the rates each member pays, tempering the impact of this year's increase.

- **General Manager Patty Richards** announced that WEC's Community Fund, financed by members' voluntary contributions of their capital credit returns, had contributed to 64 local nonprofits in 2016. She urged members to consider donating their returns to the fund as an investment in their communities. Richards also announced that the so-called Tier III programs that were adopted in January to comply with Vermont's Act 56, have been re-branded as WEC's Button-Up Program. Their purpose is to encourage and assist Co-op members to reduce their consumption of fossil fuels, in order to cut emissions and reduce Vermont's carbon footprint. While Button-Up provides guidance and incentives in several areas, WEC's primary focus is home weatherization; it helps members contract for home energy audits and follow up with the improvements the auditors recommend. "These are the best steps we can take to save money and energy," said Richards. "We're urging our members to take advantage of these opportunities, and start by reaching out to our Energy Coach, Bill Powell. What makes this even more important is that there are goals we're required to meet with this program, and if we fall short of

them we'll face fines. We'd rather pay our members, to help them make improvements to their homes and lifestyles, than pay penalties to the state.

- **President Barry Bernstein** briefly discussed the January 2017 rate increase. For context, he cited Green Mountain Power's recent filing for a somewhat comparable 5-percent increase. Vermont's electric utilities are facing similar cost drivers, he explained, particularly the region-wide increase in transmission and capacity costs.

Washington Electric's Annual Meetings provide an opportunity, unique to electric cooperatives, for those who purchase power to bring up with the leadership whatever might be on their minds: service, outages, rates, energy policy, or other matters. See "The REC Question," next column, for a synopsis of this year's discussion.

Then it was time to get away from it all – to leave our everyday world behind and travel, through Susan Morse's stunning photographs and inspired commentary, to the remote reaches of the far North, to learn about the animals, plants, rivers, and people that are found there, and who, in a very real sense in this shrinking world, are our neighbors.

It wasn't a simple or an untroubling journey, but all who took it left the Annual Meeting richer for the experience.



WEC members from Cabot, Norma Dutil and Cedric Houston. The crowded dining room behind them shows a good turnout for WEC's 78th Annual Membership Meeting.

The REC Question

Member Asks: Do They Promote, Or Hinder, Renewable Energy?

Washington Electric Cooperative's Annual Membership Meetings feature reports from WEC's president, general manager, and treasurer. Equally important, however, are the voices of Co-op members themselves, expressing their opinions and concerns, presenting questions to their elected directors and the executive staff, and revealing what's important to them as WEC forms policy and navigates its way forward in an increasingly complex energy and regulatory environment.

At the 78th Annual Meeting on Thursday, May 4, a member raised an issue that's been part of the conversation about renewable energy credits (RECs) for years: whether the credits, which WEC earns through its investments in renewable generating facilities in Coventry and Sheffield, and then sells to utilities outside Vermont, help or harm the movement toward mass adoption of renewables.

"You say we're 100-percent renewable," the member said, "but we sell credits to other utilities so they can continue to not meet their (states' targets for lower) carbon."

In response, General Manager Patty Richards explained that while WEC sells some of the Class 1 RECs it earns by helping to create renewable energy, WEC then buys enough less-expensive Class 2 RECs to keep its 100-percent-renewable designation. That designation provides various advantages for the cooperative, related to regulation.

As to the question of whether selling RECs to an out-of-state utility "allows it to run a fossil fuel plant longer" (as the member suggested), Richards emphasized that that's not the case. Since mass storage of electricity is not yet feasible, a balance must constantly be maintained between supply and demand – that is, the amount of electricity people are using and the power that's being generated and provided through the regional grid. Therefore, when a renewable energy generating facility starts up, the grid operator – known as ISO-New England – instructs a fossil fuel plant to decrease its production or cease production altogether. For that period of time, thanks to the energy from the renewable source, the fossil plant's carbon emissions are lessened or curtailed.

"Renewables actually back down fossil fuel plants," said Richards.

As for the RECs, they provide a revenue stream that stimulates and helps finance further development of renewable energy projects. Without REC revenues it's far less likely that solar, wind, and other renewable systems would be constructed. So while utilities elsewhere in New England can buy renewable energy credits from WEC to adhere to their states' mandates, the system as a whole encourages regional development of the green-power alternative. (For a comprehensive discussion of this subject, members are encouraged to review an article published in *Co-op Currents* in December 2015, which remains available on the WEC website. The article – "Getting a Burn Rap" – explores the role RECs play in stimulating renewable power production.)

WEC President Barry Bernstein felt that another point should also be made.

"The money we get for RECs," he emphasized, "helps us keep our rates as affordable (for WEC members) as we can make them."

To underscore Washington Electric's credentials as a leader in renewable generation, Bernstein pointed to WEC's construction, in 2005, of its Coventry, Vermont, facility, which utilizes the renewable resource of landfill methane to fuel five Caterpillar engines that are presently producing two-thirds of this Co-op's electricity.

"We invested more than \$15 million in the Coventry plant," he said, "and this was years before anybody was thinking about RECs." That investment remains the greatest stabilizing factor for Washington Electric, both in terms of the power it provides and its affordability.

"Our contract with the Coventry landfill extends until 2035, which represents a great hedge against other, inevitable cost increases," said Bernstein. He then underscored the Co-op's commitment to environmentally sensitive power policies, regardless of state rules.

"We're not just trying to meet our obligation to the state with our Button-Up program," he explained. "We're trying to help people get off fossil fuels because that's where we all need to go."

When a renewable energy generating facility starts up, ISO-New England instructs a fossil fuel plant to decrease its production, or cease production altogether. Thanks to the energy from the renewable source, the fossil plant's carbon emissions are lessened or curtailed.



The Care And Feeding of WEC's Power System

As One 'CWP' Winds Down, the Next Takes Shape

Washington Electric Cooperative gets a new financial shot in the arm every four years, with approval from the Cooperative Finance Corp. (CFC) of a loan to support a carefully constructed and meticulously reviewed plan for upgrading, modernizing, and in places relocating parts of WEC's 1,300-mile power system that serves 10,800 Co-op members.

Maintenance and renovation is a continuous challenge for an electrical system built across a constantly changing landscape, inhabited by 21st-century members who expect more from their power cooperative than people did when WEC's system was first built out in the 1930s and '40s. When you add new technology like "smart metering," some 330 net-metered solar generating systems scattered around the territory and contributing their surplus power from lawn and rooftop installations, larger renewable systems like the 2-MW Williamstown Solar Farm, and an infrastructure whose components (poles, wires, transformers, fuses, etc.) reflect the various eras in which they were constructed, setting priorities and formulating a plan presents a riddle that only a computer could solve.

Fortunately, WEC has the necessary resources. These include the Co-op's own computerized mapping and outage-management system, and the expertise of consulting engineer Dan Crockett, of Crockett Engineering, LLC, in Essex Junction.

"Dan has worked with us on our last three Construction Work Plans (CWPs)," says WEC's Director of Engineering & Operations, Dan Weston. "We provide data which he enters into a software package that analyzes all the factors – for example, line loss (a decline in voltage) associated with wire size and distance traveled. His program then produces cost-benefit results, which helps us select the projects to propose for financing under the next CWP."

WEC's information comes partly from its outage-management records, which reveal repeated trouble spots. Insight also comes from actual human beings: the engineers, IT staffers, and linemen who work on the Co-op's electrical infrastructure every day. Veteran employees accumulate an amazing amount of institutional knowledge about a power system that traverses some of the most remote areas of 41 towns in central Vermont.

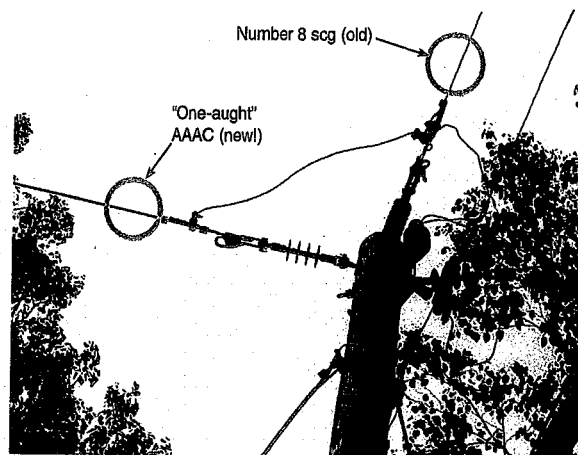
That includes Ed Schunk, a former lineman who now oversees WEC's pole-inspection and treatment program. (Says Weston, "We're the only Vermont utility I'm aware of with a program solely dedicated to examining every pole on a regular basis to identify which



ones need replacement. You really need this for a system that has 25,000 wooden poles, some in various stages of decay.")

With 30 years' experience at Washington Electric, Ed can take you to a place where a pole (among those 25,000) that was installed in 1939 is still in good condition, and to one elsewhere that has been tagged for replacement. He knows where newer, 1980s-vintage poles are deteriorating (poles in different locales endure different conditions). He knows places where the Co-op's right-of-way has been re-routed for better access and reliability, and places where property owners, for reasons important to them, have declined permission to do so.

Working with electricity since his training in the U.S. Air Force, Ed also knows about another critical component



Veteran WEC employee Ed Schunk (left) oversees Washington Electric's pole-inspection and treatment program. Ed is shown here with a vintage (possibly 1939) pole in Marshfield, still in good condition. "When it says 'CO-OP' like that, high on the pole, it's one of the really old ones," he says. Above, old conductor (wire) and new meet up in East Calais, revealing how upgrades to WEC's infrastructure are incremental over periods of years.

for system reliability: the conductors (wires). Over the seven decades of WEC's existence these have changed, for many reasons. During World War II, for example, copper was scarce, so utilities turned to solid steel wire with a light copper coating. Unfortunately, though, steel is an inefficient conductor of electricity, so through electrical friction some of the energy coursing through the strands turns to heat, wasting that energy and reducing the voltage the farther the electricity travels. (This is called "line loss").

Ed and WEC's other Operations workers can spot the different gauges of wire used over the years.

"3-12 copper weld and number 8 scg is the old stuff," he said on a recent day, pointing to the top of a pole where a small number-8 wire intersected with a newer section of 1/0 ("one-aught")

AAAC (All Aluminum Alloy) wire. "I've got nine pages of lists, amounting to 270 spots, still using 3-12 and 8-aught wire. Some are three to four miles long."

Replacing old wire isn't as simple as taking the old stuff down and putting new wire up. Today's conductor, built to serve more customers and reduce line loss, is larger in diameter and has a better electrical-conductivity-to-weight ratio; as a result, it accumulates a heavier load of snow and ice in winter weather, so the Co-op must shorten the span between poles – from around 600 feet in 1949 to a standard of about 285 feet today – to bear that weight.

This is how a conductor upgrade becomes a major rebuilding project.

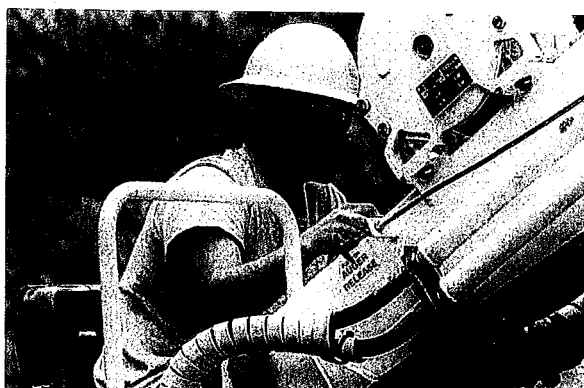
Evaluating factors like these, knowing we can't possibly tackle them all, and seeking projects with the greatest positive impact, are ingredients of the cake that, when fully baked, becomes WEC's new Four-Year Construction Work Plan.

"The purpose," says Weston, "is to constantly improve on our reliability and our energy efficiency. But there's a fairness factor, too. Most of our members who live close to one of our eight substations experience better reliability than people at the end of the lines. Are we ever going to be able to give those folks the same level of reliability? Practically, no. But we work to improve the reliability at those far ends, because those folks are Co-op members, too."

Then there's solar...

"Four years ago, when we were drafting the current work plan, it was on the threshold of rules changes that

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Lineman First Class Jason Smith operates the lift on one of WEC's off-road track vehicles, drilling a hole to set a new pole in East Topsham. On this June day, Jason and his coworkers were replacing a very remote 10-pole section of line where some of the poles were damaged or decaying.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

A Beautiful Planet

Sue Morse ('Keeping Track') Urges WEC Members to Keep It That Way

Susan Morse speaks of the wildlife she has studied in New England, in the American West, the Boreal Forest of the North, and in the wind-swept barren lands of the Arctic, with a palpable awe that clearly has been deepened rather than drained by a career of more than three decades as a naturalist, researcher, writer, and photographer. Sue is the founder and field director of Keeping Track, a nonprofit based in Jericho, Vermont, that educates and enlists interested people of all ages in the work of observing and accumulating data – “keeping track” of wildlife populations and the conditions that support them – to help guide policy decisions related to habitat and the environment.

Among other accomplishments, these efforts have, according to its web site (www.keepingtrack.org), led to the conservation of more than 40,000 acres in 12 states and the Province of Quebec since Keeping Track launched in 1994.

Guiding her audience through the images in a program she calls *Animals of the North*, Sue frequently slips into a tone of reverie. Nearing the end of her presentation, as guest speaker at Washington Electric Cooperative's 78th Annual Membership Meeting at Union-32 High School on Thursday, May 4, she said, “These are the faces of our neighbors. They remind us that we have a responsibility to treat the world with love.”

Those faces – images, often up-close and personal, of lynx and martens, grizzlies and caribou, spruce grouse and moose, polar bears, muskox, and wolves, all in their grand natural habitats – held her Co-op audience in thrall. Expanding beyond her own thoughts and observations, she quoted naturalist and author E.O. Wilson (“Each species is a wonder to behold, a long brilliant history in itself to read...”); she drew inspiration from philosopher Roger Walsh's call for us to live mindfully in the natural world, and Jane Goodall's empowering statement that “Every individual matters; every individual has a role to play; every individual makes a difference.”

She even summoned the voices of animals themselves, replicating calls of the coyote, cougar, and wolf. Even within the confines of the school's cafeteria they sounded distant and lonesome.



Susan Morse, Founder and Field Director for Keeping Track, on a recent expedition to the Arctic. “Sue is one of the most capable and experienced naturalists in the United States,” says Harley Shaw, an international expert on mountain lions, from Arizona.

Most important, she had a message to convey: As the dominant species on Earth, human beings have a moral obligation, not unconnected to our own fate in the world, to protect and steward the core wild lands and the vital connective habitats that link them together, so that our co-inhabitants of the world can survive.

For she made it clear that we have imperiled them. Polar bears, on average, are some 15-percent lighter in weight than they were in the recent past because of more arduous conditions in the arctic regions. Moose, who very likely numbered more than 100,000 in New England as recently as the 1980s, are notably less numerous

now and are increasingly encumbered by parasites like brainworm and winter ticks; there can be 40,000 to 60,000 ticks on a single animal.

“Adults can survive under this onslaught,” she said, “but calves don't make it.”

In Vermont, spruce grouse are at risk. And the American marten, “beautiful creatures,” said Sue, showing a photograph of their impish faces, “is going to have a tough time if this place becomes like Tennessee.”

Lynx could similarly disappear from the state if we don't find ways to preserve their habitat.

“Lynx have a boring diet,” she explained. “Snowshoe hare for breakfast, snowshoe hare for lunch, snowshoe hare for dinner and dessert.” But as Vermont's climate warms these hare have become less plentiful. “Lynx will not find Vermont's habitat hospitable in twenty-five or thirty or fifty years if warming temperatures continue,” she warned.

Her conclusions about the state's, the region's, and indeed the hemisphere's increasingly fragmented landscape and shifting, warming climate are troubling. The alteration of stream and river temperatures diminishing aquatic life and throwing salmon-spawning schedules out of kilter for the bears that depend upon them; the gradual northward migration of tree species; the influx of ticks where, decades ago, they were scarce... these, she explained, already are having a noticeable effect upon our co-inhabitants of the North.

“More than one-third of our North



The lynx featured prominently in Susan Morse's presentation, “Animals of the North,” at WEC's Annual Meeting. It can still be found in Vermont, but its food source, the snowshoe hare, seems to be migrating north as Vermont's climate warms. If hare become too scarce, the lynx will surely follow.

PHOTO BY SUSAN MORSE, KEEPING TRACK.

American wildlife is at risk,” she said. And much of the cause is the accumulation – now reaching a tipping point – of atmospheric carbon. One of the most dramatic photographs she showed was of a state-designated Critical Winter-Range Habitat for pronghorn and mule deer, in Pinedale, Wyoming, which was virtually covered with fracking pads – a fossil fuel-extractive technology that, along with continued political and economic pressure to plunder oil reserves in the Arctic, reveals the human race doubling down on practices destructive of both climate and habitat.

And yet ... her message was hopeful. Not that government action will curb climate change, but that individuals making informed choices or acting in concert through nonprofits can steer the course toward humbler, less-abusive policies. In this respect,

she praised Washington Electric Co-op several times in her presentation, for providing its members 100-percent-renewable electricity. “It's going to take us as citizens, as with your power co-op, standing tall for our principles worldwide,” she said.

Rather than despairing, she urged her listeners to make a list – “ten things you can do each day” – to abide by those principles.

“Try to avoid plastic packaging. Limit driving to town to two times instead of four times a week. Get your kids to turn out lights. Support the organizations you believe are doing good work, both local and worldwide, because membership matters.

“Be steady,” she concluded. “Be true to your values. It's just a gorgeous world! A beautiful planet! How great it is to fight for it.”

WEC's Power System

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have helped to facilitate Vermont's solar buildup,” Weston continues. “The impacts of solar are real, and our next CWP will take a harder look at specific sections where that's being felt.”

Here's one scenario. A four-mile “spur” off of one of the main lines (or “feeders”) leading out of a substation serves, let's say, 200 WEC members. It has well-placed fuses and automated reclosers to isolate and correct shortages that might occur, and appropriately sized voltage regulators to provide a consistent level of power from the beginning of the line to its end.

But then a few neighbors at the end of the circuit decide to install solar

panels. WEC was an early adopter of net metering, and welcomes those installations, but they do change things on the grid. A system originally designed with traditional daily patterns in mind – usage goes up in the morning when cows are milked or when families are getting their day started, then goes down through late morning and afternoon – must now accommodate an influx of, say, 50 kilowatts from these solar systems in mid-day.

“And it's not a consistent influx,” Weston points out. “You've now got power generators at the end of the line going on and off as the clouds move, which can cause fluctuations in our voltage. The fuses, capacitors, and voltage regulators have to be able to

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Rate Structure

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"We have been saying for several years that our electricity sales are flat," says WEC General Manager Patty Richards. "We would be okay if costs were not increasing so dramatically. But we have costs we simply can't avoid, and this is a recipe for higher rates. Our current trajectory isn't sustainable, and we must do something about it."

The reasons for lower energy sales are many: greater efficiency in today's appliances; more emphasis on conservation; and more people producing their own electric power, and even adding their surplus power to WEC's distribution lines through net metering.

These facts – rising costs, and declining sales – aren't changing. But, says Richards, "The idea of annual rate increases for the next several years isn't tenable. Something has to change. For that reason and due to the new state mandates, the board and staff have begun an in-depth evaluation of the Co-op's rate design. It's actually a very interesting discussion that we expect will carry on through the summer. There are a lot of issues and options to consider, including questions about fairness, about equity, about compassion, and simply about what works. This is going to be one of the most important decisions the Co-op will make in the modern era."

Any change in the rate design will be revenue-neutral. WEC collects roughly \$14 million in electricity sales, and that total will remain the same at the outset if we change our rate structure. However, at the individual level it will have an impact; some members will pay more and some will pay less.

"If we don't make changes, we know that everyone will steadily pay more," says Richards, "and we don't think that's an acceptable option for our membership."

"Beneficial Electrification"

WEC has, for many years, had a two-tier energy rate structure, combined with a very modest monthly fixed charge: members have been charged a low energy rate for their first 200 kWh per month (currently just over 10 cents/kWh), and a higher rate – now about 23 cents/kWh – for power above that amount. This structure stemmed from two core principles: that WEC should provide members with enough affordable power to meet their basic needs, and that the higher cost for electricity in excess of 200 kWh would encourage energy efficiency.

As Richards points out, that policy has worked. The past decade or so has seen a reduction in average power consumption among Washington Electric's members, 56 percent of whom use less than 500 kWh per month. However, Act 56, passed by the Legislature in 2015, requires utilities to assist their customers (or members, for Vermont's two electric co-ops) in switching away from carbon-producing fossil fuels for a greater portion of their energy usage, which would encourage greater electricity consumption. The

intent is to help the state reach its goal of obtaining 90 percent of all energy from renewables by 2050.

The term for this new concept is Beneficial Electricity – quite apt when applied to Washington Electric Cooperative because our power portfolio is 100-percent renewable.

"Our Co-op has responded energetically to these demands," says Richards. "Our Button-Up Program, first and foremost, emphasizes the importance of a tight and weatherized home through energy audits and follow-up weatherization efforts. No matter what source of energy people are using to heat the home, they'll use less of it with a tight house. Button-Up also helps people buy and install cold-climate heat pumps, which operate on electricity and reduce the demands upon their gas- or oil-burning heating equipment. Additionally, the program supports switching to solar-powered hot water heaters, heat pump water heaters, and woodchip heating systems. Furthermore, WEC is in the process of installing five publicly available electric vehicle charging stations to encourage the movement away from gasoline-powered cars and trucks."

"Our programs address the goals of Act 56 more effectively than those of almost any other utility," says Richards, "because our power is 100-percent renewable. When you replace gasoline to power your car with WEC electricity you are completely offsetting that gasoline with renewable power."

That's great for the member, provides revenues for WEC, and helps rescue planet!"

But, she says, there's one serious problem.

"It's harder to convince people to switch from fossil fuels to electricity when you're charging them 23 cents per kilowatt-hour, no matter how green it is. That undercuts the message, and it's one of the reasons we need rate reform."

Making this an even more critical consideration is that Act 56 levies financial penalties upon utilities that fail to meet its requirements for getting people off fossil fuels. And those requirements get more challenging each year. Such fines would only widen the gap between WEC's necessary expenditures and its insufficient revenues, and force unpalatable annual rate increases for the foreseeable future.

"Our practice, for quite some time and for very good reasons, has been to rely upon our electric rates to meet policy objectives of the Co-op," says Richards. "With a modernized grid, new laws, and more home generation, we need to also change how we charge for our services. If we don't, the Coop won't be around."

The membership-fee gap

Energy rates are one component of a utility's rate design. Another component that helps utilities cover their costs is the customer (or member) charge – the fixed monthly fee that all users pay regardless of how much power they use.

WEC's member service charge is currently very low, at \$12.97/month. This covers a very small portion of the Co-op's total fixed costs.

"We are studying these issues with the assistance of our lender, the Cooperative Finance Corp.," Richards explains. "We know our fixed costs are a great deal higher than we can cover with a monthly charge of \$12.97 per member. Fixed costs include the wires, the poles, insurance, paying our employees, and supporting our office, warehouse, and vehicles – all the expenses that don't go up or down with how much electricity our members buy."

"One of the premier things you do as an electric utility is to figure out how you're going to charge for your product and for your services," Richards continues. "We have concluded that the way we're doing it no longer works for the long-range stability of the Co-op and in light of the new state laws we must comply with."

WEC is also concerned about its low-income members.

"They are the most vulnerable to high energy rates," she says. "In many cases they haven't had the means to invest in weatherization and high-efficiency appliances, which have enabled others to significantly reduce their electric bills. We have these folks in mind when we talk about any changes to our rate structure."

"Certainly there are some Co-op members who achieve low usage through frugality," she adds, "and for them an increase in the member service charge would be unfortunate."

WEC's Power System

continued from page 7

respond to that, without our members even knowing."

Then there's this: The construction of new homes in WEC's service territory has slowed dramatically. Ten years ago the Co-op typically added some 200 line extensions each year. Now it's more like 50.

"However, with the advent of solar," Weston says, "the loads are changing. During the nighttime our load requirement will reflect the demands of those 50 new homes. But during the day, when the solar installations are at their highest productive levels, it's like removing 200 homes from our lines."

Right-sizing, upgrading, and contending with variables like these is a constant challenge for any electric utility. For co-ops, the cyclical Four-Year Construction Work Plans represent an opportunity to try to get it right, and to secure the funds needed to keep up with the times.

A co-op for all

The federal Rural Utilities Service (RUS) requires the nation's 900-plus electric co-ops to provide reliable power at a consistent quality (voltage) so that lights and electrical equipment operate safely and properly. This necessitates constant, costly investments. WEC's next CWP, like the two before it, will require about \$7 million in CFC loans.

The expiring work plan contained 38 specific projects, of which 33 have been completed. These have involved the reconstruction of more than 50 miles of line over the past four years. Some of the major projects were in

But in the bigger picture, changes to the Co-op's rate design would, if effective, reduce the size and impact of the rate increases that appear likely for the next several years to come. If we do nothing, rates will go up for everyone, including the low-use member."

Your input

The first step for the Board of Directors is to clarify what steps they will consider to meet this challenge. It is likely that the monthly customer charge will increase, and the board is also looking at reducing the low-cost block to a smaller size.

"We're having policy and big-picture discussions now," Richards explains. "We'd also like our members' input, and we may hold a community meeting in the summer to solicit feedback. Once we settle on a new structure we'll need to get it approved by the Public Service Board. We're hoping to make a filing with the PSB by year end. But we recognize how big an issue this is and we plan to take our time and share what we're thinking and doing with all our members via Co-op Currents, meetings, and phone calls."

Members are encouraged to give these issues consideration, and to share their thoughts and ideas with WEC's Board of Directors. The directors' names and contact information are listed on page 2.



WEC now has two track vehicles, enabling faster and more efficient construction projects in the most rural, off-road territory. Both were at work in the reconstruction project in East Topsham in early June.

Chelsea, Corinth, Williamstown, Cabot, Marshfield, Tunbridge, Barre, and Orange. The remaining projects will be finished over the summer and fall.

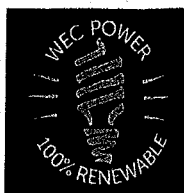
By then, the data accumulation needed to formulate the next CWP will have been completed, and with consultant Dan Crockett's assistance cost-benefit analyses will have been performed and priorities will have been set. WEC's members out at the ends of the power lines and far away from the substations, can take comfort knowing that their needs will have been considered, the same as everyone else's.





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CO-OP CURRENTS



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July 2017

Buttoning Up and Zoning Out Middlesex Family Taps Into WEC's Incentives

Callah Mandell Wood is three months old. Her big brother, Loren, is two. The house they live in, in Middlesex, is lots older – 184 years, in fact. It was built in 1833. Callah and Loren's mother, Bekah Mandell, grew up there, and when she and her brother were kids they didn't spend a lot of time in their rooms upstairs because for much of the year it was too cold up there.

Bekah remembers doing her homework at the wooden table in the large, open room on the first floor where the woodstove is. Her parents, Larry and Marcie Mandell, who bought the house in the 1970s, had created that space by knocking down the walls that, like a typical Vermont farmhouse, had originally divided it among several smaller rooms. Opening it up let the heat travel from the woodstove, and turned much of the first floor into a lovely, homey kitchen-living room-dining room, with natural light pouring in from the windows along the front and rear walls.

That was the kind of renovations people did in the 1970s, '80s, and '90s, to make the old farmhouses more comfortable. And it surely helped. But in the upstairs rooms, and even in the room off to the side of the living area – where, to this day

Bekah, who works from home, wears fingerless gloves at her keyboard in the wintertime – it's not exactly warm.

So Bekah and her husband, Patrick Wood, who purchased the house from the Mandells four days

before Callah was born in April, are doing the kinds of renovations people can do today, which are several steps, technologically, beyond the improvements people her parents' age undertook when they were young.

Speaking of homework, Bekah and Patrick did theirs. They searched out and tapped into a nexus of local resources to make their project affordable. They secured a mortgage through VSECU's VGreen lending program that's specially designed to support home energy-improvement projects, and they applied for and received incentive packages from the Renewable Energy Resource Center (administered by the Department of Public Service's Clean Energy Development Fund) and Washington Electric Cooperative's Button-Up Program, which WEC runs jointly with Efficiency Vermont (EVT).

School is still a few years off for Callah and Loren, but Bekah takes comfort, she says, in knowing that "Our kids won't need to do

Bekah takes comfort in knowing that "Our kids won't need to do their homework down here, like I did."

continued on page 2



Washington Electric Co-op members Patrick Wood and Bekah Mandell, above, with two-year-old Loren, left, and infant Callah, live in a house that has stood in Middlesex since 30 years before the Civil War. They're tapping into local resources to finance improvements that will make it more comfortable year-round. WEC's Button-Up Program helped them purchase a pellet boiler, plumbed to spread heat throughout the house.

PUC Workshop To Review Regulation, Rates, Energy Sector *Echoes of WEC's Rate Design Study*

Just as Washington Electric Cooperative has recently begun to contemplate how the Co-op will meet the mandates and obligations imposed on the state's electric utilities by recent legislation, Vermont regulators, in an order published on June 26, have announced a workshop that will tackle some of the same questions for utilities statewide. According to the announcement, Vermont's newly renamed Public Utility Commission (PUC) – formerly the Vermont Public Service Board (PSB) – has scheduled the workshop to "broadly review emerging trends

in the utility sector and to evaluate existing forms of regulation in light of these trends."

The PUC is seeking input from utilities and other interested parties to consider the cumulative effects of regulations and technological advances on the utilities, including regulations related to rate-setting practices. Cost recovery and rate design – the very concerns of WEC's Board of Directors, as discussed in these pages last month ("WEC Eyes Changes To Its Rate Structure,"

continued on page 7

Washington Electric Cooperative

East Montpelier, VT 05651

Inside

Power planning #1: WEC is updating its 20-year IRP (Integrated Resource Plan) which reveals a future of clean and green power for the Co-op. Manager's Report, page 2.

Power planning #2: A deeper look at what the Co-op does every day in an interconnected and interdependent region-wide grid. Page 4.

Are you kidding me? Half price for a new EV? Where? Here, page 5.

Air conditioning, too: Cold climate heat pumps have dual roles, but your house should meet energy code standards first. Page 5.



This wrecked power pole in Duxbury is just one of 20 that have been broken in an unusual series of brief but violent storms in central Vermont since May. Page 8.

President's Message

Sweet Smells of Summer

Plus: Thoughts on Rate Design, and Co-op Departures

By Barry Bernstein

Summer is here in full force. I watch the fields around me get mowed, winnowed into rows, and then baled. What a sweet smell in the air when the farmers are doing their magical work, racing before the next storm rolls in, and how it lingers in the summer air when they're done.



As always, our line crew and other employees worked consistently and diligently to get our members' power back online. We appreciate our members' patience, as our line crews, assisted by other employees, restored power to, in one incident, more than 3,000 of our members.

New Rate Design Process

In the June issue of *Co-op Currents*, both in my President's Message and an article, we discussed the beginning of the process of a new rate design. We appreciate some of our members taking the time to either call and talk with the folks who serve on the Board of Directors or also writing to the Co-op

We welcome your continued input and thoughts on the rate design question, and look forward to a thoughtful discussion before we make any decisions affecting our membership.

to share their concerns and their thoughts on the issue.

As I mentioned last month, this is a slow and open process that we have begun. The Public Utility Commission (PUC), formally called the Public Service Board (PSB), has opened a workshop and information-gathering process involving all of the electric utilities (see our article on page one) to discuss their current rate designs, and how they plan to collect and allocate costs going forward. Obviously, as WEC begins to look at this issue the PUC workshop will have an impact on the course we choose. We intend to keep our members informed, welcome your continued input, and look forward to a thoughtful discussion before we make any decisions that affect our membership. It's important for all of us to realize that change, while difficult, must be taken thoughtfully.

Staff Changes

Cathie Vandenburg, our plant accountant for the past 24 years, left

WEC recently left to join her husband, Scott Martino, our former Safety & Environmental Compliance Specialist (26 years), in Georgia. We wish her good luck in her move.

Tribute

Will Lindner, our *Co-op Currents* editor for the past 22 years, is retiring from that position after this July issue, his last. We honored Will at our Annual Meeting in May but it's still important when a member of our Co-op family departs, who has given so much to WEC and our members, that we send him off with our heartfelt wishes for success in whatever he chooses to undertake next.

I cannot really express in words, on behalf of the WEC board and our staff, how much Will means to us all and how he has helped convey our WEC history in such a personal and meaningful way. His work sets a standard for us to use as a guidepost as we move forward. Thank you, Will, for bringing your special touch and caring to the *Co-op Currents* and to all who you came into contact with on WEC's behalf.

Finally, congrats to Director Annie Reed's mom, Jean, who just turned 97.

I hope all of you enjoy this beautiful summer and that the rains do not keep us inside too long and prevent a successful garden season and haying and growing season for our Co-op members and our Co-op farmers.

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

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Middlesex Family Taps Into WEC's Incentives

continued from page 1

their homework down here." The renovations will create a number of individually controllable heating zones in the house. When the first stage is accomplished in coming months, the room the kids share will be part of a zone that will also heat Patrick and Bekah's bedroom just steps down the hall. When the kids are older they'll have separate rooms, so the plan is to add at least one more zone upstairs.

The first floor, too, will be divided into zones. The office, where Bekah provides communications services for the National Domestic Workers Alliance, will no longer have to rely on heat meandering in from the woodstove on the far side of the adjoining room, so she should be able to ditch the fingerless gloves.

Made in Vermont

Just as important to Patrick and Bekah as the presence of actual heat throughout their home, is the source of that heat. They're getting off fossil fuels. For the woodstove in the large front room isn't the only heating source in the home; it complements a boiler that Bekah's parents purchased about 10 years ago, which sends warm air up from the basement through a venting system. It helps, but does not solve, the problem of disseminating the warmth.

The zones, however, will do that. And the source of the heat will be a pellet boiler, mechanically fed from a large bin beside it in the basement. The pellet boiler will heat water contained in two insulated tanks, and those tanks will circulate the water to wall-mounted units (basically, radiators) in the various zones. It will be not only a non-fossil fuel heating system, but an energy-efficient one, because it won't take a lot of energy to maintain the water temperature in a closed system.

Fossil fuels won't be a thing of the past for the Wood and Mandell family. Their cook stove and clothes dryer run on propane. So does their hot water heater, but not for long. Patrick doesn't believe it has a lot of life left in it, and when it gives up the ghost he plans to install a new one that will be connected to the pellet boiler.

continued on next page



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-8245.

Manager's Report

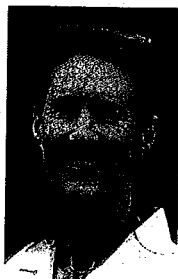
After A Bustling Annual Meeting, WEC's Programs Are Full-Speed Ahead

By Patty Richards

As summer is in full swing, we hope you are staying dry and cool during this season of soggy and unpredictable weather. Along with summer usually comes an occasional thunderstorm, but this year we have had more than our share. Several severe, localized weather events resulting in power outages have been keeping our crews busy starting in May (see more on page 8). In Washington County, the areas of Fayston, Moretown, and Duxbury were hit hard with flooding in June and July, taking out roads and bringing down trees. These pop-up thunderstorms continue to plague our system, and they have been disruptive in many ways including causing power outages.

Annual Meeting Thank You

I want to thank all our members and staff who attended our 78th Annual Meeting this year. We had just under 250 in attendance and we were yet again at capacity for seating. We had a terrific evening and enjoyed the presentation of Sue Morse from Keeping Track, with breathtaking photos of wild animals in their natural settings. Once again we pushed to the



capacity of the venue's space as we tried out a new location at U-32 High School in Montpelier. For next year's meeting we will look for an even larger space in hopes of enticing a bigger turnout! To all who could make it, I want to personally thank you for coming and enjoying an evening talking about electricity-related issues and simply catching up to say hello.

Integrated Resource Plan (IRP)

Every three years WEC must complete and file an Integrated Resource Plan with state regulators. This is a chance to document and make public where your power comes from – not only this year but for the next 20 years. We are proud of that, because we think our members will approve of these power sources, both for financial and environmental reasons. The IRP showcases our green and clean commitments for the next two decades, and members can rest assured we will have sufficient environmentally responsible power to meet those needs. The IRP is both a regulatory requirement and internal planning tool. In this important document we describe how we will meet the electric service needs of our members in a reliable,

secure, and sustainable manner, while assuring affordability and efficient use of energy.

There will also be a focus in the IRP on how we deliver power in the new era of small-scale "distributed" generation, like solar, with its impacts on our infrastructure (substations, wires, and poles). We will run engineering studies to examine those impacts, on a circuit-by-circuit basis, from the standpoint of how much solar energy our system can handle and at what locations more distributed generation can help. As the number of solar installations increases we must be mindful of the impacts on our equipment and grid delivery system.

We filed the IRP with the Public Utility Commission (PUC) in early July and look forward to working with our regulators to gain their support and approval. You can also find WEC's IRP on our website.

Button Up Your Home

WEC wants to give its members money to lower their carbon footprint. Yes, you heard that right! You have probably been reading about our Tier III programs – which we are now calling our Button-Up Program due to its emphasis on weatherization and energy efficiency — in *Co-op Currents*, including a feature article on page one of this July edition.

Following instructions from the state, we have set aside money to help our members reduce their dependence on fossil fuels. Our programs include financial incentives to weatherize homes, install solar hot water systems, install heat pump hot water systems, install wood-pellet boiler systems, and to add cold climate heat pumps in tight, well-weatherized homes.

WEC is committed to working with its members to achieve meaningful changes and we want to work with you to lower your carbon footprint and Vermont's greenhouse gas impacts. So if you are looking to weatherize your home and make some of the energy-saving changes noted above, this is a great time to do it because you can receive actual financial assistance! We encourage you to call Bill Powell here at Washington Electric to learn more.

Net Metering

The state's new (January 2017) net metering rules are well underway, and the pace of requests for installations from WEC members has been vigorous. The Public Service Board — now the PUC — issued new rules and orders for the statewide program in response to instructions from the Legislature in 2014 to alter regulations for non-utility-scale generation (less than 500 kW). Typically, net metering applications in WEC's service territory take the form

of solar panels installed by Co-op members at their homes.

To comply with the PUC's new approach to net metering, WEC filed a plan that went into effect, as required, at the beginning of the year, and we have begun to implement that plan and bill our net-metering members accordingly. We are glad to report that there is still robust interest in net metering and home generation among Co-op members. We have 72 new applications in hand already, totaling just under 500 kW of total installed generation. In fact, we expect this year's applications to exceed the total amount of solar systems installed in our service area over the past 15 years. I'll repeat: In just one year we will have more applications for solar systems than all prior years combined. While the pace and volume of interest has been a challenge for us to keep up with internally, we are working out the bugs of the new program and getting members installed and on line every month.

The Co-op Difference

Being part of a cooperative utility means you have a voice. You are not just a consumer, but rather you are a partial owner and a member. One of the many differences of being part of a co-op is not only the return of excess funds to you through what is known as capital credits (because co-ops, unlike investor-owned utilities, don't keep their "profits," but rather share them among their member/owners), but you also can participate in the democratic control and decision making of your cooperative. There is no better example of local control than the cooperative model. At the annual meeting members elected three fellow members to serve on the nine-seat Board of Directors (two returning — Don Douglas and Mary Just Skinner — and one new director, Jean Hamilton).

Work is underway to calculate this year's return of capital credits to members. We will be ready to issue credits to members in November. (Inactive members receive a check.) The work is well underway now to prepare for this important endeavor, with WEC staff Dawn Johnson and Linda Nelson leading the way.

WEC also maintains a community- and civic-minded fund called the Community Fund, which is supported through member-donated capital credits. On page 6 we highlight activity and donations made in 2016. We would love to have more members participate. This is a way to make very small amounts add up and make a difference in the lives of those in the central Vermont region. Just another reason why being a part of a co-op is different!

Switching home heating, and eventually water heating, to the renewable resource of wood pellets will take a huge slice out of their fossil fuels consumption.

Bekah and Patrick have undertaken a lot of improvements in their 1833 farmhouse. But the main impact of WEC's Button-Up Program has been with the pellet boiler.

"It's a high-quality boiler that we're purchasing locally, from Pellergy, in Montpelier," says Patrick.

Pellergy LLC's web site explains that the company secured the North American rights to a boiler designed in Finland. Most of the manufacturing is performed in Vermont.

"There was an alternative boiler we were considering that was cheaper," Patrick says, "but we found out about the WEC incentives and that made it possible for us to get a better-quality boiler and do business with a local company, which was neat."

Finances were tight because there are so many components to their overall plan: the energy-related mortgage, a home energy audit and weatherization, and an extensive plumbing project to create the heating zones linked to the tanks in the basement — all amounting to a borderline-approvable investment in a 183-year-old house. The incentives, however, need not be added to an institutional loan, so they were critical to the couple's calculations.



Ghost window! An important step for Bekah and Patrick was to have foam insulation sprayed in the basement of their old farmhouse. The frames of a now-covered cellar window can be seen above the shovel handle.

continued on page 7



When, Where, And How Much?

A Lot Rides on WEC's Role in Power Predictions

If you don't look deeply into the details, the work of an electric utility like Washington Electric Cooperative seems pretty straightforward. The Co-op's job is to provide power to its 10,800 members' homes, businesses, farms, offices, and schools.

That means keeping the power lines up and in good working order, and the substations, too, to get the electricity from where it was generated to where it will be used. So the line crews go out each day for maintenance and repair projects, or to rebuild or relocate power line sections according to the carefully laid plans of WEC's engineers.

Just keeping the system running. Meanwhile, at WEC's headquarters in East Montpelier, the member services and bookkeeping staff are responding to people's phone calls, preparing bills and tracking payments, and keeping the books.

Taking care of business. Again, that's if you don't look very deeply.

But if you do look deeply, you discover that Washington Electric, and New England's other utilities, too, are engaged minute by minute, hour by hour, day by day, month-by-month, and of course long-term, in lining up the electricity you're going to need and predicting – not vaguely, but as precisely as possible (because there's money riding on it) – what WEC's power demands at any moment will be.

Numerous Co-op Currents articles, including "The REC Question" (June 2017), have described the regional power managers at ISO-New England ordering electric generating plants to ramp up production, or cut it back, or turn it off altogether, because the electric grid is a balanced system. The industry hasn't arrived yet at a point where mass quantities of power can be cost-effectively stored for use later. Therefore, power production must match power demand at all times. If perfect balance is not maintained it leads to equipment failures and potentially major outages.

But how do the operators at ISO-NE (the Independent System Operator) stay ready to do that? How do they know how much power will be needed

in the Green Mountains of Vermont, the White Mountains of New Hampshire, on the seacoast of Maine, the cities and suburbs of Boston and the villages of the Berkshires, plus Connecticut and Rhode Island?

Washington Electric is engaged minute by minute in lining up the electricity you're going to need and predicting as precisely as possible (because there's money riding on it) what WEC's power demands are going to be.

It's because there's someone at each of the utilities, or someone working for a group of utilities, generating that information, reviewing and renewing forecasts, and communicating it to ISO-NE. Not after the fact, not (hopefully) during the fact. But before the fact. At WEC, that constant, vigilant duty is performed by General Manager Patty

Richards, who also taps into the expertise and resources of the Vermont Public Power Supply Authority (VPPSA) for short-term, day-to-day predictions.

Because there are costs associated with "truing up" any difference between what the Co-op projected it would need and what it actually used when the time came, the closer Richards and VPPSA are in their predictions the better it is, financially, for Washington Electric.

Coming close to the mark

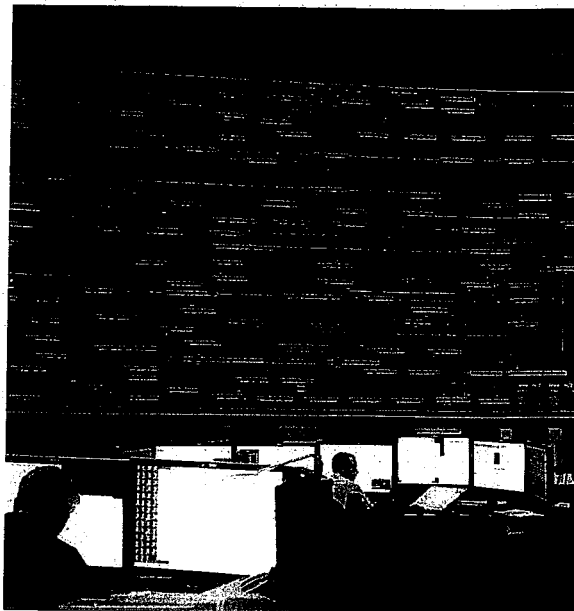
Patty Richards came to the Co-op in June 2013, after working in the electric utility industry in Vermont for 24 years as a power planner. Richards is a self-described "power-supply wonk," and enjoys her immersion in the technical aspects of utility

management. She's also the public face of Washington Electric Co-op, representing WEC in hearings and at public meetings, taking phone calls from members who want to take their questions or complaints – and sometimes their compliments – beyond the member services staff, and she's involved with policy formation with the Board of Directors. That just scratches the surface of her duties.

This article focuses on her work in power planning.

"Every kWh [kilowatt-hour] we draw from the grid is charged to us by ISO-New England," says Richards. "There are other charges from them besides the energy we use, but energy is by far the largest component."

"We also get paid for generation, meaning the electricity we produce at our Coventry [landfill methane] and Wrightsville [hydro] plants and other



ISO-New England's operations center in Holyoke, Massachusetts. Here, at the "central brain" of the always-active New England power grid, technicians watch their screens and the big board in front of them to keep electric generation and usage in constant balance. They base their plans on projections from the region's utilities, and there's money riding for those utilities on getting it right.

power contracts that delivery power to the grid," she explains. "We net the dollars we pay and the dollars we get paid. To the extent that we can be really accurate with our load projections, we save on the payment side."

Richards describes ISO-NE, at its command post in Holyoke, Massachusetts, as the "central brain" of New England's almost living-and-breathing electric grid.

"They're in charge of giving the generating plants real-time operating instructions," she says. "They start with a plan for the next day: 'This will be the process tomorrow: this generator will come on at 2 a.m., this one at 10 a.m., this one turns off at 3 p.m.'"

"They do that based on the expectations – the load forecast – for the next day. And the way they get that is from us, at the utilities, saying, 'This is what we're going to need to serve our members' electricity needs on an hour-by-hour basis for tomorrow.'"

When the time comes, if Richards and her VPPSA team had predicted that WEC would draw 14 megawatts (MW) of power at noon but the Co-op used only 13 MW, WEC would nevertheless be charged for 14 MW.

"ISO would say, 'We used your forecast and had these power plants lined up and ready to serve your load, but it turned out we didn't need that extra megawatt.'"

"So we not only pay the per-megawatt charge for power we

didn't use, we could also have to pay a higher amount if our miscalculation had required the ISO to find sources of peak power [when demand is high], which is more expensive. Obviously, the closer we get to the actual number, the better off we are."

This is the scenario if WEC over-projects its power needs.

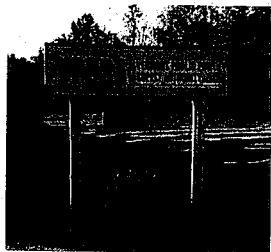
"If we under-project," Richards continues, "we have to buy more power than we had anticipated. The power forecasting we do, which is based on what we call the 'load shape,' is an effort to reduce and control our power costs, and also minimize the effects of the market's price volatility for us."

Fortunately, Richards says, her load forecasting is based on fairly predictable variables, and VPPSA gets the daily load shape right with less than 5-percent error.

"The more we know about how the load shape responds to changes in weather, time of day, or day of week, the more accurate we are," she explains. "This is a great example of applying math skills to real-world problems."

How renewables benefit

The greatest challenge to getting load predictions right is weather. WEC retains relationships with multiple weather-forecasting services and checks their predictions frequently each day, even more so when storms are known to be approaching. These



The Vermont Public Power Supply Authority, in Waterbury Center, assists co-ops and municipal utilities with power-related services.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

services, some of which are familiar names to central Vermont radio listeners and weather aficionados, are able to provide clients like Washington Electric Co-op more-precise details about storm strength, location, and duration than the general public usually receives.

The latest thing to come along is "Deep Thunder." It's a forecasting tool developed by the Vermont Electric Power Company (VELCO, which owns and operates the state's high-voltage transmission system) in partnership with IBM. Deep Thunder is part of a concept the two entities are creating called the Vermont Weather Analytics Center. VWAC, as it is known, uses advanced tools that will enable it to provide what Kerrick Johnson, VELCO's vice president for strategy and communications (Kerrick is also a Washington Electric Co-op member), describes as "hyper-local and hyper-accurate forecasts."

The concept is exciting, and while it

hasn't fully arrived yet, Deep Thunder has been active and available for nearly two years. WEC and VPPSA regularly tap into it to help predict peaks in energy needs and adjust the Co-op's daily load forecasts. The model also includes sun and cloud data, factors that enable the Co-op to anticipate how productive members' net metered solar systems will be, which in turn impacts WEC's power needs.

"The model is taking weather for the state, and load patterns for the utilities, and saying, 'Here is what we think the state's load [energy demand] is going to be. This is big-picture, but it helps us do our forecasts, anticipating temperatures, wind, precipitation, sunshine... the factors that drive our load and potentially cause outages.'"

This information provides other

There's someone at each of the utilities reviewing and renewing power forecasts and communicating it to ISO-NE. Not after the fact, not (hopefully) during the fact. But before the fact.

— another way, since peak power is expensive on the retail electric market, to control costs.

Then there's this. As weather-prediction technologies advance and become more finely tuned, the certainty they provide assists in taking full advantage of intermittent renewable generation sources. Whether it's Patty Richards using Deep Thunder, and someday VWAC, to anticipate when, where, and how strongly the sun will

be shining for Co-op net metering solar systems, and building that information into her reports to ISO-NE; or whether it's ISO-NE itself gleaming maximum benefit for the region by knowing when wind turbines on New England mountain tops or in the sea are likely to be most (or least) productive, advances in this technology can only help in our gradual transformation to a far greener grid.

Every day WEC employees show up and do the business of the Co-op. They keep the lines up and the power running, and see to the details of member services and management.

Meanwhile, behind the scenes, they are playing a crucial part in assembling a region-wide system of information that makes sure, almost no matter what the weather, that your lights will come on when you flip the switch. It's incredibly intricate work, and it all starts with utilities like Washington Electric Cooperative. 

Believe It: A \$10,000 Discount For WEC Members And Employees From Freedom Nissan

If you've been thinking about changing your ride — making the switch from a gasoline- or diesel-fueled car or truck to an all-electric vehicle — Freedom Nissan in South Burlington has sweetened the pot. This summer, members of Washington Electric Cooperative are eligible to receive \$10,000 off the manufacturer's suggested retail price (MSRP) on a new 2017 Nissan Leaf.

"If you're thinking about purchasing an electric vehicle, this is a fantastic time to do it," says Patty Richards, WEC's General Manager.

The offer extends until September 30, 2017, if supplies last.

The 2017 Nissan Leaf has a range of up to 107 miles and an eight-year or 100,000-mile limited battery warranty. In addition to this offer for WEC members and employees, purchasers of electric vehicles potentially can receive up to \$7,500 in federal tax incentives. With the Nissan Leaf MSRP starting at \$30,680, this means that WEC members enjoying both the \$10,000 rebate and the federal incentives may be able to buy a new electric vehicle for half price.

To receive the rebate at Freedom Nissan, WEC members can simply

show their WEC electric bill and supply Fleetall Certification Code B66647.

Richards points out that gasoline-fueled vehicles make

up 46 percent of Vermont's greenhouse gas emissions. Because WEC serves a rural territory, its members generally rely on cars for transportation and contribute significantly to that unfortunate statistic. However, WEC is a green leader among electric utilities with a 100-percent renewable power supply. As a result, electric vehicles that plug in at WEC charging stations, or at members' homes, not only produce zero emissions, but are powered by energy generated using zero fossil fuels.

"People can feel great about making this purchase and charging via WEC's power supply," says Richards. "You're really making a dent in your carbon footprint using WEC's electricity."

WEC's four EV charging stations are located at the Cabot Cooperative Creamery in Waitsfield, the VTTrans commuter lot off I-89 exit 9 in Middlesex, the Rumney School in Middlesex, and Harwood Union High School in Duxbury. A fifth charging station is planned for a location near WEC offices in East Montpelier, and should be operational sometime this year.

WEC members interested in purchasing a Nissan Leaf at discount may contact Freedom Nissan at 802-864-7400 for complete details. 



ASK THE ENERGY COACH

Q: I've heard that heat pumps can provide cooling. What does WEC recommend?

WEC recommends that any building for which members want to replace existing fossil fuel heating equipment with a cold climate heat pump (CCHP) should meet certain thermal performance standards. This is to protect your investment, by making sure that the energy (electricity) your CCHP would consume for warmth or cooling would not be wasted through air leaks in or out.

Generally, the building should meet current Vermont Residential Energy Building Code standard or better. Members who want to determine what their current thermal performance is should contact WEC or Efficiency Vermont, to find a local "Home Performance with Energy Star" contractor. Especially for homes where the existing heating costs are high, before any equipment replacement is considered, the first order of business is an analysis of how much heating energy is being consumed, and the degree to which that can be corrected (and how much such corrections would cost).

For a building meeting today's thermal performance standards, the CCHP does provide cooling capabilities. Depending on the house's design and whether the CCHP is a single- or a multi-head unit, the cooling benefit can be throughout the whole building.

However, members not ready for a whole house CCHP installation have a range of wall-mounted or window air conditioners to consider. The important feature when shopping for window air conditioner (A/C) units is to look for the "Energy Star" certification. These are rated to use at least 10-percent less energy than non-Energy Star rated units. The CEER (see below) will vary with the BTU capacity, and should be > 10 generally.



Room Air Conditioners Key Product Criteria

Criteria: At least 10% more energy efficient than the minimum federal government standards

Units without Reverse Cycle

Capacity (BTU/hour)	CEERBASE (units with lowered sides)	CEERBASE (units without lowered sides)
<6,000	12.1	11.0
6,000 to 7,999		
8,000 to 10,999	12.0	10.6
11,000 to 13,999		10.5
14,000 to 19,999	11.8	10.2
20,000 to 27,999	10.3	10.3
≥28,000	9.9	

Combined Energy Efficiency Ratio (CEER): The ratio of measured cooling output (in BTU per hour) to the sum of the measured average annual electrical energy input (in watts) and measured annual standby/off-mode power consumption (in watts). CEER is expressed in BTUs per watt-hour.



Washington Electric's 'Community Fund' Keeps Growing

2016 Report Shows Strong Performance for Local Causes

It is said that a society can be measured by how it treats its members who are most in need. The great number of charitable, service-oriented nonprofit organizations active in the central Vermont area, and the wide range of causes they address, reveal the towns and communities that make up this region to be compassionate, committed, and imaginative.

This provides fertile ground for Washington Electric Cooperative's Community Fund, which has donated modest but meaningful grants to organizations doing good – primarily in central Vermont, but for statewide causes when needed (such as the relief effort after Tropical Storm Irene) – since 2003. The Community Fund is managed in-house, by Co-op staff and members of WEC's Board of Directors, and because it has become well-known by the nonprofit community WEC does not need to advertise to attract grant applications. Consequently, there are no overhead costs associated with the Community Fund; every cent that people contribute to the fund reaches the organizations it is designed to help.

WEC General Manager Patty Richards prepares an annual report to the WEC Board summarizing the fund's activities in the previous calendar year. She filed her Community Fund Report for 2016 earlier this year, and it revealed that 2016 was one of the fund's most active and generous years yet.

"Our Community Fund contributed to 64 different organizations in 2016," said Richards, "and made donations totaling \$25,602, an amount we have exceeded just once in the fund's 13-year history. That's very exciting, and we hope to see our Community Fund program continue to grow."

Besides reaching more organizations – and thereby contributing to more, and more-varied, beneficial causes in our

region – another measure of the fund's vitality is the participation of an ever-increasing number of WEC members, the people who get their electricity from the Co-op.

When the Community Fund was conceived by Board members in 2003, it was in response to the "Concern for Community" tenet contained in the Seven Cooperative Principles, which calls on co-ops to "work for the sustainable development of their communities." But as a not-for-profit utility, state law as well as ethics prevented WEC from spending monies drawn from its operating budget. So the Board came up with an alternative: asking Co-op members to consider waiving their capital credits and provide them to the fund instead.

This system of voluntary contributions has worked wonderfully. Over the years, more and more Washington Electric member-owners have joined the list of folks contributing their capital credits to the Community Fund, rather than taking them as deductions on their November electric bills. (Former members of the Co-op, who are no longer purchasing electricity from WEC, receive any capital credits they're owed in the form of a check, for amounts of \$20 or greater.)

"In 2016 we had 1,312 members participating," said Richards in her report. "Now we're up to 1,336 members. More than 12 percent of our members have embraced the idea of contributing their capital credit distributions to their communities instead, and they find this a convenient way to do it."

For most residential members (residential members are by far the largest component of the Co-op's total

There are no overhead costs associated with the Community Fund; every cent that people contribute to the Fund reaches the organizations it is designed to help.

membership), these are fairly modest amounts, usually between \$10 and \$30. People can elect to contribute them to the Community Fund for a single year, or sign up to contribute them every year. Fully 10 percent of WEC's membership has chosen the latter option, so their capital credit

distributions are directed automatically to the Community Fund. That choice can be reversed anytime the member wishes, simply by contacting the Co-op.

WEC receives regular inquiries from organizations hoping to tap into the fund. Richards does the preliminary screening, then provides recommendations to the three Board members who serve on WEC's Community Fund Committee. Those directors are Richard Rubin, Mary Just Skinner, and WEC President Barry Bernstein.

Recipients include not only groups that assist the needy, but organizations that provide other social services, or promote literacy, the arts, education, environmental protection, and more. The 2016 list appears below.

Grants commonly range from a few hundred dollars to somewhat larger amounts (exceeding \$1,000 in very rare circumstances). WEC's Policy 6, which guides the fund's activities, prescribes that donations will be made to groups

the committee believes would have the support of most WEC members. Religious and political organizations are not eligible.

"We're always interested in hearing from more organizations needing funding for their good works in the area," said Richards. "All people have to do is call the Co-op at 802-223-5245, and we'll follow up with them."

Status report

The Community Fund began 2017 with roughly \$3,250 left over from 2016. Contributions from capital credit distributions in November 2016 reached \$39,712.

"That means we started this year, 2017, with a phenomenal \$42,962 in total," Richards pointed out. "That's \$14,424 more than the previous year."

While thanks go to the 1,300-plus WEC members who contribute their capital credits rather than taking the November deduction on their electric bills, it's also important to recognize a major contribution from one of Washington Electric's REC (renewable energy credit) members. Direct Energy generously contributed its \$8,543 credit to the Community Fund, thus providing an additional benefit to central Vermont – supporting vital nonprofits – besides helping finance renewable energy development.

Washington Electric's employees
continued on page 7

2016 Community Fund Recipients

AWARE

Barre Heritage Festival
Cabot Connects
Capstone Community Action
Central VT Adult Basic Education
Central VT Council on Aging
Central VT Home Health & Hospice
Champlain Valley Exposition-Vt
Agricultural Hall of Fame
Chelsea Public Library
Chelsea Public School
Corinth Historical Society
Dragonheart VT Boat Race
Dubtek Productions
Faith In Action Northern Communities -
Cabot Food Share
First Branch Ambulance
Fourth Grade Foresters
Friends of the Mad River
Friends of the Winooski
General Breed Fund
Good Beginnings
Good Samaritan Haven
Green Mountain Council
Green Mountain Film Festival
Green Mountain United Way
Green Up Vermont
Groton Community Club
Hardwick Area Food Pantry
HealthHub School Clinic
Home Share Now
Kellogg-Hubbard Library

Mad River Valley Rotary Club
Montpelier High School Project
Graduation
Montpelier Senior Activity Center
NFI Vermont
North Branch Nature Center
People's Health & Wellness
Plainfield Historical Society
Prevent Child Abuse
Studio Place Arts
Stuff-A-Truck
The Governor's Institute
The Topsham Historical Society
Tires for Troops
Toy Joy & Toy for Tots
Twin Valley Seniors
Twinfield Together Mentoring Program
Upper Valley Arts
VERSHARE
Veterans of Foreign Wars
VT Center for Independent Living
VT Child Care Industries
VT Community Garden
VT Community Loan Fund
VT Council on Rural Development
VT Energy Education Program
VT Foodbank
VT Historical Society
VT Horse-Assisted Therapy
VT Stem Fair
Woodbury Volunteer Fire Dept
Youth Service Bureau

Washington Electric Cooperative
P.O. Box 8
East Montpelier, VT 05651

Thank you for your considerate donation to the
WEC Community Fund!

**Capital Credit Authorization
to WEC Community Fund**

Capital Credit donations support worthwhile non-profit groups and projects in WEC's service territory and in the Central Vermont region.

☐ I wish to donate this year's and all future years refunds

☐ I wish to donate only this year's refund (Year)



Name: Date:

Address:

Capital Credit and/or Account #: Telephone #:

Signature:

(Please return to WEC address above.)



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Community Fund

continued from page 6

have adopted a few causes of their own, such as the Adopt-a-Family program to assist military families, and

the annual Stuff-a-Truck food drive. The staff, plus several Co-op vendors, make their own contributions to these causes, adding some \$3,000 a year to the Community Fund for these specific purposes.

In all, since the Community Fund began operations in 2003, it has contributed more than a quarter-million dollars to worthy groups and good causes in central Vermont. If you're not already signed up to contribute to

the Community Fund, please consider whether you can afford to do so. You can use the sign-up form on page 6, or call the Co-op and get assistance over the phone. WEC would love to hear from you.

PUC Workshop

continued from page 1

Co-op Currents, June 2017) – will be a fundamental component of the workshop.

"We think this is a good idea and a good move on the part of the PUC and the Department of Public Service," says Patty Richards, WEC's general manager. "It's about looking at an industry that has changed enormously in recent years, largely in response to Vermont lawmakers calling on electric utilities to take on great responsibility for converting all energy sectors – not just electricity, but transportation and heating energy as well – away from fossil fuels and toward renewable power. The DPS and PUC want to look at the best way to accomplish the environmental goals we all seek, while also keeping a viable, healthy utility industry in the state.

"We'll be actively participating," Richards promises. "We want to understand what regulators are thinking on rate design and future regulation. We want to understand their expectations of utilities as we move ahead with programs seeking to move members away from fossil fuel and toward electric energy. As a utility that's already reached the goal of 100-percent renewable power, with most of our power coming from local, in-state sources, we're in a unique position in this discussion. It means, for example, that members who switch from gas-powered to electric vehicles in WEC's service territory are making a real dent in their carbon footprint."

As discussed in the article in June, the WEC Board is reviewing and examining its rate design and the policies and practices by which the Co-op charges members for electricity and services. The Co-op must be prepared to meet present and future requirements placed upon the utilities by Vermont's lawmakers. The WEC Board is also committed to efficiency, continuing its longstanding goal of helping members use their electricity efficiently and wisely. At the same time, moving away from fossil fuels such as oil and propane for home heating, and relying to a greater degree on systems that use WEC's clean, green, and renewable sources of electricity, makes sense, too; the carbon reduction resulting from such changes fits squarely with the Board's energy-related policies and goals.

But here's where the rate examination comes in. WEC's current rate structure was created with a strong focus on encouraging low energy (electricity) usage, partly by making high usage more expensive. Now, however, under Act 56, the state is requiring utilities to help members change from fossil fuel power to electricity for more of their energy needs – along with requiring utilities to

increase the proportion of their energy generated from renewable sources. (The latter provision WEC has already met, because its power portfolio is 100-percent renewable.) The purpose of the legislation is to move Vermont further along the path toward deriving 90 percent of all energy (transportation and heating included) from renewable sources by 2050.

WEC endorses these goals.

But there's a problem: Encouraging members to change from fossil fuel to electricity for uses such as home heating (cold climate heat pumps) and transportation (electric vehicles) is a challenge with a rate structure that was designed to discourage high usage.

And there's another problem. If the Co-op fails to meet its targets in this respect, the state, under Act 56, will impose fines, which will put pressure on WEC to increase rates.

Another rate design issue is that WEC's current low member-service fee covers just a small portion of WEC's fixed costs. Most of the burden to cover fixed costs resides on the variable part of the bill – i.e., the energy rate.

These issues are further compounded by the trend of flat and declining electricity sales. The prospect, for all these reasons, of annual rate increases in the immediate future to cover the cost of running your Co-op, has compelled the WEC Board to take a fresh look at how the Co-op charges for its services.

A shared agenda for WEC and the PUC

The Department of Public Service – the state's consumer advocate, which asked for the workshop – apparently has come to similar conclusions.

Change has been the name of the game for Vermont's regulated electric utilities. Propelled by progressive legislative responses to climate change and other environmental concerns, the PUC has been charged, with DPS input, with coming up with fair and effective ways for electric utilities to further the state's energy goals.

"If Vermont is going to meet the 90-percent-renewable goal by 2050 we will have to make significant changes in many aspects of how we do business," says Patty Richards. "In looking at how we charge for our services, we must ask ourselves if we are positioned to meet the state's goals as well as the goals of our members. Encouraging Washington Electric members to think about changing to electric vehicles really forces us to look at our energy rates, because people would be substantially increasing the amount of electricity they used each month if they're plugging in their cars at home.

"We'd love for our members to get off gasoline and power their cars with green electricity. That's good for the environment, because transportation is the energy sector that consumes

far and away the most fossil fuels. And frankly it would help the Co-op, too, on the revenue side. But we have figure out how to make that goal fit our members' wallets."

Middlesex Family Taps Into WEC's Incentives

continued from page 3

"Financially, this probably couldn't have happened without the incentives," says Patrick. "Particularly for getting the high-quality pellet boiler we really wanted, the WEC incentives clinched the deal."

Found on Front Porch Forum

Button-Up is a program launched by the Co-op this year to respond to mandates created by Act 56, statewide legislation that calls for Vermont's electric utilities to encourage and assist their customers (members, for the state's two electric cooperatives) to reduce their consumption of fossil fuels. Switching people from fossil fuels like oil and propane to renewable sources is a cornerstone of the state law, linked to a requirement for the utilities to increase the portion of their electric power supply coming from renewable sources.

WEC's power is already 100-percent renewable, so the Co-op automatically satisfies that criterion. To address fossil fuel reduction, Button-Up provides financial incentives, coupled with advice and guidance, for specific projects:

- Home energy audits and follow-up weatherization;
- Installing ENERGY STAR® heat pump water heaters;
- Creating solar hot water systems;
- Adding cold climate air source heat pumps (CCHP);
- And pellet boilers like the Woods and Mandells are buying.

There are targets in each category, which WEC and EVT are trying to reach. If WEC fails to meet the overall goal for 2017 in reducing fossil fuel consumption in its service territory, the state will charge a fine. (The same applies to all Vermont's utilities.)

Button-Up places primary importance on energy audits and weatherization because energy improvements are always more effective in a tightly sealed, well-weatherized house. But Patrick and Bekah beat WEC to the punch on that score. Last winter, before they even owned the house, they contracted with Montpelier Construction to fully insulate their basement and attic and provide additional air sealing around windows and other areas where a blower-door

test indicated it was necessary.

Then they took a break to wait for Callah to be born.

Patrick heard about WEC's Button-Up opportunities on Front Porch Forum, where he saw a notice posted by Bill Powell, Washington Electric's Director of Products & Services. (Bill is also known as the Co-op's "Energy Coach.") They also read up on the program in Co-op Currents.

They weighed their options. They had thought about installing solar panels and joining the Co-op's net metering program (which is a separate program from Button-Up).

"But WEC is already renewable," Bekah points out, referring to the

Co-op's 100-percent renewable energy status, "so that didn't feel as important."

They also considered cold climate heat pumps – which are part of the Button-Up offerings. But an analysis of their house revealed that CCHP would have been effective in heating around 40 percent of the long,

rambling home, while the pellet boiler and additional heating zones would warm 80 percent of the building.

It was an easy choice, says Patrick, and was made easier by an efficient e-mail exchange with Bill Powell and a rapid, two-day approval of their application for Button-Up assistance. The grant even provided some help for the weatherization work that had been completed earlier.

"We got \$600 for weatherization and insulation, and \$1,000 for the pellet boiler," says Patrick.

Their home energy improvements, and their participation in Button-Up, are consistent with their values. They are firm believers in cooperatives (when they lived in Burlington, Bekah started a worker-owned communications co-op there), and appreciate the fact that their electric utility is cooperatively owned by members such as themselves.

Energy efficiency and clean energy are also core tenets for them. Patrick is self-employed with a business he helped start, called Agriculture Methane Advisors. He helps farmers who use methane digesters sell their carbon offsets, a credit they receive for what's known as "avoided methane."

"We're very concerned about climate change," Patrick insists, while Bekah, nodding to the infant sleeping in her arms, adds, "Especially now, with these children."



That's one old house the Wood/Mandell family has!



A Vicious 'Holding Pattern'

WEC Walloped By Storms and Outages As Summer Gets Underway

At 3:00 on Saturday afternoon, July 8, almost on the dot, a bank of ominous storm clouds that had been looming in the northwest struck towns in Washington County with startling force, from Duxbury in the west to Barre in the southeast. A sunny and tranquil summer day was suddenly transformed by a dark turbulence, and for a while it didn't feel entirely safe to go outside.

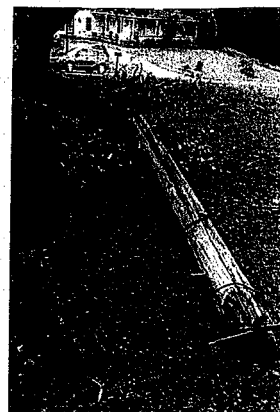
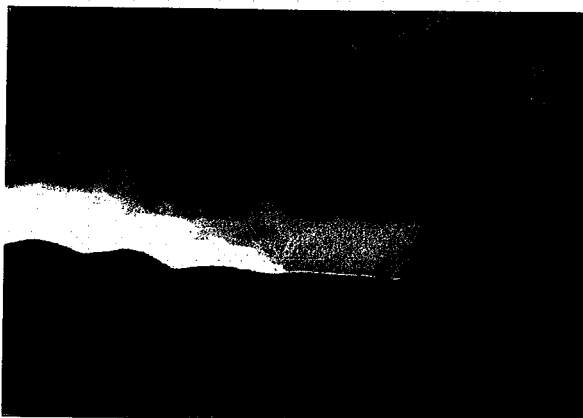
For good reason. In South Burlington, where the storm had swept through before moving into central Vermont, several F-16 fighter jets were damaged when the winds collapsed the doors on a hangar at the Air National Guard facility. Weather.gov later reported that "severe thunderstorm winds were estimated between 60 and 80 mph across many locations. The primary severe weather threat observed was damaging winds, which resulted in over 30,000 people losing power across Vermont and numerous trees down across the North Country."

It was no different in central Vermont. The winds tore the roof off Project Independence in downtown Barre and toppled several trees in and around the city. Rain fell briskly, adding to concerns about flooding that had been nearly constant through the late spring and early summer.

In rural Washington County, where Washington Electric Cooperative's poles and wires try to withstand these forces despite their exposure to the elements on hillsides and amidst forested terrain, the damage was extensive. Eight hundred and ninety-six Co-op members lost their power in Middlesex, as did 725 members in Fayston, 421 in Duxbury, 288 in Marshfield, 163 in Calais, 162 in East Montpelier, and 126 in Plainfield. In all, the outages affected more than 2,700 homes, camps, and businesses.

Not only did those Co-op members have to spend time without power (restorations were quick in some places, more prolonged elsewhere), but it also marked the start of a long night for Washington Electric's line crews and assistants, the "birddogs" from other parts of the Operations team who help track outages. The damages were so extensive that WEC reached out to other local utilities and received invaluable help from the Stowe and Hardwick municipal electric departments.

"We had to bring in everybody we could get," Dan Weston, Washington Electric's Director of Engineering & Operations, said early the following week. "We typically send line workers home at night, but in this case we couldn't afford to. The storm had moved through – it's not like a sustaining, ongoing storm – and the damage was



The storm that descended upon central Vermont on Saturday, July 8, was scary to see as it approached (above, left). When it struck, it did a lot of damage in a short period of time. One victim was this utility pole on Route 2 in Duxbury. WEC crews were able to restore power by erecting a new pole that evening. WEC has lost 20 poles in the spring and summer storms this year.

done and now you've got to repair it. Our kudos go out to all the workers who helped and all the Co-op members who waited for their power to come back on. We had all but 500 of them back by 6 a.m. But these are grueling hours. We worked through the night again on Sunday and finished up Monday morning."

'I don't remember ever experiencing that'

As storms go, and the damage and outages they cause for the Co-op, the July 8 event, though serious, was not spectacular. What's truly unusual, according to Weston, is the frequency of storms much like it that have occurred in Washington Electric's service area since early spring.

The statistics support him. According to WEC's outage data, a storm on May 5 knocked out power for 1,644 members in the southern end of the Co-op's territory. Hardest hit were Orange (637), Tunbridge (404), Williamstown (262), Chelsea (218), and Washington (123).

Two weeks later another storm socked Washington County, causing hundreds of outages in Barre, Calais, Duxbury, East Montpelier, Marshfield, Plainfield, and especially Middlesex (1,374 members without power).

The May 5 storm was just one of two "significant weather events" that seriously damaged the Co-op's infrastructure. Together, they caused outages to well over 5,000 member homes – almost half the Co-op's membership – in 26 different towns.

"The primary cause of the damage, in each instance, was very large, reasonably healthy trees that were located well outside of the utility right-of-way corridor we maintain, being blown over onto the power lines," said

Weston. "Most were white pine, but we've also encountered 200-year-old maple trees, three feet thick at their base, being blown right over. The storms have tended to be very localized, and are short-lived thunder storms accompanied by strong winds that have a shearing effect as they roll over the Vermont landscape."

What's particularly unusual, as Weston sees it, is a reversal of the normal weather calendar. "We got May weather in April," he said. "Typically, in April, we get the seasonal transition of thunderstorms, wind, and that kind of stuff... wet, heavy snows a few times. This year that didn't happen; we got what we'd normally get in May – fairly uneventful, decent weather."

"Then along comes May, and we got April weather and it hasn't stopped. Since the beginning of May we've had a steady bout of pretty violent thunderstorms, microbursts, and wind events – things we might get occasionally in spring and early summer, but not with the repetition we're seeing."

"And it's continuing," he added. "Normally, July starts turning into a hot, dry time of year. But the forecast is for more storms."

The storms have taken their toll on WEC's equipment. By July 12, WEC had had to replace around 20 broken poles, and had repaired, restrung, or replaced more than 124 spans of wire that had been knocked to the ground. Crews had put in some 1,820 labor-hours fixing the damage, and nearly half the Co-op's entire membership had suffered outages at

least once. For some members, it was multiple times.

"It's been like one long outage-restoration project for us," said Weston.

The federal Rural Utilities Service (RUS), and WEC's Service Quality Reliability Performance, Monitoring & Reporting Plan, established with the Public Service Board in 2004, define a major storm event as "an interruption or group of interruptions caused by conditions that exceed the design and operational limits of [a utility's electrical] system."

The State of Vermont's definition is "a severe weather event that satisfies all three of the following criteria: extensive mechanical damage to the utility infrastructure; more than 10 percent of the customers in a service territory out of service due to the storm's effects, and at least 1 percent of the customers out of service for at least 24 hours."

Amazingly, Washington Electric Co-op got through 2016 without a single "major storm event" by these definitions. No such luck in 2017.

"We're halfway through the year and have had three major events that have done significant damage to our infrastructure," Weston said as his crews were out tidying up after the July 8 thunder-and-windstorm. "The weather appears stuck in a holding pattern where we are continually getting storm after storm accompanied by shearing winds and torrential rain. I don't remember in the 21 years I've been at the Co-op ever experiencing that."

"But we're not alone," he pointed out. "Our farmers are struggling to get a three-day stretch without rain in the forecast!"



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Fare Thee Well, Will

Will Lindner, 22-year editor of Co-op Currents, puts down his pen

For 22 years, Will Lindner has kept Washington Electric Co-op members informed with his sharp reporting and his neighborly style. The July 2017 issue was the last with Lindner as editor of *Co-op Currents*. Lindner, of Barre, is moving on to other pursuits.

He's leaving an appreciative staff and board. "Will really came to know and love the Co-op. It was just such a pleasure to work with him, because he certainly understood what Washington Electric was all about," said WEC board treasurer Don Douglas, who worked closely with Lindner on the *Currents* editorial committee. "He has a real gift for connecting with a lot of members. He writes like he's close to the ground."

In addition to his long tenure as editor of *Currents*, Co-op members may know Lindner, with his trademark long white whiskers and expressive blue eyes, from other fields of work and play. He's reached Vermonters through Saturday night entertainment and the Sunday paper. He works with his hands, whether that means writing, playing music, or building the house that brought him to Vermont in the first place.

That house was his brother Dan's, in Marshfield. The brothers grew up in Baltimore, and Lindner was still living in the mid-Atlantic region when he came up to help Dan build. And then

he never left.

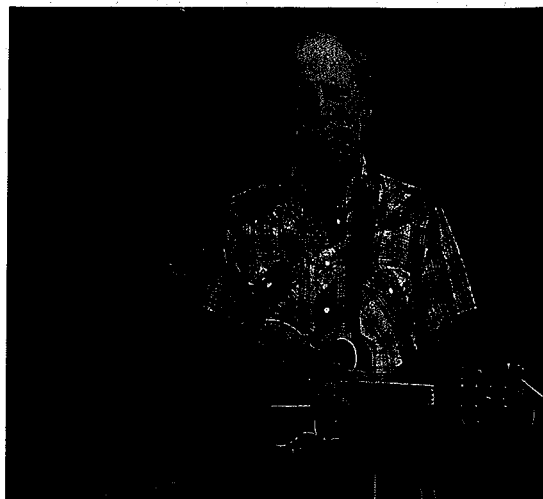
The two brothers played music together—Will mostly on mandolin, Dan on banjo. Lindner said, "Before I knew it, we'd formed a band and had been hired to play music at ski resorts." In 1972, with two minutes to come up with a name before the their first gig, the brothers and their bandmates dubbed themselves Banjo Dan and the Mid-nite Plowboys.

The name, and the band, stuck around. A now-legendary Vermont bluegrass band, the Plowboys performed for 40 years: frequently in the Northeast, and all over the world. Their sold-out final concert at the Barre Opera House in 2012 drew fans from 11 states.

As Willy Lindner the musician evolved, so did Will Lindner the writer. He soon realized that music alone wasn't going to support his young family, so he began visiting Vermont newsrooms, picking up freelance jobs.

He "inherited the writing gene," he said, from his father: the respected psychoanalyst and writer Robert Lindner. His book *Rebel Without a Cause* lent its title, though not its subject matter, to the landmark film starring James Dean and Natalie Wood. The elder Lindner died tragically young, at age 41, and had already written several influential

continued on page 8



Outgoing Currents editor Will Lindner, a true Renaissance man. An accomplished musician and writer, he departs for new adventures after 22 years with the Co-op.

That Rate Refund on Your September Bill

Beginning this September, Co-op members are receiving a one-time credit on their energy bills. This is a refund related to a change in rates that began earlier in the year.

WEC filed for a rate increase of 6.52% on November 15, 2016 for rates that went into effect January 1, 2017. The Public Utility Commission (PUC) approved the increase at the end of July, but regulators and WEC worked together to reduce the percentage to 5.95%.

Rules for cooperatives are that the rate increase kicks in 45 days after filing. "Once we request the rate increase, we have to implement it as

a temporary surcharge until approval is received from the PUC," explained Member Services Supervisor Susan Golden.

That surcharge showed up as a line item on bills for service provided from January through August 2017. When approval came through with a lower number, that meant WEC owed its members a refund to the tune of 0.57% on those prior eight months of surcharges.

"What they will see on their bills is a line item refund, and that's the difference between the 6.52% that we asked for and the 5.95% that was approved," said Golden.

continued on page 2

Washington Electric Cooperative
East Montpelier, VT 05651

Inside

Cost to weatherize: how much can Bullton Inc. incentives save you on energy-efficient purchases?

Focus groups forming soon to bring member perspectives to the rate design process. See more in the General Manager's Report, p. 3.

Credits on your bill: coming in the form of rate refunds and capital credit distributions. Know former members who qualify? Check the list, pp. 4-5.

You're invited to two October events: WEC's annual Community Meeting is in Worcester, Oct. 12; details and registration on p. 8. Members' tour of WEC's Coventry plant is Oct. 17; details p. 7.



Pearl Keene of Topsham at the 2016 Community Meeting in Cookville.

President's Message

Finding Balance in Rate Structure and Renewable Growth

By Barry Bernstein

As summer winds down, you can feel the autumn in the air. Warm days, cool nights with that cool breeze, just causes you to realize it's time to start buttoning up around the outside of the house and inside too.

Speaking of buttoning up, take a look at the graphic on page 7 showing how our Button Up! program saves you money on energy efficient purchases. It's an opportunity for you to make your house warmer, more energy efficient, and less dependent on fossil fuels.

Rate Design

The board of directors is discussing



rate design, or how WEC charges for its services. The philosophy behind our current rate structure is to encourage energy conservation. Low energy users find WEC rates to be very reasonable. I can personally attest to this on my own bill which is typically only \$30 a month.

But we need to evaluate this structure as our state moves toward 90% renewable energy by 2050. Our concern is if we encourage folks to move toward electric vehicles and electric home heating sources, that means more electric energy use. We want to help get members off fossil fuels, but our current rate structure doesn't incentivize electric energy use at higher levels.

What's the middle way between reducing our carbon footprint by using WEC's 100% renewable energy instead of fossil fuel appliances, and staying committed to our core value of energy efficiency? We need your input. We will hold focus group discussions with members this fall. If you're called, I hope you'll chime in.

Too Much Power?

I feel it is important for our members to understand that in fully embracing a renewable grid, we must be forward-thinking in not stepping over ourselves.

In the northern half of the state we are already experiencing curtailment of existing renewables to enable new renewables to come on line. We simply have too much generation in some areas in the state and limitations on the lines that connect projects to the grid. Some existing wind projects have had to be backed down to allow newer, smaller solar projects to operate.

In the energy industry, they call this "renewable cannibalization." The grid operator doesn't have dispatch control over many of the smaller and newer projects, so to maintain reliability of the grid, they back down the larger projects that they do have control over. The Sheffield wind project is producing less than it could, and we receive less value when energy is produced, due to lower market prices for the electricity in the area.

This affects generation at our renewable landfill methane plant in Coventry, too. We get fewer dollar credits for power produced at Coventry than we should, due to too much generation.

Any new projects built in northern Vermont now add to the curtailment of existing renewables. State regulators, all electric utilities including the state's transmission operator VELCO, and other stakeholders are meeting to identify short and long-term solutions. This issue affects all Vermont utilities. It adds to rate increase pressure along with other regional costs for transmission and reliability.

From the Home Front

My summer focused on recovery from my back surgery in late June. I am on the upswing of a six month recovery process, nearly at the halfway point. I had my surgery at Central Vermont Medical Center (CVMC) in Berlin, by

Dr. John Braun and his extremely capable staff.

"Some existing wind projects have had to be backed down to allow newer, smaller solar projects to operate. In the energy industry, they call this 'renewable cannibalization.'"

Spending eight days at CVMC made me really appreciate what a jewel we are fortunate to have in the heart of Central Vermont. All of the staff on the second floor—nurses, nurse aides, physical and occupational therapists, nutritional and environmental specialists, and kitchen staff go out of their way to be professional, caring, and personal.

These are our neighbors and they are a vital part of our communities. I want to acknowledge their commitment and thank them for the work they do, which I am sure too often goes unrecognized.

Coventry Tour and Community Meeting

We have a few events coming up I hope you will attend. We have an open house at our Coventry landfill generation plant on October 17 (see page 7 for more information). Staff will give fun and lively tours through the plant and answer your questions. This is a great time to see the plant up close. You can also check out the recent investment we made in the scrubbing technology that removes siloxanes from the gas stream. We spent \$1.8 million on this new system (called an SRS) and the unit came on line in January 2017.

On October 12, we will be in Worcester for our annual fall community dinner and meeting. This is a great time to share a meal with neighbors, find out what's going on at your electric Co-op, and talk to board members and staff. We want to hear what's on your mind. Please see page 8 for details and reservation information.

Have a hopefully late Indian summer, and a great fall. 

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

Board of Directors

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	STEPHEN KNOWLTON (May 2018) knowlsf@auburn.edu	160 White Rock Drive, #2, Montpelier, VT 05602	223-2230
	RICHARD RUBIN (May 2018) rubin@sover.net	3496 East Hill Rd., Plainfield, VT 05667	454-8542
	MARY JUST SKINNER (May 2020) maryjustskinner@gmail.com	P.O. Box 412, Montpelier, VT 05601	223-7123

PATTY RICHARDS
General Manager
patty.richards@wec.coop

KATIE TITTERTON
Editor
katie@clearspotvt.com

TIM NEWCOMB
Layout

Editorial Committee
Patty Richards Donald Douglas Jean Hamilton Anne Reed Katie Titterton

The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

This institution is an equal opportunity provider and employer. If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, by fax (202) 690-7442 or email at program.intake@usda.gov.

Rate Refund

continued from page 1

Going forward, the 5.95% increase will be reflected in regular billing. This is the first rate increase since 2014, and lower than the increase anticipated: in the October, 2016 issue of *Co-op Currents*, WEC predicted an increase between 6-8% would be necessary.

General Manager Patty Richards

noted, "Unfortunately, from time to time WEC must increase rates to cover the cost of maintaining the wires and poles that bring power to the rural landscapes we serve and to cover rising costs to run the utility."

WEC is committed to keeping its rates as low as possible for its members. Rates have risen about 2% per year since 2000, in line with the rate of inflation. 



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Manager's Report

Focus on Rate Design, from WEC Focus Groups to Statewide Regulation Workshops

Also: Goodbyes, Welcomes, and Button Up!

By Patty Richards

Thank You Will Lindner

Please join me in a heartfelt thank you to Will Lindner, our long time editor of *Co-op Currents*, who is hanging up his editor hat. I don't think Will is retiring in a classic sense, but I do think he will be enjoying more free time and less deadline-driven work.

It has been a complete pleasure working with Will over the past several years. We had a delightful gathering with Will, his wife Nancy, and dog Jameson at his home. Board members, past and present WEC staff, and layout designer Tim Newcomb and his wife Sharon came together to wish him well and celebrate his 22 years of writing for *Co-op Currents*. We shared a meal, reminisced, and talked about Will's future plans, including family fun, travel, and music. We all hope Will's creative writing juices continue to flow, and we look forward to seeing him on the bestsellers list.

Welcome New Employees and New Editor

We are excited to bring on a few new faces to the WEC team: Tyler Skinner joins us as an apprentice lineworker. He will be out and about working with our seasoned line crew to perform regular maintenance and to restore power during storms.

Rick Stergas joins us as Safety and Environmental Coordinator. His important role maintains the deep-rooted safety culture for all of us at WEC.

Inside the building, Sy Daubenspeck joins us in the position of Plant Accountant. Sy joins us with many years of utility accounting experience, and we look forward to tapping his wealth of knowledge.

We also introduce you to our new editor Katie Titerton, who is taking over the reins from Will. You will see Katie at upcoming meetings and events, and we look forward to working with her to provide you updates and energy news through *Co-op Currents*.

Please join me in welcoming all our new employees and our new editor to the WEC team. We are all dedicated to providing you, our member-owners, top-notch service each and every day!

Button Up Your Home

Many members are taking advantage of incentive dollars from our Button Up! program (formerly known as Tier III program) to help lower their



fossil fuel use. We still have dollars available, so please contact us! WEC gives members money to lower their carbon footprints. Yes, you read that right, and in combination with Efficiency Vermont incentives and others, it adds up to a lot. Please see the table on page 7 to see how much you can save on energy-

efficient appliances through Button Up!. The program includes financial incentives to weatherize homes; install solar hot water systems, heat pump hot water systems, and wood-pellet boiler systems; and to add cold climate heat pumps in tight, well-weatherized homes.

WEC is committed to working with its members to achieve meaningful changes, and we want to work with you to lower your carbon footprint and Vermont's greenhouse gas impacts. So if you are looking to weatherize your home and to make some energy-saving changes, this is a great time to do it. We encourage you to call Bill Powell, the Energy Coach here at Washington Electric, to learn more: 802-223-5245 or energycouch@wec.coop.

Rate Design Focus Groups

Vermont's goal is to use 80% renewable energy by 2050 for all types of energy: electric, transportation, and heating. Even though WEC's power supply is already 100% renewable, we are still affected by state mandates and changes in the statewide energy landscape. As we look to the future, WEC is evaluating how it charges for service.

The fundamental question is: Can we reach the state's goals using the

current way we charge for electric service? As you may know, WEC has a low monthly fixed charge (\$12.97). This charge covers only a small portion of WEC's basic service and fixed costs. The vast majority of WEC's fixed costs are covered in its two tiered energy rate: the first 200 kWh is inexpensive at 10.373 cents per kWh. Anything used above 200 kWh is charged at the rate of 23.16 cents per kWh. The rate structure is designed to encourage energy conservation.

We want to know what our members think about the current way we charge, and we also want to find out what folks think about alternatives. For example: one idea is to increase the monthly fixed charge, but to lower how much we charge for energy use. This could encourage more folks to switch to electric vehicles, rather than burning gasoline to get around. Since WEC's power is 100% renewable, that change would significantly benefit our environment.

However, we know this is complicated. So, in order to find out what members think, we're assembling focus groups to gain your important feedback, reactions, and opinions.

What this means is we'll ask a small representative sample of Co-op members to discuss our rates and how we charge for service. This sample group will give us information about what our larger membership thinks. The focus group research technique is commonly used to learn about a population's perceptions, opinions, beliefs, and attitudes towards a product or service. We believe focus groups will be a very informative and helpful part of WEC's rate design discussion and process. If you are called on, we hope you will share your thoughts with us.

Public Utility Commission Rate Regulation Proceeding

At the same time WEC is exploring how it charges for electric service, the state's regulators are asking questions regarding rate regulation and rate design as well. WEC is attending these workshops and we will work with regulators on this important topic. WEC will factor in the regulatory work and outcomes as it explores rate design options. The proceeding is expected to span several months. We will keep you apprised.

Cyber Security

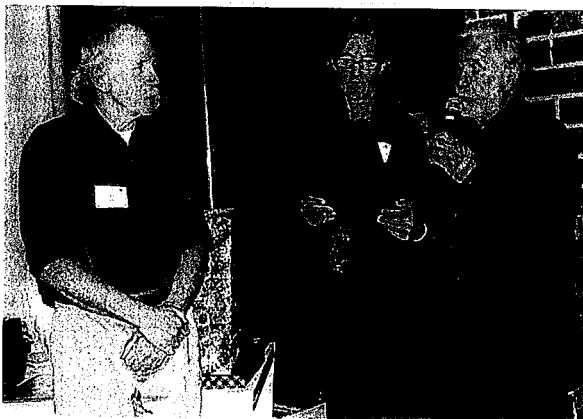
The risks of cyber threats and our duties of reliability and maintaining member data privacy are constantly on our minds. Occasionally we are asked questions about cyber risk from members. Recently a member called and asked about cyber security threats of losing power long term. We had a productive and inspiring discussion; I explained that yes, we are aware, and most importantly, we are prepared. Cyber threats not only include risks to the grid, but also hacked access to WEC financial data or member data, damage to computer equipment, and more. This is a detailed and complex topic. We are planning a series of articles to address and explore cyber security threats and risks, and how WEC stays ahead of the tech curve to keep data and systems safe. Stay tuned to learn more about this important and multi-dimensional issue in future editions of *Co-op Currents*.

Integrated Resource Plan Public Hearing

Every three years WEC must complete and file an Integrated Resource Plan with state regulators. This document describes how WEC meets members' electricity needs reliably, securely, and sustainably. It's a public document on where your power comes from—now and for the next twenty years. The newest plan is on WEC's website and we welcome feedback.

Or, learn more and give WEC and state regulators feedback in person. A public hearing run by the Public Utility Commission (PUC) will be held on October 3rd at 7 p.m. at WEC's office in East Montpelier.

If you are unable to attend the public hearing, you may submit written comments to the Public Utility Commission via email at puc.clerk@vermont.gov, through the ePUC electronic filing system, or via regular mail sent to Vermont Public Utility Commission, 112 State Street, Montpelier, VT 05620-2701. Please include the case number, 17-3664-PET, when submitting written comments.



WEC General Manager Patty Richards and Board President Barry Bernstein (right) salute Will Lindner (left) for his years of thoughtful reporting for *Co-op Currents* at the 2017 Annual Meeting.



WEC's 2017 Equity Distribution Plan

Co-op Seeks Former Members For Capital Credit Refunds

One of the ways WEC is different from other utilities is that as a cooperative, we return money to our members. This fall WEC will issue capital credit refunds to current and former members, as authorized by the Board of Directors. Under the 2017 Equity Distribution Plan, capital credits will be returned to eligible members for years 1994 and 2016. An extra retirement will be made to members of record in 2013 for Contribution in Aid of Construction (CIAOC). The Board of Directors aims to distribute approximately \$720,000 in 2017, which is \$260,000 more than the amount allocated for refunds in 2016.

Capital credits are allocated to Co-op members for those years in which WEC's revenues exceed its operating expenses. The credit a member receives for any given year is determined by the amount of excess revenue received and the amount that member paid WEC for electricity.

WEC's practice is to divide capital credit distributions between FIFO (first in, first out) and LIFO (last in, first out) plans. This pays out to both longtime or former (or "first") members and current (or "last") members. FIFO distribution plans reach back to pay off historical capital credit accounts. Since WEC started distributing capital credits in 1998, it has retired all allocations from 1939 through 1993. LIFO distribution plans pay the most recent allocations, so current members may enjoy the benefits of belonging to a cooperative.

Former Co-op members must have a minimum \$20 capital credit distribution,

and must submit an authorization form to the Co-op by **September 29, 2017** to be eligible for a refund. Eligible current members will receive refunds as a credit on their electric bills, regardless of the amount.

Any current or former member may donate their capital credit refunds to the Community Fund administered by Washington Electric Cooperative. More than 1,300 members choose for their refunds to support community causes. Funds contributed by members in 2017 will add to any unspent monies in the Fund. The Fund makes financial contributions to qualifying community causes, per WEC Policy 6. A year-end report on 2017 Community Fund activities will be published in *Co-op Currents* in 2018.

All individual retirements will be reduced by any uncollectible or delinquent amount(s) owed to the Cooperative, as permitted by the WEC Bylaws. No early retirements will be made to the estates of deceased members.

Earlier this summer WEC sent Capital Credit Patronage Refund Authorizations to eligible former members. Listed below are the names of people or accounts whose authorizations were returned as undeliverable. **WEC asks friends, acquaintances, and relatives of the people listed here to contact those potential recipients or their rightful heirs, and have the former member or beneficiary contact Washington Electric Cooperative directly, at 802-223-5245.**

WEC will issue this year's capital credit refunds in November, 2017.

Adams, Steven	Benoit, Lori	Burnett, Candis	Cold Creek Hunting Club,	Derosier & Grader, Mara T &	Fairbrother, Lawrence	Gilnes, Kermit
Adams, Sr, Earle E	Bent, Robert	Burnham, Ellen	Cole, Virginia	Derek T	Faizano, Lawrence	Gloria's Salon, Of Beauty
Aiken, Kenneth	Bergeson, Laurie	Burns, Marjorie	Collins, Donald	Desmeules, Mark	Farnham, Jennifer	Goddard, Norman
Albarelli, Joseph	Bernard, James	Burroughs, Elise	Collins Estate, Norbert	Deth, M	Farnham, Sonja & Toni	Godfrey, Brian
Alexander, Joan	Bernier, Judy	Bushey, Ralph	Colomb, Edward	Dexter, Tammy	Fazio, Joseph	Godfrey, Marion
Alexander, Scott	Bermis M Dexter, Estate	Buska, Donald	Colley, George	Deyo, Donald	Fenner, Ernest	Goldberg, Gary
Allard, Marsha	Berry, Alan	Butler, Francis	Conard, Walter	Diebold, James	Ferland, David	Goldsborough, Pamela
Allan, Charlotte	Betts, Peter	Butler, Donna	Connolly, Dorothy	Dills, William	Ferno, Herbert	Gomes, Jerry
American Tel & Tel Co,	Bett, Sara	Buttitta, Mary	Constant & Berry, Susan &	Dinsdale, Janice	Finley, James	Gonsalves, Joseph
Amwest Surety Ins. Co,	Beuchler & Uzzabel, Rachael	Buxton, William	David	Dixon & Sherman, Evelyn	Fishbach, Michael	Gonyaw, Myrtle
Anderson, Mark	& Anthony	Cabal, Debra	Converse, Joseph	& Zach	Fisher, Robert	Gonyaw, Dean
Anderson, Roland	Biggar, Margaret	Cadorette, Dorothy	Conway, Katherine	Doane, Stanley	Fisher, Stephen	Goodenough, Beverly
Andrews, Kathleen	Billray, Christine	Cady, Mary	Cook, Christopher	Dobrich, Carlo	Fisher, Gregg	Goodrich, David
Andrus, George	Billings, John	Cahill, Robin	Cooper, Jon	Dodge, Albert	Fisk, Stephen	Goodrich, Matthew
Argent, Parker	Bingham, Kimberly	Cameron, Albert	Corbitt, Michael	Dolan, Gladys	Fitch, Judy	Goodrich, Donna
Arndt, Walter	Biruta, Gale	Cameron, William	Coron, Laurie	Donnelly & Sanders, Robert	Flad, Margaret	Goodrich, Deanna
Ashe, William	Blair, Gregory	Camine, Norman	Corfi, Dan	& Michelle	Flanagan & Ouellette, Rain &	Gorchinski, Edward
Ashe, Alison	Blair, Richard	Campbell, Maureen	Cosker Estate, Robert	Doody, George	Jennery	Gordon, Alexis
Ather, Joanne	Blakeslee Sp, Ralph	Cano, Victor	Coughlin, David	Dorr, Cynthia	Flanders, Ariene	Gordon, Susan
Atwood, Renee	Blanchard, Walter	Cano Estate, Antoinette	Coulter, Kathryn	Douglas, Michael	Flinn, Edwin	Gosiant, Ruby
Atwood, Stanley	Blau, William	Capone, Frank	Countyman, B Anne	Dowd, Blanche	Foley, Nola	Gosselin, Jacqueline
Audette, James	Blow, Paul	Carbee, Everett & Joyce	Coulant, Florence	Doyle, John	Foot, Peter	Gottfried, Leslie
Ausfeld, Thomas	Boadway Executor, Linda	Carbo, Kathy	Coutu, Raymond	Doyle, Virginia	Ford, Elizabeth	Gould, Jeffery
Austin, Deborah	Bolsvert, Robert	Boisvert, Helen	Couture, Laurent	Doyle, Heather	Fortin, Lawrence	Gove, Robert
Averill, Robert	Bolin, Oscar	Carpenter, Paul	Covey, Marie	Doyle, Betty	Fortman, Frederic	Govoni, Patricia
Avery, Anthony	Bolles, Jason	Carpenter, Eric	Covey, Buddy & Morgan	Drake, Richard & Cindy	Foster, James	Grab, Robert
Ayer, Brian	Bolton, William	Carrig, Leslie	Coxon, Cynthia	Dresser, James	Foster, David	Grady, Jeremiah
Ayer, Patrick	Booth, Gordon	Carlier & Trombley, Monique	Cragin, Rebecca	Drew, L. Leonar	Foster Estate, Kenneth	Grant, Donna
Badreau, Cynthia	Booth, Robert & Shirley	& Richard	Craw, Robert	Drew, Dennis	Francis, Lori	Gravel, Edward
Baginski, Dan	Bordonaro, Patricia	Casparo, April	Crawford, John	Drew, Sandra	Franko, James E	Graves, Gregory & Debbie
Bair Estate, Samuel	Bouchard, Kent	Cassidy, Janice	Crepes, Wanda	Drew, Frederic	Frank, Elizabeth	Gray, Bernard
Baker, Gail	Boulin, Sandra	Catlin, G Peter	Crisante, James	Drinkwater, Gene	Frappier, Larry	Gray, James
Baker, Kevin	Bowen, Roscoe	Cepikas, Alison	Crosby, Jeanie	Driscoll, John	Freeman, Bill	Greenan, Eileen
Baldwin, Dave	Bowen, Sherie V	Chadwick, Brian	Cross, Joseph	Driscoll, Peter	Freeman, Ronnie	Greenberg, Leo
Baldwin, Estate, Oforraine	Bowley, Barbara	Chaffee, Jean	Crouse, David	Drury, John	French, Stella	Greensli, Darcy
Ball, Nancy	Bragg, Donald & Karen	Chaffee, Michael	Crowell, Scott & Andrea	Dubois, Betty	French, Thomas	Gregoire, Glenn
Balog, Michael	Braman, Daniel	Chaffin, Brian	Crowley, Sally	Dubouque, Robert	French, Beverly	Grier, Paul
Banks, Tina	Braunlich, William	Chalmers, Wayne	Crown, Deborah	Ducharme, Susan	French, Bert	Griffin, Bridget
Barber, Joy	Breen, Patrick	Chaloux, Claire	Crowder, Irene	Duggan, Rita	Freund & Sandusky, Leonard	Griffin, Valda
Barfield, Coy	Brennan, Marty	Chaloux, Brent	Curler, Raymond	Dukette, Rose	& Cynthia	Grimm, Marlene
Barnaby, Terri	Brewer, Raymond & Lynn	Chamberlin, Jay	Curschmann, Craig	Dulling, Donnie	Frey, Terry	Grobows, Marlene
Barnard, Craig	Breyer, Geraldine	Chamberlin (Norton), Debbie	Curtiss, Robert	Dunbar, Pamela	Friedman, Penni	Grohs, Earl & Shirley
Barnett, Dorothy	Bricket (Estate), Vera	Chapin, Dorothy	Cyr, Estelle	Dunbar, Bernard	Friedman, Howard	Grossman, Henry
Barnett, Duane	Brickett, Wilmoth	Charlier, Theodore	Czajkowski, Frances	Dunklee, Norman	Fuliam, Everett	Grossman, Sallie
Barnock, May	Brigham, Karen S	Charloff, Marion	Dahline, Ariene	Dunn, Monique	Fulmer, Gail	Gis Vermont
Barral, Robert	Brigham, Marshall	Chase, Chris	Dale, Laura	Dunn & Hallock, Brandi &	Gadapee, Edward	Guadagnoli, Donald
Barrett, Rita	Broad, Martha	Chase, Candis	Daly, Robert	Brian	Gaelic, Susan	Guarcello, Giovanni
Barrows, Michael	Brochu, Donald	Chateaufort, Janet /	Darling Gary, Estate Of	Dunn Estate, Jane	Gagne, Michael	Guillette, Robert
Bary, Daniel	Brode, Bernard	Sentamore Es	Daunhauer, Andrea R	Dunnmore, Susan	Gagnon, George	Guillette Estate, Donald W
Bary, Douglas	Broe & Flood, Kimberly &	Choen, David & Gertrude	Davenport, Shannon &	Dupont, Roxann	Gahagan, Jacqueline	Gumbrell, George
Bariet, Robert	Ray A	Cholewa, Raymond	Cynthia	Durocher, Mitch	Gallagher, Ruth	Guy, Stuart
Bash, John	Brolin, Herbert	Christie & Gillilan, Sueann &	Davidson, Nick	Dushesney, Theresa	Garcia, Florentio	Habeck, Edward
Bates, Boss	Brolin, Ruth	Ronald	Davies, Dave	Dusseault, Kimberly	Gardner, Ross	Hackmann, Jeff
Baumgardner, Earl	Brown, Robert	Clancy, David	Davis, Lloyd	Dutcher, Margueri	Garneau, Traci	Haggatt, Phoebe
Baxter, Megan	Brooks, Virgil	Clark, Danny	Davis, Lorena	Dutra & Wheeler, David &	Garone, Francis	Halle, Dennis
Bayley, Kenneth & Shevaun	Brosnahan, Kristen	Clark, Harry	Davis & Monier, Richard &	Jody	Garron, Edmund	Hall, Kristin
Bean, Kenneth	Brown, James	Clark, Peter	Debbie	Dwinell, Joanna	Gates, Philip	Hall, Raymond & Heidi
Bean, William	Brown, Margaret	Clark, Robert A	Davis & Zencey, Kathryn	Dworkin, David	Gauthier, Linda	Hall Sr, Kenneth & Shirley
Beardsley, John	Brown, Julia K	Clark-Booth, Kimberly	& Eric	Eastman, David	Gauthier, Eric R	Halpin, Robert
Beck, Florence	Brown, Leticia	Clarke, Rodney	Davis Estate, James E	Eastman, Shirley	Gazaway, David	Hamelin, Charles
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Bedell, John C	Bryant & Dailey	Cleland, William	Deaquar, Dwight	Eldred, Allan	George, Joyce	Hance, Borden
Bedie, Julia	Buck, Stephanie	Cloflet, Michael	Defelice, Frank	Eldridge, Laura	Giles, Scott	Haney, Shirley
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Belcher, Alden	Burgliwicz, Seila	Coffey, George	Della, Muriel	Engborg, Evelyn	Gillespie, Robert	Hannett, Donna L
Belval, Martin	Burke, Francis	Coffin, Barry	Delisle, Maurice	Enlit, Anita	Gilman, Charles	Hansen, Winifred
Benedini, Betty	Burke, Peter	Colburn, Judith	Delorenzo, Andrew	Ennis Executor, James	Gilman, Gary	Hanson, Lisa
Bennett, Patrick	Burnell, Robert		Demers, Karen	Esles, Brian	Gilman, Kathleen	Handzmanolis, Margaret
			Dentle, James	Facini, Chris	Gilstrap, Kristi L	Hardy, Angela S
			Depalo, Caroline	Fair, Melissa	Gildden, Benjamin	Hardy, Viola



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Harrington, John	Jones, Corey	Luce, Donald	Murray, Robert W	Randall, Russell	Smith, Lynn	Valler, Amy
Harrington, Claudette	Jones, David	Lumbra, Donald	Nadeau, Philip	Randles, Jamie	Smith, Philip	Vasquez, Claire
Harrington, Dean	Jones, Warren	Lund, Gail	Narma, Silvia	Rapp, Dorrie	Smith, Stuart	Veach, Roberta
Harris, Fredrick	Jones, Deborah M	Lyford, Nelson	Neadar, Rhonda	Raskind, Alexander	Smith, William	Vermette, Thomas
Harris, Susan	Jones, Jeff	Lythaven, Il	Neale, Michael	Reichmann, Heinz	Smith, Sarah E	Vermont Sports Apparel, Inc.
Hart, Amy	Jones, Allison	Lyn, Vincent	Neubauer, Karl	Reinhold, Raymond	Smith, George	Victory, Carole
Hart, John	Jostad, Laura	Lynch, Douglas	Neveau, Nicole	Reed, Barbara	Smith, Kenneth	Vilkauskas, Jarine
Hart, Lillian	Jose, John	Lynn, John	Newman, Benjamin & Marilyn	Reed, William	Smith, Peter	Vitt, Marion
Hart, Mark	Joslyn, Bruce	Lyons, Robert	Newton, Grant	Reese, Brenda	Smith, Trent	Volpini, Frank
Haskins, Peter & Teresa	Joyal, Robert	Lyons & Towne, Prescott & Barbara	Nichols, Ginger	Reld, William	Smith, Sandra	VI Institute For Self,
Hastings, Susan	Jurkewicz, Helene	Macia, Ronald	Nichols Trust,	Renaudette, Sheila	Smith, Barbara	Wachtel, Deborah
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Hatch, Margaret	Kachadoorian, Maria	Magoon, Robert	Nishiyachi, Eisuro & Suzanne	Rice, Joseph	Smykal, Joyce	Watersfield, H Paul
Hatch, Ralph	Karr, Lawrence	Magoon, Jerrol	Noble, Gregory	Richards, Jeffrey	Snyder, William	Walbridge, Frances
Hathaway, Lynn	Katz, John	Magoon, Edgar	Noel, Lorenzo	Richards Estate, Alfred	Snyder, Marvin	Walsh, Christopher & Darcy
Haupt, Karen	Kauczka, Sylveste	Magoon & Appleton, Laurie & Steve & Alan	Northrup, Jack	Richardson, Elizabeth	Solomon, Terry	Walsh, Deborah & Arnold M
Hawkes, Glenn	Kay, James	Mahon, Patricia	Noyes, Catrina	Richardson, Joseph	Somers, Steven	Wanzer, Shawn
Hawkins, Wanda	Keeffe, Carolyn	Males, Amanda	Nunn-Hudson, Martin	Richer & Doris Demick, Raymond & Evelyn	Sorensen, Mary	Ward, Gary
Hawley, Melville	Keel, Jimmie	Mallory, R	Nutter, Michael	Richmond, William	Sosnick, Jeffrey	Ward, Marion
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Haynes, Larry	Keith-Hynes, Meghan	Mangum, Thomas	O'Brien, Sandra	Rider, John	Spencer, Carolyn	Watker, Wayne
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Healey, Robert	Kelly, Kevin	Martinez, Mary Ellen	Olsen, Kathy	Robertson, Walter	Spooner, Howard	Watson, Wendy A
Heath, Donald	Kelton, Mary Ellen	Kemp, Marcia & Stephen	O'meara, Kelly	Robinson, Charlotte	Spooner Estate, Forrest	Watson, Christopher
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Helburn, Margaret	King, Tammy	King, Tammy	Owens, Wade	Roggenack, John	Stein, Stanley	Weiss, Raymond
Henderson, Gary	Kirkpatrick, Scott	Kirkpatrick, Scott	Pacetti, Edmund	Rondell, Robert	Stender, Angeline	Weiss, Michelle
Henes, Richard	Kitchen, Lee	Kitchin, Lee	Page, Carvin	Ronner, Arthur	Stephens, Alan	Weller, Dwight
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Henrikson, Fred	Klinefelter, Douglas	Klinefelter, Douglas	Paige, June	Rossi, Douglas	Stevens, Craig	Wentworth, Rodrick
Henry, Bernard	Knapp, Eric	Knapp, Eric	Palisoul, Richard	Rossi, Mark	Stewart, Candace	West Topsham U.M.C., Wale River U.m.c.
Henry, Tom	Knapp, Leo	Knapp, Leo	Papineau, Fonda	Rossier, Kelley	Stiles, Lewis	Westcott, Ronny
Herman, Sylvia	Knapp, Debra	Knapp, Debra	Paquin, Heather	Rossignol, Boyd	Silverell, Speer, Ella	Westover, Dean
Herrick, James	Knowles, Florence	Knowles, Florence	Parauka, Marion	Rossiter, Donna	Stoekel, Ronald	Whalen, Mary
Herrick, Cynthia	Knowlton, Deborah	Knowlton, Deborah	Parent, Mary	Rouelle Estate, Alfred	Stone, Gregory	Whalen, Thomas
Hertz, Thomas	Kohl, Arlene	Kohl, Arlene	Parker, Isobel	Rounds, Stanley & Betty	Stone, Harvey	Wheatley, Gail
Heslett, Marilyn & James L	Kokoszka, Lawrence	Kokoszka, Lawrence	Parker, Lyman	Rousse, Norbert	Strait, Carla	Wheeler, Angela
Hetzler, Gregory	Kramer, Donald	Kramer, Donald	Parker, Michelle	Roux, Robert	Stratton, Robert	Wheeler, Gerald
Hewitt, Daniel & Daphne	Krause Jr Estate, John	Krause Jr Estate, John	Parker, Jennifer	Roy, Esther	Strayhorn, Alvin	Wheeler, Herbert
Hierons, Robert	Kreisz, Shirley	Kreisz, Shirley	Parrot, Kenneth	Roya, Kristy	Strideberg, Joseph	Wheeler, Lucy
Hill, Arthur	Kruger, Laura	Kruger, Laura	Parry, Josi	Roya II, Leonard & Barbara	Stryker, Jon	Wheeler, Richard & Marilyn
Hill, Camellia	Labbie, Hughes	Labbie, Hughes	Parry, Arthur	Ruiz, Constance	Sullivan, C Theresa	Wheeler Estate, Helen
Hill, Ralph	Lacasse, Robert	Lacasse, Robert	Patton, Kenneth	Rummel, Ralph	Sullivan, Robert	Whitcomb, Lawrence
Hill, William	Ladd, Gordon	Ladd, Gordon	McFarland, Stephen	Rummler, Alexander	Sullivan, William	White, Sherry
Hiner, James	Lafogg, Bertha	Lafogg, Bertha	McGee, Meghan	Russell, Thomas	Sumner, Sherril	White, Dawn & Douglas
Hinton, Henry	Lagerstedt, Robert	Lagerstedt, Robert	Mcgrath, John	Rutledge, Roy	Surviva, Joel	Whiteley, Thomas
Hiscox, Lisa	Lahart, Russell	Lahart, Russell	Mcintosh, Jean	Rutledge, Shirley	Sweeney, Eitel	Whitmore, Keith
Hoblin, Harry	Lahue, Donald	Lahue, Donald	McIntosh, Jean	Ryan, Eric	Sweet, Rhagene	Wies & Johnson, Thomas & Denise
Hodgdon, Clara	Lakatos, Peter	Lakatos, Peter	McLanahan, Thomas	Sainsbury, Scott	Sweet, Sidney & Jill	Wiese, Peter
Hoehi, Heather	Lali, Luciano	Lali, Luciano	Meeks, Charles	Saldit, Robert	Sweater, Cydio	Wight, Donald
Hoffman, Marion	Lambert, Gordon & Barbara	Lambert, Gordon & Barbara	Menard, Katherine	Salmonea, Edward	Symons, Helen	Wild, David & Darlene
Holden, J Kent & Linda	Lamolle Valley Rr	Lamolle Valley Rr	Menard, Robert	Salter, Gary	Szule, Alfred	Wild, David
Holmes, Donna	Lamp, Michael	Lamp, Michael	Merchant, Melvyn	Sanborn, Beth	Tanner, Michael	Wilder, Wayne
Holmstrom, Raymond	Lance, John	Lance, John	Merritt, Barry	Sanborn, Raymond	Taylor, Carlisle	Wilder, Christopher
Hood, Lynn	Landa, Anita	Landa, Anita	Merritt, Robert	Sanders, Gregory	Taylor, Christopher	Wilkinson, Dean
Horton (112) & Wehe 1/4, Marilyn	Landers, Lorraine	Landers, Lorraine	Messier, Richard	Sangermano, Peter	Taylor, David	Willey, Delene
Hotchkins, Alex	Langlois, Rod	Langlois, Rod	Middlesex Assoc, Chris	Santor, Sarah	Taylor, Marilyn & Fred	Williams, Dale
Houghton Estate, Elliot	Langevin, Wilfred	Langevin, Wilfred	Miller, Lawrence	Sanville, Jason	Taylor, David	Williams, David
Houie, William & Gloria	Langone, Robert	Langone, Robert	Langlois, Rod	Sargent, Gaynor	Taylor, David	Williams, Gwen
Houston, William	Lapierre, Charles	Lapierre, Charles	Langlois, Rod	Sarquiz, Ronald	Taylor, David	Williams, Leslie
Hovey, Cindi	Lapierre, James E	Lapierre, James E	Langlois, Rod	Satink, Jeannie	Taylor, David	Williams, Steven
Howe, Mandevill	Lapierre, Margaret	Lapierre, Margaret	Langlois, Rod	Saunders, Monica	Taylor, David	Willis, Kendall
Howell, Gail	Laprade, Andre	Laprade, Andre	Langlois, Rod	Kemp	Taylor, David	Wilson, Cindy
Howell, Nancy	Larive Estate, Annie	Larive Estate, Annie	Langlois, Rod	Savidge, Evelyn	Taylor, David	Wilson, Edward & Ilona
Hoyt, Samantha	Larkham, Glen	Larkham, Glen	Langlois, Rod	Savio, Catherine	Taylor, David	Wilson, Richard
Huestis, Thomas	Laudry, Carroll	Laudry, Carroll	Langlois, Rod	Sawyer, James	Taylor, David	Winter & Ryan, Heidi & Timothy
Hughes, J Norman	Lavallee, Lois	Lavallee, Lois	Langlois, Rod	"Sawyer Estate"	Taylor, David	Wintle, Serena
Hulbert, Lloyd	Lawrence, Susan	Lawrence, Susan	Langlois, Rod	Schibuk, Norman	Taylor, David	Wires, John
Hull, Marc	Lawrence, Albert	Lawrence, Albert	Langlois, Rod	Schlipf, Steve	Taylor, David	William Estate, Hugh
Hunt, Dana	Lawrence, Frank	Lawrence, Frank	Langlois, Rod	Schlosser, Frank David	Taylor, David	Wojcik, Walter
Hunter, M Kelley	Leclerc, Michael	Leclerc, Michael	Langlois, Rod	Schneider, Eleanor	Taylor, David	Wolf, Gunther
Hurt, Charles	Leduc, Brian	Leduc, Brian	Langlois, Rod	Schumaker, Esther	Taylor, David	Wood, Gregory
Hurla, Vernon & Margaret	Lee, Lisa	Lee, Lisa	Langlois, Rod	Schwartz, Robert	Taylor, David	Wood, Patricia
Hutchins, Ruth M	Leeper, Paula & John	Leeper, Paula & John	Langlois, Rod	Schwartz, Lucille	Taylor, David	Wood, Susan
Iluzzi, Joseph	Lefevre, Kevin	Lefevre, Kevin	Langlois, Rod	Sclafani, Joseph	Taylor, David	Wood, Harriet P
Infante, Mark	Leggett, John	Leggett, John	Langlois, Rod	Scott, Laurette	Taylor, David	Wood, Leonard & Karen
Isaak, Jacqueline	Leibold, Jonathan & Raylene	Leibold, Jonathan & Raylene	Langlois, Rod	Setlen, Cecilia	Taylor, David	Wood, Linn
Isaak, Lauren	Lemay, Juliette	Lemay, Juliette	Langlois, Rod	Sevigny, Diane	Taylor, David	Woodard, Stanley
Isham, Christine	Lemay, Francis	Lemay, Francis	Langlois, Rod	Shalney, Harry	Taylor, David	Woodbury, David
Izzo, Anthony	Lenz, Lili	Lenz, Lili	Langlois, Rod	Shatney, Lori	Taylor, David	Woodbury, Gordon
Jackson, Stuart	Leonard, Ellen	Leonard, Ellen	Langlois, Rod	Shatney, Harry	Taylor, David	Woodward, Joanne
Jackson, Robert L	Lessig, Robert	Lessig, Robert	Langlois, Rod	Shatney, Harry	Taylor, David	Wood's Power Products,
Jaeger, Paul	Letourneau, John	Letourneau, John	Langlois, Rod	Shatney, Harry	Taylor, David	Wootton, Matthew
Jamele, Peter	Lewis, Corinne	Lewis, Corinne	Langlois, Rod	Shatney, Harry	Taylor, David	Wright, Christine
Janet, Melissa	Lewis, Norton	Lewis, Norton	Langlois, Rod	Shatney, Harry	Taylor, David	Wright, Nancy
Jarvis, Jessica	Lilly, Kim	Lilly, Kim	Langlois, Rod	Shatney, Harry	Taylor, David	Yoder, Margie
Jauhola Estate, Co/ David	Ling, Shelly	Ling, Shelly	Langlois, Rod	Shatney, Harry	Taylor, David	Yon, Jennie V
M Morin	Livingston Estate, Elizabeth	Livingston Estate, Elizabeth	Langlois, Rod	Shatney, Harry	Taylor, David	Young, J Peter
Jenner, Amy	Loke, Norman	Loke, Norman	Langlois, Rod	Shatney, Harry	Taylor, David	Young, Jackie
Jensvold, Erik & Chris	Long, Eugene	Long, Eugene	Langlois, Rod	Shatney, Harry	Taylor, David	Young, Marcia
Jerome, Sarah	Lonsdale, Paul	Lonsdale, Paul	Langlois, Rod	Shatney, Harry	Taylor, David	Young, Roland
Jewell, Adela	Lord, Marian	Lord, Marian	Langlois, Rod	Shatney, Harry	Taylor, David	Young, Wayne
Johnson, Charles	Lord, Charles	Lord, Charles	Langlois, Rod	Shatney, Harry	Taylor, David	Zaremski, Thomas
Johnson, Christopher	Lorenzen, Doreen	Lorenzen, Doreen	Langlois, Rod	Shatney, Harry	Taylor, David	Zdon, Victor
Johnson, Jeffrey	Lori, Michael	Lori, Michael	Langlois, Rod	Shatney, Harry	Taylor, David	Zeno, Nancy
Johnson, Lanae	Loring, William	Loring, William	Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson, Pauline	Lovelette, Lisa	Lovelette, Lisa	Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson, Robin	Loving, William	Loving, William	Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson, Walfrid	Lowell, Carol	Lowell, Carol	Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson, Harold & Mary	Lowey, Paul	Lowey, Paul	Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson, Gregory			Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson & Hinckley, Brent & Heather			Langlois, Rod	Shatney, Harry	Taylor, David	
Johnson Lumber, Jane C/O Steven			Langlois, Rod	Shatney, Harry	Taylor, David	
Johnston, Kenneth			Langlois, Rod	Shatney, Harry	Taylor, David	



What's It Really Like to Drive An Electric Vehicle?

Electric vehicles are becoming mainstream. Washington Electric Co-op now has five EV charging stations, and recently partnered with Freedom Nissan to offer members a steep discount on the all-electric Leaf.

But what's it like to actually be behind the wheel every day?

We asked WEC board member Steve Knowlton of Montpelier, who with his wife Lindy Biggs, leased a Nissan Leaf in 2013. "We liked the idea of an electric vehicle for various reasons: the obvious benefit of reducing our fossil fuel usage, but also kind of an experiment," Knowlton said. The couple already drove a pickup and a hybrid. "Maybe I was expecting a glorified golf cart, thinking it was a toy, not a real car," he said. "But it was. It's fun to drive and responsive."

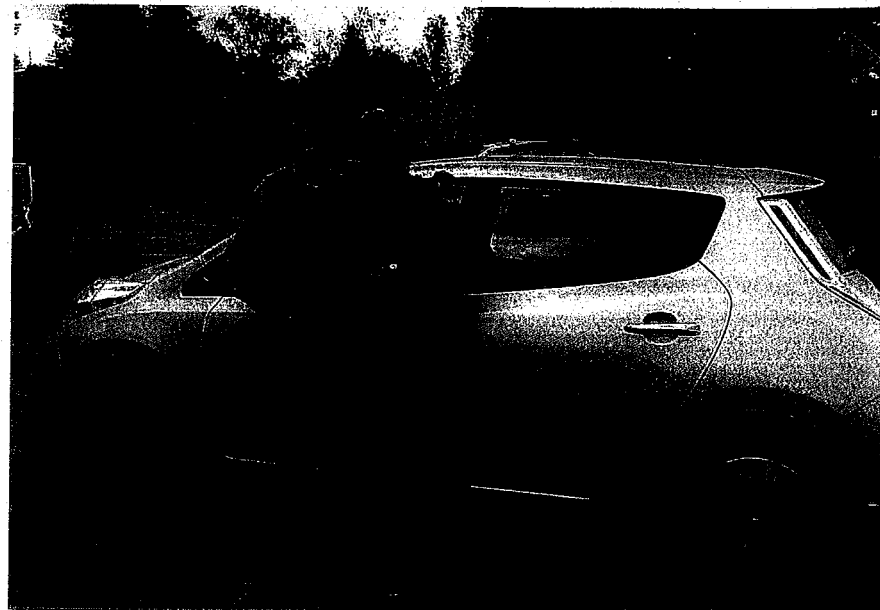
Knowlton and Biggs do most of their traveling locally, so "for us it was the perfect around-town car," he said. They continued to use their hybrid for longer journeys, though. "I think everyone who's driven an EV ultimately suffers from the disease of 'range anxiety.' Are you going to get where you want to go? That's a real concern," he said.

2017 Leafs are advertised to have a 107-mile range. It's worth noting that range numbers are improving quickly, according to David Roberts, the Drive Electric Vermont Coordinator for Vermont Energy Investment Corporation (VEIC), and a 2015 Leaf driver himself. The most common reasons people hesitate to go electric, he says, are too-high cost, too-low range, and too few all-wheel drive options for rural drivers.

Manufacturers are listening. "Cost is continuing to come down and range is increasing," Roberts said, pointing to an anticipated increase in range in the 2018 Leaf, the 238 mile range of the 2017 Chevrolet Bolt, and improved electric range in plug-in hybrids. All-wheel options tend to be offered by higher end brands, like Volvo and BMW, he said, but more options are coming soon, including a Mitsubishi Outlander hybrid, and Volkswagen's just-announced electric Microbus.

So what about Vermont winter driving? Cold weather causes the defroster to drain the battery—Knowlton said one cold night, they realized they'd need to leave the defroster off to make it home. "So it was like we were driving in a 1960s VW Beetle," he said, clearly familiar with the quirks of that other iconic vehicle.

But, he pointed out, newer EV models have more efficient heat pump defrosters. And their Leaf is a peach in the snow. It's heavy, and Knowlton says it has higher clearance than a Prius. And for those of us with a different



WEC board member Steve Knowlton, wife Lindy Biggs, and their Nissan Leaf. Knowlton's take on driving electric: it's tons of fun, just monitor any symptoms of "range anxiety." Fortunately, newer models show a marked improvement in range.

kind of anxiety—let's call it Cold Start Anxiety, "if it's 20 below and you've got a dicey carburetor or battery," Knowlton said, those fears are gone: "No matter what the temperature, this thing will go."

Usually, Knowlton and Biggs plugged in the Leaf at home and forgot about it—but once or twice, they arrived at an EV station needing a charge only to find it was in use, or the credit card machine didn't work. Hunting out a charging station in an unfamiliar area is a little nerve-wracking, Knowlton said. But all you really need, he pointed out, is an outdoor socket. And the time it takes to charge the car.

"I've been saving money on maintenance and gasoline," said Roberts. The cost to charge is equivalent to about \$1.50, he said, which is roughly \$0.90 less than a gallon of gas these days. He's been paying for annual inspections, tire rotations, battery checks, and nothing else.

Knowlton suggested the car is currently best for commuters, or people driving about 40 miles out and back each day. Or people, like Knowlton and Biggs, who are interested in trying something new: "It's fun to pay attention, as you go downhill, the battery charges back up again," said Knowlton. "You get some of that kinetic energy returned to you. You pay attention to the nuances of a road, whether you're going down

or uphill. It adds a little bit of curiosity to one's driving experience."

In sum:

Pros: Tight turning radius, quiet, needs no oil changes and virtually no other service. Charging is cheaper than gas. Plenty of torque, no trouble getting up steep hills or starting under any circumstances. Knowlton: "I just love the way it drives! It's like putting on sneakers."

Cons: Range anxiety, range goes down in cold weather, long charge times (if you're in a hurry).

Good for: Around-town driving

and commuting. Knowlton: "If you live within 30-40 miles of where you work, there should be no problem with range anxiety at all. If you live 60-70 miles, then you'll just have to count on charging up wherever it is that you're going."

Co-op members who drive all-electric vehicles—we want to hear from you! Why did you go electric? What do you like? What needs fixing? Write to currents@wec.coop. And if you're curious about range, cost, and availability of different electric vehicles, visit driveelectricvt.com.



WEC members and staff enjoy dinner before the 2016 Community Meeting in Cookeville. See p. 8 to register for this year's meeting in Worcester on October 12.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Annual Open House at Coventry Landfill

Join Washington Electric Co-op for an open house and tours of our Coventry landfill methane generation facility in Coventry, Vermont.

Tuesday, October 17, 2017

1 p.m. - 4 p.m.

184 Landfill Lane, Coventry

Reservations are not required for individual visits.

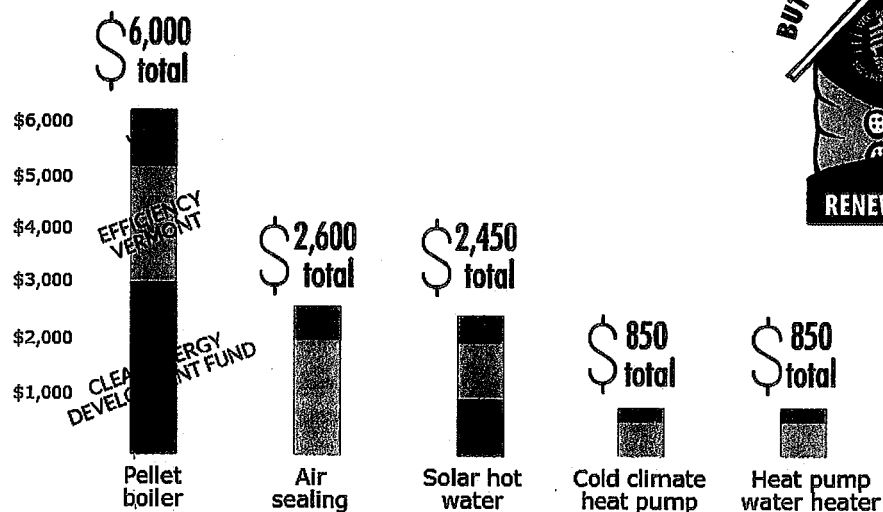
To join a carpool or book a specific tour time for a large group, please contact Dawn Johnson at 802-224-2332 or dawn.johnson@wec.coop.



An aerial view of the Coventry Landfill plant from 2009. The plant generates electric power from landfill methane, harnessing a greenhouse gas into a renewable energy resource and supplying WEC members with an environmentally and financially stable electric source.

What's my incentive to Button Up?

If you're looking to seal up your home, or are in the market for energy-efficient heating systems, WEC's Button Up! home energy efficiency program offers cash incentives to members. In combination with Efficiency Vermont discounts and grants from the Clean Energy Development Fund, you could save a lot of money:



Before you buy any new energy-efficient appliance, call Bill Powell, WEC's Energy Coach, to learn how you can take full advantage of this program:

802-224-2329

energycoach@wec.coop



Fare Thee Well, Will

continued from page 1

works.

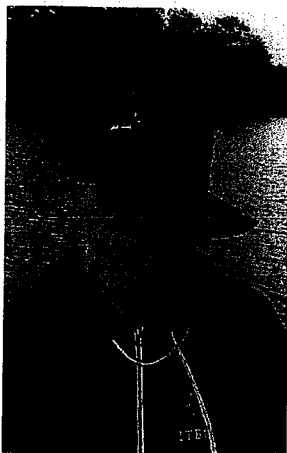
But the "hero of my life," Lindner said, was his mother, Eleanor Lindner. Widowed young, she became a teacher and raised three kids by herself. Lindner remembers her as a courageous and hardworking woman, "conscientious and devoted" to her children and students.

With raw talent and values sculpted by these parents, Lindner, who began writing in college, soon established himself as a journalist. He was hired by the *Times Argus* as a reporter, and in short order became the editorial page editor and a columnist.

It was around this time he began paying close attention to Vermont's decision whether or not to deregulate utilities, and to the Co-op's response. The leadership of then-General Manager Joe Bongiovanni and Board President Barry Bernstein showed "a real commitment to the cooperative way of doing things," he recalled. It wasn't so much about self-preservation, he remembered, but concern that a deregulated, for-profit utility landscape would have no incentive to serve WEC's rural membership nearly so well as the Co-op did.

This drew him in. In 1995, Lindner became the editor of *Co-op Currents*. Since the deregulation debate, he said, the board and staff have shown "a commitment to the membership that's played out in so many ways. Working for them has enabled me to feel like I'm part of a mission I really believe in."

Lindner has covered some big stories during his tenure. His most memorable milestones include the Co-op leaving its contract with now-idle nuclear plant Vermont Yankee; the 2011 May floods that swamped the Co-op offices; WEC's advances in renewable energy, including the development of



Will Lindner, beginning to adjust to life with vacations, judging from this photo taken by his wife Nancy Mosher on a recent trip to Maine.

Sheffield Wind and the construction of the Coventry landfill generator; and net metering.

"The Co-op has been really great about taking stands I think are courageous," he said with admiration, including supporting renewable energy sources early on, and standing up for every member along the power line. Perhaps it's his journalist's sense of curiosity, or his musician's understanding of rhythm and harmony, but Lindner said he's always enjoyed tackling the complex issues WEC faces—and is often first among utilities to address.

"His uniqueness is he was able to go into whatever story he covered, on any issue, and be receptive and be with the person he was interviewing and writing about. He's got a realness to him that comes through in his stories," said Bernstein. "He's part of the Co-op fabric. He opened himself up to all of

our employees, all of our history, all of our membership in an honest and forthright way. That's a great trait to have for someone who's writing about other people."

Indeed, Lindner said that more than anything, he loved working with the people of WEC.

"I have always liked writing about what people do for their work," he said.

All Co-op staff, he said, are "really dedicated to the work they do. And dedicated to the cooperative aspect of the work they do, serving people, helping people out. You hear great stories from the line crew: they were working all night, got somebody's power on, and that person comes out with coffee and cupcakes."

That's the most important part of the job, he said, showing the people behind the work. "That's not just a truck out there. There are people in it with families and kids, and they come to work every day and work hard." During outages, he pointed out, line crews and office staff alike work all night, "and they don't complain about it."

So what's next for Lindner? Well, he'd really like to take some long winter trips in warm climates with his beloved wife Nancy Mosher, he said. Mosher, now a leadership consultant and Reiki practitioner, is retired from a 30-year nursing career with Planned Parenthood of Northern New England that culminated with nine years serving as CEO and president.

And certainly more music, he said. Recently, he's been playing with the Nisht Geferlach Klezmer Band, which he described as an "Eastern European

"I have always liked writing about what people do for their work. All Co-op staff are really dedicated to the work they do. And dedicated to the cooperative aspect of the work they do, serving people, helping people out. You hear great stories from the line crew: they were working all night, got somebody's power on, and that person comes out with coffee and cupcakes."

—Will Lindner

shteti version of Dixieland," and points out is a WEC-heavy ensemble—including members Rick Winston of Calais and former WEC General Manager Avram Patt of Worcester, as well as Kathy and Steven Light of Marshfield.

Lindner and brother Dan play and sing together now as the Sky Blue Boys, with a busy schedule that includes a recent gig at Spruce Peak

Performing Arts Center. They've always played music together, and they always will, he said. And Lindner's adult children, both graduates of Spaulding High School now far-flung, have been known to chime in. His daughter Shannon, now in Portland, Maine, and son Travis, now in Los Angeles, each contributed a tune to Lindner's recent CD *Life, Still, with Mandolin*.

Recently, driving home from visiting his daughter, Lindner stopped to walk his pup, Jameson, in Seyon Pond State Park in Groton. Attuned to the power landscape after 22 years on the beat, he could tell, out in the middle of the forest, that the poles were from the 1940s.

It caused him to reflect on his time at the Co-op. Thinking about the crews that installed those poles 70-something years ago, he said, "That's how hard it is to serve rural people. That's the Co-op's mission. And I think that's great. The people at the ends of those lines are as important as the people close to the substations."

Lindner exits the stage with a tip of his ball cap. "I really wish the Co-op luck. I believe so strongly in their values as an organization and the way they conduct themselves. It ain't easy or simple."

You Are Invited—Thursday, October 12, 2017

WEC Community Meeting

Doors open at 5:30 p.m.

Dinner begins at 6 p.m.

Please join WEC staff, directors, and members at a dinner meeting and informational discussion on Thursday, October 12, 2017. The meeting will begin with dinner at 6 p.m. followed by discussion on topics of interest to you and your community. While reservations are required for the dinner, it is not necessary to preregister for the discussion which will begin at approximately 7 p.m.

The dinner meeting, to benefit the Doty Local Foods Program, will be held at the Worcester Town Hall, 20 Worcester Village Road, Worcester, VT 05682. The menu for the evening includes: soup, salad, sandwiches, dessert and beverage, catered by the Post Office Café.

To make a reservation for the dinner meeting, please fill out the reservation form and return it to WEC, Attn: Dawn Johnson, PO Box 8, East Montpelier, VT 05651. There is no charge for the meal.

Reservations must be received at the Co-op by the morning of October 4. Thank you.

Dinner Reservation

(No charge for the dinner.)

2017 Community Meeting

Worcester Town Hall • October 12, 2017

Doors open: 5:30 • Dinner: 6:00pm • Meeting: 7:00pm • Wrap up: 8:00 pm

Meeting Agenda:

- Meet and greet WEC staff and Board of Directors
- What's on your mind • Reliability • Rate Design

Name _____ ☐ Vegetarian ☐ Member or ☐ Guest

(Please print clearly)

Name _____ ☐ Vegetarian ☐ Member or ☐ Guest

(Please print clearly)

Name _____ ☐ Vegetarian ☐ Member or ☐ Guest

(Please print clearly)

Name _____ ☐ Vegetarian ☐ Member or ☐ Guest

(Please print clearly)

Address _____

Account # _____ Map # _____ Telephone _____

Email _____

Special needs (food or accommodations): _____

Reservations must be received at the Co-op by the morning of October 4.

WEC/ Attn: Dawn Johnson, P.O. Box 8, East Montpelier, VT 05651



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Right of Way Crews Keep 1,250 Miles of Line Clear — By Hand

This time of year, people flock to Vermont to look at the trees. Our hardwood forests turn red and yellow as maples and birches put on their annual show. But Mike Myers, WEC's Right of Way Management Coordinator, and the tree crews WEC subcontracts, spend every day and every season considering and evaluating the trees in the Coop's service area.

22 years ago, when Myers joined the Coop team, the avid hiker was worried about one thing. "I was kind of worried when I started here I wouldn't get out in the woods!" he laughed.

That hasn't turned out to be the case. "I do a lot of patrolling and visual inspection of our system," he said, which in WEC's rural territory, means a lot of time in the woods. With added input from line crews and outage reports, Myers uses this information to organize the tree crews that keep the lines free from hazards.

Simply put, tree crews work to reduce outages by controlling vegetation in the right of way. The Coop's "right of way" is the area around a power line that must be kept clear of potential hazards. Around transmission lines, the right of way is generally 100 feet

wide. "Those are like your arteries," explained Myers. "If a transmission line goes down, a whole substation could go down," which could knock out power for a couple of towns.

"Logging itself is very dangerous. You have some skilled loggers, and then you add a 7200 volt line into the equation."

— Mike Myers, WEC Right of Way Management Coordinator

Three-phase feeder lines—picture the poles along a main road with three lines across the top—usually see a 50 foot right of way. Distribution lines—which might serve a residential road—see a 30 foot right of way.

WEC's rights of way are usually cleared by flat-cutting vegetation along the ground. This is usually what passersby notice in roadside work—visually, a flat cut stretch can be an abrupt contrast to a few years' growth of brush, though crews are careful to leave low-growing useful trees, like apple and nut, intact. Along roads, crews use a bucket truck to clear encroaching limbs. The crews also remove weak and leaning trees outside the right of way that pose a threat to the lines.

A large percentage of WEC power lines run offroad, in challenging terrain. In these areas, where it's impossible to drive a bucket truck, qualified climbers go up into the canopy using ropes and climbing equipment to bring down hazard

continued on page 4



Mike Myers reveals a newly cleared right of way in a forested area of Topsham. This summer a storm took down two 1940s-era poles, and right of way crews and line crews worked to cut back dense growth and replace the poles and lines.

Democracy in Your Light Bulb

When you picture a main street in a small American town, what do you see? A tree-shaded town green and playground, thriving locally owned businesses, neighbors visiting with each other at the market or general store?

Or do you picture boarded up shops in foreclosed buildings?

Vermont is known for rustic charm and farm industry—our tourism and food economies rely on them. But all rural communities have an economic incentive to embrace local ownership and governance. "If you compare Vermont's rural economic landscape with communities that have relinquished local control, and now the only shops are big box discount stores that don't pay a living

wage, you see what happens. You lose your voice and any power to control the resources that dictate your life," explained Jean Hamilton, WEC board member and a business consultant with a focus on food systems.

For large, profit-driven companies, there just isn't much incentive to get goods and services out to rural people. In 1939, WEC was founded as a cooperative because shareholder-owned utilities saw no incentive to bring electricity to rural Vermont. And now, said WEC board president Barry Bernstein, high-speed Internet providers talk about bringing their service to rural

continued on page 8

Washington Electric Cooperative
East Montpelier, VT 05651

Inside

WEC wins state safety award: For the third time, the state recognized WEC's culture of safety with its top award. More in General Manager's report, p. 5.

Member writes: In with a personal experience of driving a Chevrolet Bolt, p. 6.

Grid cybersecurity: The first in a series on cybersecurity and the grid: how it works, myths, and realities. p. 5.



General Manager Patty Richards and Gabe Wendel, son of Finance Director Cheryl Willette, hang loose at WEC's Employee Appreciation Day, October 7 at Mad River Glen. Read more in the President's Message, p. 2.

Down Johnson

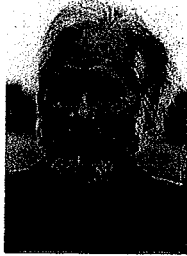
President's Message

Gratitude for Co-ops, Electric Power, Workers, and Community

By Barry Bernstein

What a beautiful late summer we've had!

And how grateful I am to see the sun every morning, when so much elsewhere in the country and in the world is not so shiny. Our heartfelt compassion goes out to all those families affected by the recent Las Vegas tragedy, and to those affected by acts of hatred and violence on any day. Events like Las Vegas affect us all, across all political and other boundaries, and there's only sadness for the victims and their families. Every day, but especially on the really bad news days, I am grateful to be part of a caring, tight-



knit community here in central Vermont.

October is Co-op Month

October is Co-op Month, and it takes me back to my first co-op experience, when I was working and living in London, England, where co-ops began and are still very strong.

However, my first real experience as a member-owner began in Vermont in 1971, when I was involved in starting the Plainfield Co-op, and became a member of WEC. Both co-ops have grown significantly since then. WEC has doubled in size to 11,000 households, operates our Wrightsville hydro and Coventry methane

generation plants, and supplies our members with 100% renewable energy. Several Plainfield Co-op neighborhoods have since established their own standalone stores. Buffalo Mountain in Hardwick now does \$1 million in sales and Hunger Mountain in Montpelier has sales over \$20 million, while the Plainfield Co-op is still going strong.

Potential 2018 Rate Increase

The WEC board and staff are now analyzing numbers as we build the 2018 budget. This past summer we were hit with several storm events that caused significant damage and expensive reconstruction. We hope the last three months of the year will be kinder to us! Patty Richards, our General Manager, mentions several other factors in her report (page 3) that impact rate increase pressures.

something he appreciated all month long. I hope this is a message we can all take to heart—to value electricity for what it is, and to neither waste it nor take it for granted.

Winter Prep

"I hope this is a message we can all take to heart—to value electricity for what it is, and to neither waste it nor take it for granted."

As many of our members harvest the last of their gardens' bountiful tomatoes, kale, and squash, our farmers are mowing and baling their third cut of hay. It is also a time for moving and stacking wood into our sheds and basements, beginning our final outside preparations on our homes, putting away our lawn mowers, and catching the

last of autumn's colors. Remember, if you have any drafts that need to be sealed or cold weather appliances you need to purchase, take advantage of Button Up! incentives. See the infographic on page 7 and contact Bill Powell at 802-223-5245 or energycoach@wec.coop.

At the same time, our line and right of way crews are tackling work on our distribution and transmission lines scheduled for the last quarter of 2017. Keeping vegetation away from the lines is essential for preventing outages, and the all-local right of way crews we hire are careful to preserve low-growing, wildlife-friendly trees while removing hazards—and they do it all without spraying dangerous chemicals on the land. Meanwhile, our top-quality line crew is making sure our poles and lines are shipshape before the first winter storms hit. If you see them around, thank them for keeping your lights on.

Employee Appreciation Day

I was fortunate to join our employees and their families at the Mad River Glen Ski Area, a sister co-op, in early October. Some of us rode the single chair lift to the top and back, while a number of folks hiked up, and some played games at the base lodge.

We all had a great time, but appreciating our employees is really not just a one day event. I applaud WEC staff year round for their dedication to the co-op and the excellent service they give our members, in both good and bad weather. On behalf of the WEC board and our members, THANK YOU!

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2392.

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Got something to say?

Letter to the editor, comment, or a story tip? Drop us a line at currents@wec.coop or Washington Electric Cooperative, Inc., P.O. Box 8, East Montpelier, VT 05651, Attn: Co-op Currents.



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Manager's Report

WEC's Culture of Safety

Plus: line crew heading to St. Thomas for hurricane relief, rate design listening groups, and possible 2018 rate increase

By Patty Richards

WEC Wins State Safety Award

On October 13, we were excited and honored to receive the 2017 Governor's Award for Outstanding Workplace Safety. This award recognizes WEC for its workplace practices and low rates of injury.

This is WEC's third time receiving the Governor's Award. As Safety and Environmental Compliance Specialist Rick Stergas put it, "Safety at WEC is part of the culture." We have long believed in building a culture of safety, all our staff contribute to this culture of safety, and this award recognizes the results. In 2016, WEC vehicles drove 225,000 miles without a driver-related accident. This September, we marked 700 days without a lost time accident.

We have 37 hardworking employees who are focused on safely delivering reliable, affordable, and renewable power to our members. WEC employees work in all sorts of weather, at all times of the day, under some very unforgiving conditions. The attitudes, beliefs, and values that we share in relation to safety in the workplace is the basis for our organizational culture. It is how we do things each and every day.

Congratulations go out to all WEC employees!

Hurricane Relief and Support

WEC is working with several municipal and cooperative utilities across New England to assemble teams of line crew to help regions impacted by hurricanes. WEC crew are headed to the Virgin Islands to provide emergency restoration service in St.



Thomas.

The conditions will be difficult and intense. St. Thomas was decimated by Hurricanes Irma and Maria, and the electric grid was devastated. Our staff may need to sleep in tents and will work long hard hours in hot weather. This is grueling and difficult work under regular conditions. The extra

stress of hurricane damage conditions will make this a very difficult charge.

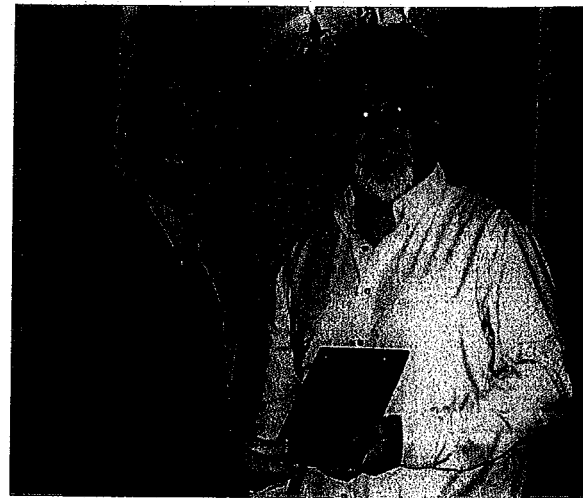
In times of need, we share resources and assistance to get the power back on across the US. We are there to help the island rebuild, and we thank WEC employees who are volunteering.

Rate Design Listening Groups

We want to know what our members think about the current way we charge for our services, and we also want to find out what folks think about alternatives. So, we are planning to hold listening sessions in early November on this important topic.

The state's goal is to reach 90% renewable in all forms of energy by 2050 (electric, heat, and cars). We already have a power mix that is 100% renewable, and we want to help move members off fossil fuel and instead use renewable electricity from WEC to power cars and heat homes. At the same time, our current rate structure is designed to encourage energy conservation—not more energy use.

What this means is we'll ask a sample of Co-op members to discuss our rates and how we charge for service. This sample group will give us representative information about what our larger membership thinks. This is a focus group research technique, though we think it's more accurate to



Governor Phil Scott presents the Governor's Award for Outstanding Workplace Safety to Safety and Environmental Compliance Specialist Rick Stergas. It's the third time WEC has won this prestigious state award.

call it a listening group. This technique is commonly used to learn about a population's perceptions, opinions, beliefs, and attitudes towards a product or service.

We believe listening groups will be a very informative and helpful part of WEC's rate design discussion and process. If you are called on, we hope you will share your thoughts with us.

2018 Rate Increase?

Staff and board are looking now at our budgets and costs for the upcoming year. It appears we may need to increase rates in 2018. It is too soon to put a number on the increase, but there are several factors in play. We already know in 2018 we will face rising costs from transmission and regional grid operator ISO-NE. With rising costs,

declining sales, and no way to offset the new expenses, we expect a rate increase will be needed. We will keep you apprised.

WEC sponsors Accel-VT

This fall we joined all the other utilities in the state to sponsor Accel-VT, a business accelerator for people working to address issues in how we use energy and to help the grid integrate better with renewables. To us, it's a win-win-win: encourage job growth in our communities, stabilize the grid, preserve natural resources. An opportunity to support innovation and positive change in our communities is a good investment, and we can't wait to see what great ideas come from participating entrepreneurs.



Linda Nelson, Assistant Finance Director; Sandy Gendron, Information Database Technician; and Beth Ouellette, Sr. Member Service Representative catch up and enjoy each other's company at WEC's Employee Appreciation Day at Mad River Glen on October 7.



Right-of-Way Clearing

continued from page 1

trees and branches.

All this work is done by tree crews using chainsaws and chippers—not chemicals. Since 2003, WEC has implemented a no-herbicide policy. "This is a very unusual practice for an electric utility," said General Manager Patty Richards. "I'm so proud we do it this way."

It's in keeping with WEC's environmental mission. For WEC members and leadership, not using herbicides on trees is consistent with its commitment to energy efficiency and its 100% renewable power supply. Richards also sees the policy as fiscally responsible, since it's limiting harm. "We don't yet know what long term effect herbicide chemicals have" on local soil and water sources, she points out. What WEC spends on tree crews goes straight back into the central Vermont economy, and does not fund chemicals and the corporations that make them, like Roundup, a product of the controversial agribusiness giant Monsanto.

Richards is also mindful that although WEC has the right to clear them, rights of way cover 5,000 acres of land privately owned by Coop members. So, she said, it's the right thing to leave low-growing apple and nut trees intact, reroute poles to preserve towering maples, and site new lines to avoid cutting old growth and preserve scenic road canopies. "Our trees are an important part of what makes Vermont special," she explained. "WEC has adopted a policy of good environmental stewardship, and we include aesthetic principles into our tree trimming practices."

WEC runs power on 1,250 miles of overhead line. Tree crews cycle through sections of line roughly every 10 years. They must clear about 130 miles of line each year to stay on top of the growth, in addition to managing downed or dangerous trees called in by line crews and concerned members.

Crews work all year to keep up. Matt Foster Logging out of Craftsbury is one of five local tree crews WEC subcontracts. Foreman Trey Allen says they're out in all weather. There were a few bitterly cold days last winter, "but we put our heads down and worked. This year's been pretty rainy, but we still worked every day this summer," he said, as his crew sawed and chipped brush behind him on a stretch of road in Groton.

The tendency of the regional environment is to revert to hardwood forest, said Myers, who has a degree in forestry from the University of Vermont. "Creating an opening is unnatural to that forest," he explained. Quick vegetation growth is especially apparent in sections trimmed a few years ago. "We get a lot of regrowth off the cut stumps," he said, pointing out a dense thicket of tall maple stems on a section of line on Route 302.

Myers has deep respect for the tree crews. "It's very dangerous work. Logging itself is dangerous. You have some skilled loggers, and then you add a 7,200 volt line into the equation,"



Right of way crew foreman Trey Allen of Matt Foster Logging trained as a lineworker and is an experienced climber. Right of way crews work year round to keep the lines clear of vegetation hazards.



Mike Myers in a stand of new dense brush that grew out of flat-cut stumps along a stretch on Route 302. Dense brush is very difficult for lineworkers to move through, especially in the dark or in bad weather.



Right of way crews flat-cut under the line but took care to leave this homeowner's apple tree standing.

he said. "They're up in the air working close to these conductors. They need to know their minimum approach distance [two feet, four inches from a live wire], voltage, which equipment is energized and which is grounded." They also need

to know aerial rescue, CPR, and knots, he added.

Tree crew foreman Trey Allen says he loves his work. He's trained as a lineman himself, and is an expert climber. But there is one other

challenge lurking on the cut edge of the forest: ticks. "I lost count after 56, just on myself," he said, and that was early in the season—long before the leaves began to turn. 🐾

DID YOU KNOW?

WEC is one of only a few utilities in the nation that do not use herbicides on rights of way.



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Cybersecurity, WEC, and the Grid

A multi-part series examining real and perceived threats to the systems that provide our electric power

Hurricane Maria wiped out power in Puerto Rico. A breach at Equifax compromised sensitive data belonging to 143 million people. North Korea threatened a grid-frying electromagnetic pulse attack. In 2003, a tree took down a transmission line in Ohio, and much of the Northeast sputtered into darkness. And last December, hasty reporting inflamed an alert from Burlington Electric Department into a not-exactly-accurate story of Russia attempting to hack the US grid through our neighbor utility.

These are reminders of the importance of cybersecurity. We all rely on electric power—and we could be very vulnerable if natural or human interference takes down the systems that deliver it. Throughout the grid, security experts closely watch forces of nature, data theft, infrastructure attrition, and high-profile threats. All of these affect the security of the systems that deliver our electricity.

Recently, member Paul Ohlson of Calais raised the question of threat preparedness with the Co-op. He wanted to know “if my utility company is preparing for situations we hope will never happen,” like a malicious actor hacking in and shutting down the electric grid.

WEC is downstream, electrically speaking, from larger utilities, and receives electricity transmitted through lines managed by Green Mountain Power (GMP) and Vermont Electric Power Company (VELCO) via the New England grid managed by ISO-NE in Holyoke, Massachusetts.

But, Ohlson pointed out, WEC generates its own electricity via the Wrightsville hydro plant and the Coventry landfill generator, and there is distributed energy through private solar installations. If a hacker or act of violence caused the entire grid to crash, he wondered, “Is there a way to draw a wall around us, in case the rest of it goes down?”

His concerns are practical. Yes, WEC and its upstream neighbors are prepared and vigilantly monitoring for situations we hope will never happen. And while there's not exactly a way to wall WEC off from the grid, sections can sense disturbance and isolate—a strategy that kept most of Vermont's lights on during the 2003 blackout. We'll come back around to that.

All WEC staff and utilities up the transmission line unanimously put forth two messages: one, that there are robust security plans in place, and two, the risk of a single malicious main event intended to cause widespread, long-term damage is far smaller than

the more common risks of hackers looking for personal data, and most of all, weather events.

This article is the first in a series in *Currents* on cybersecurity. We'll work to understand the relationship between WEC and the grid and the basics of how cybersecurity works at the different stops on the grid. Then we'll evaluate the risks and how transmission and distribution utilities prepare for them—and look to how each of us can offset risk. The goal is to educate and to alleviate fears. But take note that this isn't exhaustive: some information must be filtered to protect the systems that keep us secure.

Protection, detection, and response upstream

WEC is a local distribution co-op utility. Energy reaches WEC's substations through transmission: as a result, vulnerabilities up the transmission lines not owned by WEC would certainly affect the co-op. As General Manager Patty Richards put it, “The grid is like a big spider web,” of electricity connecting Vermont utilities, the greater New England grid, and neighbors New York and Quebec. “One tweak in the web ripples across the system. But the web is built to hold if part of it becomes damaged or broken,” said Richards.

Richards and *Currents* editor Katie Titterton reached out to ISO-NE, which manages the New England grid, and VELCO, the Vermont Electric Power Company, which manages the transmission lines that bring power to local utilities. We asked about cybersecurity protection, detection, and response—what upstream utilities do to protect the system and keep the lights on for WEC members. Both ISO-NE and VELCO staff remarked that the sensitive nature of the security they have in place limits the amount of information they are able to share publicly about cybersecurity.

A representative at ISO-NE explained that the organization staffs a 24-7 Security Operations Center that constantly monitors the network, and that all ISO New England employees are required to undergo an annual training in cybersecurity. The organization also participates in a biennial exercise called GridEx, a project of the North American Electric Reliability Corporation (NERC). The exercise is designed to simulate a cyber/physical attack on electric and other critical infrastructures across North America. The representative added that if something does happen to interrupt the reliable operation of the grid, whether a malicious attack

or a natural disaster, the system is protected by both physical and cyber redundancies. Which means: if something were to happen, the backup systems are already ready.

Lessons from the 2003 blackout

Richards pointed out that it's good to have neighbors—in New England's case, Canada and New York. If power ever went out in New England, our neighbors can transmit electricity to us. The absence of neighbors, she said, is part of the reason Puerto Rico's grid was so vulnerable to hurricane damage. “We have great grid resilience due to the vastness of the spider web,” she said. And, she added, if there is a transmission problem elsewhere in the nation, our region can isolate our portion of the grid.

Many of these lessons came out of the 2003 Northeast blackout, which was caused by a tree taking down a transmission line at the same moment that a natural gas plant's generation hiccuped. “Things tripped offline, literally in seconds, from Ohio down to New York City,” remembered Richards. But grid equipment in New England could tell that something was wrong in the transmission system and automatically broke the connection. “Basically, New England disconnected from New York in a nanosecond,” said Richards, leaving only a few border regions briefly without power.

As a result of the blackout, NERC (the North American Electric Reliability Corporation) became the enforcement arm of the government, stepping in and fining utilities up to a million dollars a day if they fall short of standards of tree trimming, maintenance, and other reliability standards. In addition, more redundancies have been built into the system, Richards explained, so that the grid can withstand multiple occurrences happening at the same time—the probability of which is astronomically small.

The region has invested in infrastructure, such as transmission, confirmed the ISO-NE representative. As a result, the grid meets stringent reliability standards set by NERC, its regulators, and organizations that determine best practices for grid operations.

Layers of an onion

Vermont Electric Power Company, or VELCO, operates transmission lines in Vermont, connecting regional power to local distribution utilities. One of its security strategies is to enforce “concentric rings of protection and firewalls,” said Director of Technology Dan Nelson, around its computers.

That way, any computer connected to the Internet is completely isolated from computers connected to control systems. “There are very, very tight controls on our inner core,” said Technical Lead on Security and Compliance Kris Lewia, adding that any data that control systems require for updates is thoroughly investigated for integrity before it is imported. Nelson and Lewia likened the system to the layers of an onion, with an absolute stop between each layer.

This type of firewalling is intended to protect the grid control computers from infection from Internet sources. Lewia pointed out that the malware that caused hackers to black out a portion of Ukraine's power grid for a

few hours last December initially reached operators through email. A firewall isolation ring approach probably would have helped—Ukraine's protections and practices are vastly different from the United States system. But any computer

connected to the Internet is vulnerable to malware. Antivirus updates and employee education on Internet safety are critical protection for any internet-linked computer system—those internet-connected computers on the outer layer of the onion are “the first line of defense to keep [us] safe, reliable, and secure,” said Lewia.

WEC remains analog

Like most utilities, WEC uses computers and software to monitor its grid. But unlike most utilities, WEC does not use these systems to control its substations remotely. “We don't run any of our substations or devices using computer systems connected to the Internet,” explained WEC's Manager of Information Services Kevin Stevens. This decision to have an analog control system actually makes WEC safer, says Stevens, likening the setup to a home computer that is plugged in but not connected to the Internet.

There are two computer systems at work: the system that monitors the electric distribution grid, and the business side. That includes things like email and electric account management, and these necessarily connect to the Internet. We'll look at securing that system, and preparing for weather events, in the next issue.

“Sure, think of us as your folksy, hometown co-op utility,” Richards said. “But we recognize cybersecurity is an evolving and complex concern, we take it very seriously, and we are committed to preventing threats that could cause long-term outages.”

Next in the series: Assessing the threats and offsetting risk



Member Writes: On Driving an Electric Car

By Frank Perricone

A few months ago we traded in our six-year-old Prius for a 2017 Chevrolet Bolt EV. We got a 240V charger installed in our garage a few days later.

Our experiences have matched those reported in "What's It Really Like to Drive an Electric Vehicle?" (September, 2017) in most ways, though with a 238 mile range, we have very little of the "range anxiety" that Leaf drivers endure.

We've also had less worry about finding chargers since the PlugShare and ChargePoint apps on our phones find them for us. Generally, there are medium-speed chargers available almost anywhere you go; the map is dotted with them. Fast chargers, that can give us 40-60 miles of range in a half hour, are less ubiquitous, but there's still one on any leg of any trip we take, so with a bit of planning



WEC member Frank Perricone with his family's all-electric Chevrolet Bolt.

members should keep in mind is whether they're a one-car or multi-car family. We're a one-car family, so by going electric, we're all-in. If we have to do a long trip (like an upcoming one to the airport in Providence, RI) we have to plan out charging stops to make it work. (Apparently airplane pilots are often early adopters of electric cars because they're already used to the idea of planning their refueling before they take off.) Or rent a car.

we can get anywhere with minimal delays to charge. We've had a couple of experiences where one didn't want to charge—we were always able to resolve them, but it can be a worry. But we expect this concern to diminish greatly over the next year or two. EVgo is improving their service, Chevrolet dealerships are putting in fast chargers, and other providers are coming online.

One key consideration that Co-op

However, most people have two cars in their driveway, and if you have two cars, replacing one with an EV is a no-brainer. Knowing that, for that rare day you need to drive hours and hours, you can always just use the gas-powered car, means you can reap the benefits of an electric car for at least one of your drivers without range anxiety even being a consideration.

Special thanks to Frank Perricone of Orange for sharing his experience owning and driving an electric vehicle. Frank and his wife Siobhan have lived in Vermont for 24 years, and moved here from Southeast Alaska. Both work in software development and support for the State of Vermont.

Co-op Principles

1. Voluntary and Open Membership

Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

2. Democratic Member Control — Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are organized in a democratic manner.

3. Member Economic Participation — Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. They usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.

4. Autonomy and Independence — Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

5. Education, Training and Information — Cooperatives provide education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their cooperatives. They inform the general public — particularly young people and opinion leaders — about the nature and benefits of cooperation.

6. Cooperation among Cooperatives — Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

7. Concern for Community — While focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.

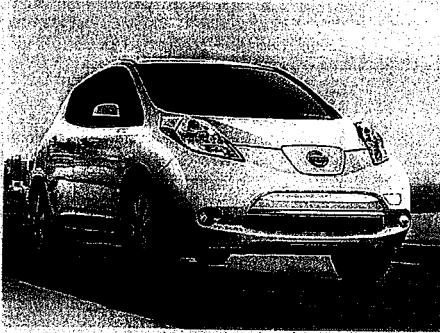


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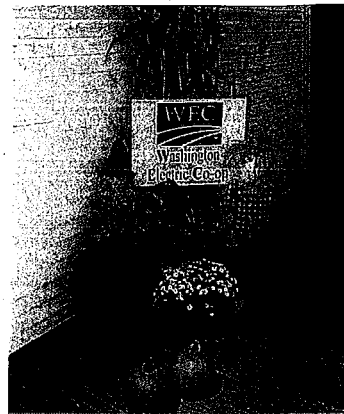


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2017 Nissan Leaf \$10,000 Discount Extended for WEC Members



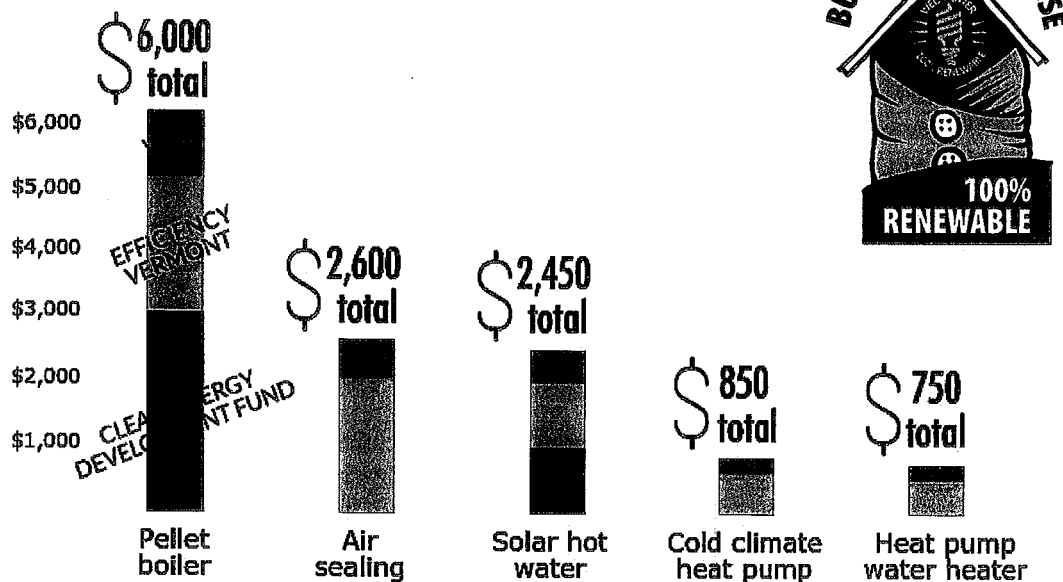
Freedom Nissan still has a handful of 2017 all-electric Nissan Leaf vehicles in stock! WEC members will remain eligible to receive \$10,000 off MSRP on a new 2017 Leaf until December 31, 2017, or while supplies last. Visit Freedom Nissan in South Burlington with your WEC electric bill and supply Fleetall Certification Code B66647.



The 2017 Community Meeting in Worcester fell on Oct. 12, just after deadline for the October issue of Currents, but we snuck in Dawn Johnson's seasonal display greeting WEC members. The Community Meeting featured a full house, lively conversation, and delicious food. Read all about it in the December issue.

What's my incentive to Button Up?

If you're looking to seal up your home, or are in the market for energy-efficient heating systems, WEC's Button Up! home energy efficiency program offers cash incentives to members. In combination with Efficiency Vermont incentives and grants from the Clean Energy Development Fund, you could save a lot of money:



This chart reflects recent changes to incentives.

Before you buy any new energy-efficient appliance, call Bill Powell, WEC's Energy Coach, to learn how you can take full advantage of this program:

802-224-2329

energycoach@wec.coop



Democracy in Your Light Bulb

continued from page 1

parts of the state in the same way electric co-ops talked about it in the 1930s. "We're very proud they use our model. For some of us, that's still in our mindset," he said, to bring resources to those the for-profit industry won't serve.

That's why the cooperative model is so important. "Co-ops are a different way of doing business," said WEC treasurer Don Douglas, whose experience includes WEC, food co-ops, student co-ops, and even a garbage co-op. "They're all over the world, especially in rural areas, where farmers and small businesspeople band together to get a better deal on buying or selling their product. The whole idea of not trying to make a profit, to have all the excess money redistributed through the membership, is pretty radical."

Rural electric cooperatives, like WEC, are just one of many kinds of co-ops. Vermont is nearly "a thousand co-ops strong, which serves a lot of people," said Bernstein. Chances are, you belong to or support at least one other co-op—whether agricultural, like Cabot Creamery Cooperative; food, like Plainfield Co-op, Hunger Mountain Co-op in Montpelier, or Buffalo Mountain Co-op in Hardwick; a credit union, like Granite Hills based out of Barre or Vermont State Employees Credit Union (VSECU), which has historically partnered with WEC; or even the famous ski cooperative Mad River Glen in Fayston.

For many co-ops, though, members identify how the service is useful to them, and opt in. Electric co-ops are different. WEC members are members just by virtue of living in WEC's service territory.

So what are the benefits of belonging to WEC? First of all, said Bernstein, power lines where no investor-owned utility wanted to build.

And a voice: "Our co-op has been willing and able to speak out on issues when they're important both for the benefit of our members and Vermont," he says.

Another big one is capital credits, said Douglas, the process by which excess revenue is redistributed to all members instead of profiting a small group of shareholders.

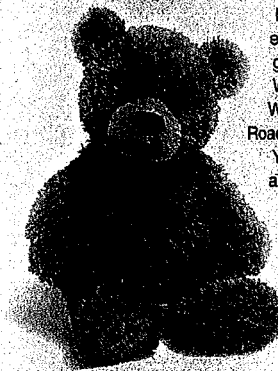
Most important, Douglas said, "It's democratically elected governance. Before I was on the board, I called board members and asked them questions. You can't do that with other utilities. Here, we are mandated to reflect community values." He pointed to three major decisions: the Co-op's historic choice to stop using nuclear power, its commitment in 2000 to develop a 100% renewable energy portfolio, and its ongoing preference to hire local tree crews to control vegetation instead of applying herbicides around power lines. All of these, he said, are choices raised and supported by the membership.

Democratic governance also requires participation. For example, WEC is currently asking members to participate in focus groups (or as the Co-op's General Manager Patty Richards prefers to call them, "listening groups") for their input in redesigning rates. Showing up to participate isn't as easy as just paying a bill, Hamilton acknowledged. "Electric systems can be complicated," she said. But, she said, there's value in "having our governance held by the people who benefit from the resource, rather than shareholders who are invested for a bottom line."

That's why WEC's commitment to the environment and the 41 communities in its service area reflects the values of its members. Membership in an electric co-op, said Hamilton, "gives us the opportunity as a community to define and prioritize our values."

Join WEC Staff in the 2017 Toy Joy and Toys For Tots Campaigns

Washington Electric Co-op is enthusiastically participating in Toy Joy and Toys for Tots again this year. Toy Joy is coordinated by Rose Wheeler-Stilson in memory of Zachary S. Wheeler and Toys for Tots is coordinated by Daniel Duffy from the Marine Corps Reserve. Both campaigns work to make sure children in need receive toys for the holidays.



For the past three years, WEC employees, members, and vendors generously filled boxes located at WEC's office, 40 Church St. and at WEC's Operation Center, 230 Fassett Road, East Montpelier, VT.

You are invited to stop by between now and December 15 and leave unwrapped toys for children from birth to 15 years at these locations. Toy Joy accepts items in new and near-new condition. Toys for Tots accepts only newly purchased items.

Please join your Co-op staff in this fun and charitable effort!

WARMTH Contributions Help Our Neighbors Bear Long Winters

It's starting to get cold, and every year, many Vermonters struggle to pay their home heating bills. WARMTH is Vermont's home heating assistance program, funded by contributions from electric utility customers throughout the state, and operated locally by the Central Vermont Community Action Council.

There are two ways to support this important program. Operation Round-Up is a monthly program that rounds your electric bill up to the next dollar. This is a way to contribute a little bit at a time. Another option is to contribute a lump sum, or to authorize WEC to send an extra dollar or five a month to WARMTH. And, of course, you can do both.

To sign up, look for the Operation Round-Up box on your electric bill and initial it. If you'd like to add more, you can indicate that on the form. And you can always call our Member Service Representatives at 802-223-5245.

Thank you. It takes all of us to keep each other warm and our community strong.



A view of our extended summer from the top of Wrightsville Dam. The dam's hydro plant is one of WEC's owned sources of renewable power. On this quiet afternoon before the leaves turned, bald eagles were observed soaring above the reservoir.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

"This is monumental for us." **Massive, historic windstorm hits Northeast,** **7,930 WEC members lose power**

Damage causes hundreds of breaks in WEC lines, some members go six days without power

Forecasters knew the wind was coming. The weather report on October 29 showed high winds and rain overnight. Those

who stayed up late to watch the long and exciting Game Five of the Astros-Dodgers World Series may have still been up when the wind started blowing. It grew so loud, ripping shingles from roofs, that many of those who had gone to sleep awoke. The wind howled through all of Vermont, and through all of the Northeast. The

National Weather Service reported wind speeds as high as 115 miles per hour on the peak of Mount Mansfield. In the morning of October 30, Vermonters found trees snapped, property damaged, lines down, and for more than 70,000 customers, no power. 7,930 of those were WEC members.

Many storms intense enough to cause power outages are localized. Thunderstorms track a specific path. Microbursts create a lot of damage in a small area. The October 30 windstorm, on the other hand, was

"This was New England's superstorm."
— Roger Hill



A tree snapped by high winds rests precariously on wires above North Fayston Road in Fayston.

so widespread that every utility in the state saw outages. The recovery effort took nearly a full week because utilities didn't have crews to

spare: throughout Vermont, and in neighboring states, line crews worked as fast and as hard as they could, for long hours, to get their own customers back online. The extensive damage "limited who we could call on for extra help," said WEC General Manager Patty Richards. "For most of the restoration, WEC,

and all the other utilities, were on their own."

How the storm happened

Meteorologist and WEC member Roger Hill, who waited five days for his power to return, noted that while weather models are highly accurate at tracking a storm's path, they are less accurate at gauging how strong the storm will be. So while it was no secret a storm with heavy rain and high wind was coming, the intensity came as a surprise.

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Larry Gilbert, First Class Lineworker, works to set a new pole next to one broken by the windstorm. WEC replaced 19 broken poles in all.

For staff, a coordinated response: **"It's all hands on deck"**

The morning of Monday, October 30, the heads of WEC, Green Mountain Power, and Vermont Electric Co-op—Patty Richards, Mary Powell, and Christine Hallquist—met with Governor Phil Scott and state emergency management officials. Together, the utility leaders looked at the entire state outage map. All Vermont counties were red. "That's bad. Red means the highest number of outages," said Richards. "We were all stunned."

At the press conference following

the meeting, Gov. Scott described the storm's severity and asked the public to stay away from downed lines and to check on neighbors. "Safety was our biggest concern, as we knew there were lines down in almost every town across Vermont," said Richards. Richards told the press the storm damage was monumental. "We told everyone this would take days to get people back on line, and in fact, it took a week," she said later.

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Washington Electric Cooperative
East Montpelier, VT 05651

Inside

Joint letter from Barry and Patty: WEC's President and General Manager address you after the storm and restoration. P. 3

The Windstorm Index: At a glance, the who, what, where, when, and how much of the October 30 storm. P. 7

How to be ready for the next big storm: Tips from WEC's Member Service Representatives and dispatchers. P. 9

Community meeting recap: Strong turnout and great conversation October 12 in Worcester. P. 10.



While patrolling the lines, WEC employee Rick Stergas captured this mess of wires on a roadway, pinned under a tree toppled by high winds during the October 30 storm. Read more about WEC's power restoration efforts on p. 4.

Members Write: Storm Edition

This is a small sample of the many notes WEC received from members in the storm's aftermath.

I just wanted to let you know HOW MUCH your customer service and extraordinary maintenance service is appreciated during this difficult outage time.

Every time I called WEC with an outage question—I was received with gracious, patient, informative responses. I know you must have been swamped by callers, so for the people responding to have so much patience and kindness is truly remarkable.

And, as always, WEC maintenance crews have worked WAY above and beyond to restore power to all.

Should WEC want to start a "coffee, hot drinks, and/or food" fund for those amazingly hard working folks out all hours of day and night, I would be glad to contribute.

My power was back on Thursday p.m. and I am very thankful to each and every one who made this happen.

Again, I so very much appreciate all WEC employee efforts during this power outage.

Stefanie Bernstein

There's a great article in the Washington Electric Co-op Currents about right of way crews keeping 1,250 miles of line cleared...BY HAND!! It really puts into perspective when the power goes out what kind of long distance work these guys are putting in.

When we have major events like this week, it can be very frustrating and sometimes scary when the weather is cold. These hardworking crews are working night and day to get our power restored in the worst and most dangerous conditions.

My family and I want to thank all the hard working linemen, tree crews, and members of the power companies both in our region and those who came to our area to help out to get our power back. We take for granted the luxuries of life but these humbling moments remind us how quickly the switch can flip (pun intended). Thanks again to all those who worked long hours away from home and families to get our power back on!

Paul Cerninara (posted on Front Porch Forum)

I wanted to let you know that my husband and I live in the Town of Orange and had been without power since the early hours on Monday. We received a phone call from Dan Weston last night letting us know that WEC was showing that we had power. Dan asked my husband to check the outside power box asking him to "flip the switch." We still didn't have power, however Dan kept us on the phone while he worked with another WEC employee trying to troubleshoot the problem.

I also wanted to let you know that Dan was an absolute pleasure to work with—he definitely is customer focused, and really cared about our situation. This type of customer service, at a time where I'm sure Dan's has been working many, many additional hours, is refreshing and very much appreciated. Dan assured us that we'd regain power either "tonight" or at the latest tomorrow morning (November 1). After we hung up, power was restored in about 10 minutes.

We really appreciate Dan's commitment to helping WEC's members, and wanted to make you aware that Dan's act of kindness and professionalism was truly appreciated.

Kim Persons and Bob Dickson

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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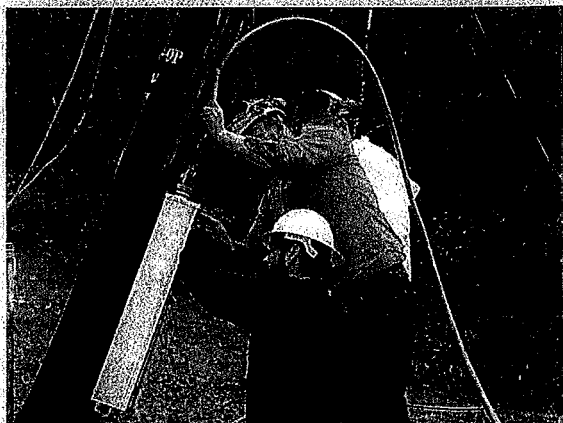
TIM NEWCOMB
Layout

Editorial Committee

Patty Richards Donald Douglas Jean Hamilton Anne Reed Katie Titterton

The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

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Donnie Singleton, WEC Equipment Operator (front), works with Josh Leblanc from Rich's Tree Service (and a third person hidden behind Leblanc) on Zdon Road in Middlesex.

Got something to say?

Letter to the editor, comment, or a story tip?
Drop us a line at currents@wec.coop or
Washington Electric Cooperative, Inc.,
P.O. Box 8, East Montpelier, VT 05651,
Attn: Co-op Currents.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

A Letter from the President and General Manager

To our member-owners:

This Halloween felt more like trick than treat as we responded to the aftermath of severe winds that barreled through Vermont in the early morning hours on October 30. The winds were over 60 mph and brought down trees, branches, and many spans of wire, causing widespread outages across the four counties we serve.

WEC was not alone. The wind event hit all of Vermont and New England and beyond. Nearly a million and a half people lost power. This included some WEC members who were without power for several hours, and some unlucky members who were out for almost a week. At the peak, we lost power to 7,930 homes, businesses, and farms—over 70% of our members.

Losing power for any length of time heightens our awareness of the importance of electricity in our lives, and of its value. We need it for lights, refrigeration, water pumps, TV and computers. It keeps motors running and circulates the heat that keeps us warm. Our goal has long been to keep electricity reliable, clean, and affordable. When an event like this happens, everything else in our lives goes on hold until the power's back on.

In a storm of this magnitude,



WEC would normally find help from additional line crew from neighboring utilities, like municipals, GMP, and our sister co-ops Vermont Electric Co-op and New Hampshire Electric Co-op, but they were also grappling with widespread outages. Some of our outages occurred because of breaks on GMP transmission lines that feed three of our substations. Until GMP was able to restore transmission connections to those substations, it was impossible to determine what other outages were on WEC lines that fed from those substations.

No matter how well we prepare for a storm, when both WEC and all of New England are hit with winds of this velocity over such a wide region, we are left to acknowledge Mother Nature's strength and pick up the pieces once her fury subsides.

We responded accordingly. Every one of our employees was in storm on-call mode, working long days to

support to our line crew and others in the field. These crews worked 17 hour days over the week it took to restore electricity to our members.

Our respect and admiration for our employees cannot be measured, especially in times like this. And we deeply appreciate our members' understanding of what it takes to restore power after storm events of such widespread nature. It was truly all hands on deck at WEC and we all need to persevere until power is back up.

WEC will debrief over the next several weeks to find areas where we

can make improvements and enhance preparation efforts for the next major storm, which, we note, seem to be taking place more frequently.

On behalf of the WEC board and staff, we want to wish our member-owners a safe and healthy holiday season. Hopefully, without any major storms.

Barry Bernstein
President of the Board

Patty Richards
General Manager

Washington Electric Cooperative, Inc. Statement Of Nondiscrimination

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339.

Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by:

- (1) mail: U.S. Department of Agriculture
Office of the Assistant Secretary for
Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410;
- (2) fax: (202) 690-7442; or
- (3) email: program.intake@usda.gov.

WEC is an equal opportunity employer and provider.

Important Annual Notice Regarding Herbicide Use in the Maintenance of Electric Utility Rights-of-Way

The Vermont Public Utility Commission has set forth rules under PUC 3.600 pertaining to the use of herbicides in the maintenance of electric utility rights-of-way. Each spring, herbicide applications may begin on or after April 1st. These rules afford you important rights and duties. Vermont electric utilities maintain electric line rights-of-way with several methods, including the selective use of herbicides on trees and brush. They also encourage low-growing shrubs and trees which will crowd tall-growing species and, thus, minimize the use of herbicides. Methods of herbicide applications may include stump, stem injection, basal, soil, and foliar. Only electric utility rights-of-way that have tall-growing tree species with the potential of threatening the electric utility system are treated.

If you reside on or own property in Vermont within 1000' of an electric utility right-of-way:

1. Sign up to receive written notification from your local electric utility of plans to apply herbicide on any ROW within 1000' of your property or the property where you reside. Check nearby poles for tags identifying the utility and/or pole number, complete the form below and submit it to your local electric utility by mail before February 15th, 2018 to be added to the notification list. If determined to be qualified, you will receive notification from the utility at least 30 days prior to scheduled herbicide application.
2. You are responsible to make your local electric utility aware of the location of any potentially affected water supply, and of any other environmentally sensitive areas where herbicide application ought to be avoided.
3. Watch and listen for public service announcements in newspapers and radio ads noting upcoming herbicide applications.
4. Check with your local electric utility regarding the vegetation management cycle near your particular line.
5. You have the right to request, in writing, that the utility refrain from applying herbicides in the process of clearing the right-of-way, and the utility may offer alternatives such as herbicide stump treatment or herbicide stem injections.
6. You have the right to refuse, in writing, the use of herbicides whatsoever at no cost to you if the type of lines in the right-of-way are distribution lines, bringing electric service directly to individual customers.
7. You have the right to refuse, in writing, the use of herbicides whatsoever by paying a \$30 administration fee if the type of lines in the right-of-way are transmission lines or sub-transmission lines, bringing electricity to or between substations.

For more details, or to ask additional questions, please contact your local electric utility, or one of the following:

Washington Electric Co-op, Inc. 40 Church Street PO Box 8 East Montpelier, VT 05651 1-800-223-5245	Agency of Agriculture Cary Giguere, Plant Industry Section 116 State St., Montpelier, VT 05602 1-800-828-6531	Department of Public Service Consumer Affairs & Public Information 112 State St., Montpelier, VT 05620 1-800-622-4695
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Based on the information above, if you believe you qualify to be notified in advance of pending herbicide applications in the rights-of-way, mail the request below to your local electric company before February 15th, 2018.

Resident/Property Owner Request to be Added to Herbicide Treatment Notification Mailing List			
Name	Town/City of Affected Property		
Street Address	Home Phone Number		
Town	Work Phone Number		
State	Zip Code	O.K. to use work number? (circle one)	Yes No
Electric Utility Account Number		Best time to contact you	
Affected Property: Year-Round Residence Summer Residence Commercial Property Water Supply Organic Farm Land Other (Circle all that apply)			
Line/Pole Identification: Utility Initials		Pole Numbers	
Please fill out this request completely to help us determine if you qualify for herbicide treatment notification. MAIL THIS REQUEST TO YOUR LOCAL ELECTRIC UTILITY AT THE ADDRESS LISTED ABOVE BEFORE FEBRUARY 15 th , 2018			



Donnie Singleton (L) and Larry Gilbert (in bucket) setting a broken pole in Middlesex.



Windstorm

continued from page 1

All the meteorological models Hill consults "showed a track that would take it inland near New Jersey, but keep it very intense, with this deep area of low pressure, tracking up the Hudson Valley and up toward Montreal." That area of low pressure draws winds from the east, and this one absorbed warm moisture from Tropical Storm Philippe over the Atlantic. "Kind of like what happened with Superstorm Sandy," Hill explained. "This was kind of New England's superstorm."

Storms that bring strong easterly winds are not good for Vermont, Hill said. This one brought a high wind called a low-level jet, which ripped a perpendicular path across Vermont's north-south mountain ranges. "That is a bad track for us, with downsloping winds and a low level jet. This low level jet was phenomenal," said Hill.

It's in line with the trend Hill notices as he studies the weather daily. "What

I'm seeing is an increase in more and more power outages, because our storms are stronger. That's partly a function that the world is warming so it holds more moisture," he said, and remnants of hurricanes and tropical storms over the ocean create larger systems of low pressure, which causes stronger winds.

The wind speed threshold for tree damage is 40 miles per hour, he explained, and very few areas in the region saw wind gusts lower than that. Gusts a little higher, he added, break poles.

Line crews saw the effects of these gusts firsthand in fallen trees. First Class Lineman Kevin Lanphear said, "The

direction of the wind is a big factor." Normally, he said, winds come from the west, and trees grow accustomed to stress from that direction. "When it gusts 70 miles per hour from the southeast—things are going to knock over at that speed anyway—but since it's different from what the trees get 99% of the time, they're more vulnerable."

Damage throughout the Northeast and WEC area

Power outages feel personal when it's your line out, and your well pump doesn't work, and the food in your chest freezer is thawing. But outages from the October windstorm were vast—from Virginia to Maine. The *Portland Press Herald* reported that two-thirds of Maine lost power. Central Maine Power Company said it was the largest number of outages in their company history. In neighboring New Hampshire, about 270,000 lost power, according to the *Union Leader*. The outage aggregator site poweroutage.us showed more than 1.4 million outages at peak.

Utilities in all New England's northern states reported damage worse than that from each utility's most historically damaging storm. New Hampshire and Maine utilities claimed this storm was worse than the ice storms of 1998 and 2008. On Vermont Public Radio, Patty Richards told the state, "It's monumental for us. This is big. This is bigger than storm Damon in 2014," the four-day winter storm that set WEC's previous record for damages.

Infrastructure was damaged all over the state. WEC line crews faced 19 broken poles, and "that has got to be close to a record for us," said

Construction Foreman Amos Turner. Broken poles take the longest time to repair, he explained—hauling a new pole onsite, using specialized equipment and crews to set the pole. "It's a whole other process," he said. "It's not just fixing the line, it's fixing the structure that holds the line in the air."

In addition to broken poles, Turner said the storm caused a lot of broken trees that pinned wires down—and pointed out that when lines and poles come down, other equipment, like transformers, often get damaged as well.

On top of that, most of WEC's lines cut through the woods, off the roadway. "The joke with us is, if you can see the line from the road, it's probably not WEC," Turner smiled. That means line and tree crews need to patrol the woods on foot, looking for breaks, instead of driving by in a truck. Then they need to bring in offroad equipment to fix the damage. Kevin Lanphear estimated it was about four times as fast to fix roadway lines versus offroad lines.

Issues and costs

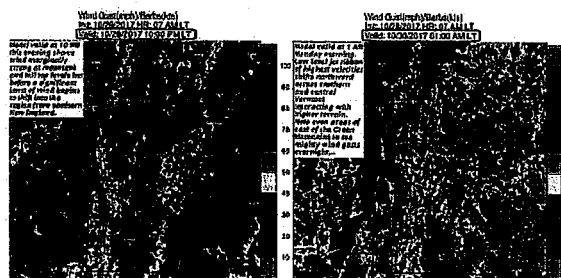
Many WEC members recognized the hard work of line and tree crews and support staff, and sent notes



Patrick Morrissey, Apprentice Lineworker. For members without power, the roar of chainsaws was a hopeful sound.

Roger R. Hill @wxerhighlights -Oct 29

Blast of potentially damaging gradient wind gusts to shift into the state and adjacent areas. Shown 10 PM vs. 1 AM gusts - this is no drill.



Just before the storm hit, local meteorologist Roger Hill tweeted a warning about high winds overnight.



A big spruce pinned this wire on Ducharme Road in Marshfield.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

of appreciation. A few of those are collected on page 2.

Others, especially those who endured nearly a week without power, were understandably frustrated. Especially frustrating, Richards noted, was when members watched WEC trucks drive by their homes—on route to fix a different break. "It can be infuriating. People want to know why they're not stopping, when a line is down right here," she said.

The reason is because fixing a particular break near the end of the line still wouldn't cause the power to come on for that member. There's a necessary order to the way breaks are repaired, and there are two factors that influence the order. The first is rooted in physics. The breaks closest to substations and on the main lines, called feeders, must be addressed before breaks farther out. In this storm, a couple of Green Mountain Power transmission lines that feed WEC substations went down, and WEC was forced to wait for GMP crews to fix those before proceeding to breaks on the lines drawing from those substations. Those wires feed smaller wires, and those feed the smallest wires.

"Think of a string of old fashioned

Christmas tree lights," explained Richards. "If you have a couple of bulbs out, you can fix the one at the end, but it's still not going to light up until you fix the others closer to the power source." But when you're watching the trucks go by—and you don't know about the other dozen breaks in the line between your home and the substation—yep, it's hard to be patient, she said.

The second factor is care. Utilities prioritize hospitals, schools, and other critical sites. WEC keeps a medical necessity list of vulnerable members. As soon as power can be restored to an area, crews try to prioritize these constituents to prevent as much harm or suffering as possible to people who are most at risk. But as the Member Services team cautioned, in a storm this widespread, even being on the medical necessity list is no guarantee your power will come back first, and it's essential to have a backup plan. Read their advice on page 9.

Some have suggested that electric utilities should bury lines to make them less vulnerable to tree damage.

"Think of a string of old fashioned Christmas tree lights. If you have a couple of bulbs out, you can fix the one at the end, but it's still not going to light up until you fix the others closer to the power source."

— Patty Richards

On Vermont Public Radio, GMP CEO and president Mary Powell addressed the problem with burying lines. "The brutal fact is that it would be about \$10 billion," to bury electric lines, she said, clarifying that figure was just for GMP—not for the entire state. She added that underground systems are far harder to restore after flooding, which is a real risk in a state with vivid

memories of Irene and plenty of regions susceptible to ice jams and seasonal flooding. Another way to think about the math, Richards offered, is "If WEC buries lines, everyone's bill doubles." WEC's Director of Operations Dan Weston said the cost of undergrounding is 5 to 10 times more costly than building aboveground lines.

Because WEC is a not-for-profit utility, it is eligible to receive FEMA funds to help pay for damage. That's unlike investor-owned utilities, whose storm costs are ultimately borne by ratepayers. And it's significant, because before FEMA funds come through, WEC is facing about \$400,000 in

damages, said Richards.

At this writing, WEC's finance team is not yet sure exactly how much FEMA funding will come through. FEMA funding is triggered by over a million dollars in damage statewide—this storm caused \$3.7 million in damage, the state estimates—and by the federal administration declaring the event a disaster, which has not yet happened. Then each county qualifies separately. Richards said that three of WEC's four counties already qualified—Washington, Orange, and Orleans—and Caledonia is still to be determined. "We'll recover roughly 75% of our costs from FEMA," she predicted.

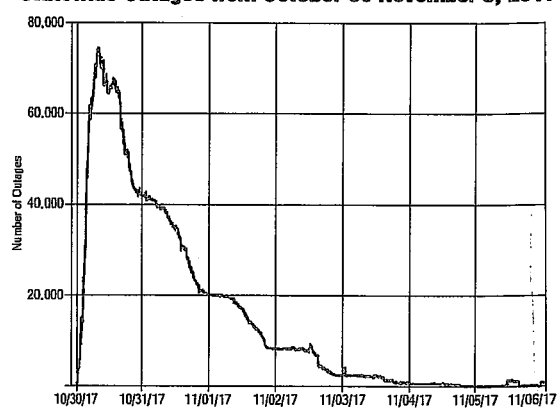
Two things were fortunate about the storm's timing, Richards made sure to note. The first is that crews did not have to work in snow or ice. The second is that all staff were available to work. When the wind came through, First Class Lineworker Kyle Sands was preparing to volunteer with Hurricane Maria recovery in the U.S. Virgin Islands, due to depart November 6th. He had not yet left when the windstorm hit here, and he worked nonstop all week. After one day of rest, he flew to the Caribbean where, at this writing, he is once again helping to restore power to people.



Pole setting is specialized work and an arduous process. Clockwise from upper left: Larry Gilbert; First Class Lineworker Kyle Sands, who left to volunteer with recovery efforts in the Virgin Islands after a week of nonstop storm cleanup at home; Rich's Tree Crew workers (L-R) Ron Rich, Jeff Millington, and Josh Leblanc.



Statewide Outages from October 30-November 5, 2017



This chart from VTOutages.org shows how many Vermont households were without power over the week following the storm.



A Coordinated Response

continued from page 1

Everyone at WEC knew this meant there would be no rest until the damage was fixed. Crews would work nonstop. Member Services and dispatchers would transmit information, and all other staff would drop everything to support their colleagues.

Cooking for a crowd

For WEC Administrative Assistant Dawn Johnson, the challenge of the storm was feeding people. Up to 40 people at a time. For 19 consecutive meals. "I got to know all the people at Shaw's," she said, about her daily trips to the grocery store. "They'd say, 'There's the lady who buys all our rolls!'"

When everyone on staff is working all hours, it takes a team to tend to some of their basic needs. The Old Brick Church, next door to WEC headquarters in East Montpelier, welcomed Johnson and her team to use their kitchen and space to prepare and serve food all week. Johnson described the week's routine: The crews meet at the warehouse to get outage assignments and stock trucks for the day's work at 5:30 a.m., she said. Then, "they come in at 6 a.m. ready for breakfast. They take a bag lunch, work all day, and they come back at 10:00 p.m. for supper. Then they go home and sleep a little bit. Then they come back in and do it all over again. They do this until everybody is back on." For this storm, that took seven days.

Hungry crews included WEC's 12 full time lineworkers, 15 tree cutters hired by WEC to clear right of ways, and 10 field staff. First Class Lineworker Amos Turner added, "Other field crews who aren't linemen come out and help," including Dan Weston, Director of Engineering and Operation; Brent Lilley, Operations and Construction Services Manager; Mike Myers, Right of Way Management Coordinator; and Rick Stergas, Safety and Environmental Compliance Specialist, as well as engineers, mechanics, and other technical operations employees. "Everybody's out trying to help—it's all hands on deck," Turner said.

Later in the week, as Hardwick Electric and GMP were able to peel off six lineworkers to help WEC, mealtime included these crews as well. Finally, engineers, dispatchers, Member Services Representatives, and others in the office were also working long hours without stopping, Johnson said, so they always made extra food to bring back.

Johnson hired Sarah Bishop from the Plainfield Hardware Deli and Albert Sabatini from Goddard College's foodservice to help cook delicious, healthy comfort food, like spaghetti and meatballs and chicken and potato salad. The crews got a hot breakfast daily. On Saturday night, WEC treated the crews to a prime rib dinner catered by Sambel's.

This required lots of logistics. Johnson's team helping cook, buy

food, and prepare lunches included WEC finance staff Cheryl Willette, Teia Greenslit, Linda Nelson, and Sy Daubenspeck, and community volunteers Sheila James and Lisa Couture, whose husband, System Maintenance Technician Dan Couture, was working on the lines.

WEC's board also came to serve hungry crews: Don Douglas and his wife Charo Douglas, Roy Folsom, Roger Fox and his wife Linda Fox, Jean Hamilton, Steve Knowlton, and Annie Reed all took one or more shifts. Former board member Dan Wing, along with his wife Dina DuBois and friend Ginny Barlow, also helped. Board president Barry Bernstein, recovering from back surgery, wasn't able to work a shift in person, but "Barry was here in spirit by phone," Johnson said, and his friends Jeremy Weiss and former board members Michael Duane and Cort Richardson volunteered.

Having board and community members pitch in made a big difference to the guys in the field. Turner explained line crew shifts were 16-17 hours on for 7 days straight. "You know when you're done, you're going to get something to eat and then you're going to get some sleep," he said. So, he continued, at the beginning and end of those shifts at the Old Brick Church, "when we get there, the Board of Directors is serving us. It's kind of cool, to have your bosses serving you."

Richards said every time she was out checking damage and meeting with crews, field staff asked her, "What's for dinner tonight?" As a marathoner and ultra runner herself, Richards understands the need to feed the body. "If you aren't taking in the calories during grueling work, your body shuts down. In our rural service area, you're not guaranteed a convenient place to grab lunch. We simply can't afford to not feed our crews during storm restoration," she said. The staff meals serve two purposes: it's fuel necessary to get the work done, and it shows care

and respect to the people doing the hard, dangerous work. "The guys don't say a lot when they eat, but they truly look forward to the meal and appreciate the effort to keep them fed. Dawn, the finance office, volunteers, everyone on the team did an amazing job keeping tasty, healthy meals coming," said Richards.

Taking your calls

In WEC headquarters, the four members of the Member Services team arrived at 7:30 a.m. and wrapped up at 6 p.m. each day during the week. All four were on the phone nonstop the entire time. "It was a long week. We all had sore ears," said Member Services Supervisor Susan Golden. Answering phones during a storm event is emotionally draining—the representatives can't help but absorb the worries, fears, and frustrations of members who call in. As stress builds for members enduring a week-long outage and desperate for updates, that

sometimes spills over into emotion. And sometimes people don't understand "that even though technology has advanced so much, we're still dealing with poles and lines and trees. We can't just push a button and restore power," she said. But overall, every team member said they keep as positive, cheerful, and helpful as they can possibly be. And most calls, by far, are from members who are understanding, they said.

Occasionally, Member Services passed a call along to Richards. "I know people really want two things when they call: to tell us they are out of power, and to find out when they will be back on," she said. "Even when the answer isn't what you want to hear, people appreciate the facts. If they are going to be out for multiple days, we tell them. There were just so many breaks there was no way we could fix everything overnight."

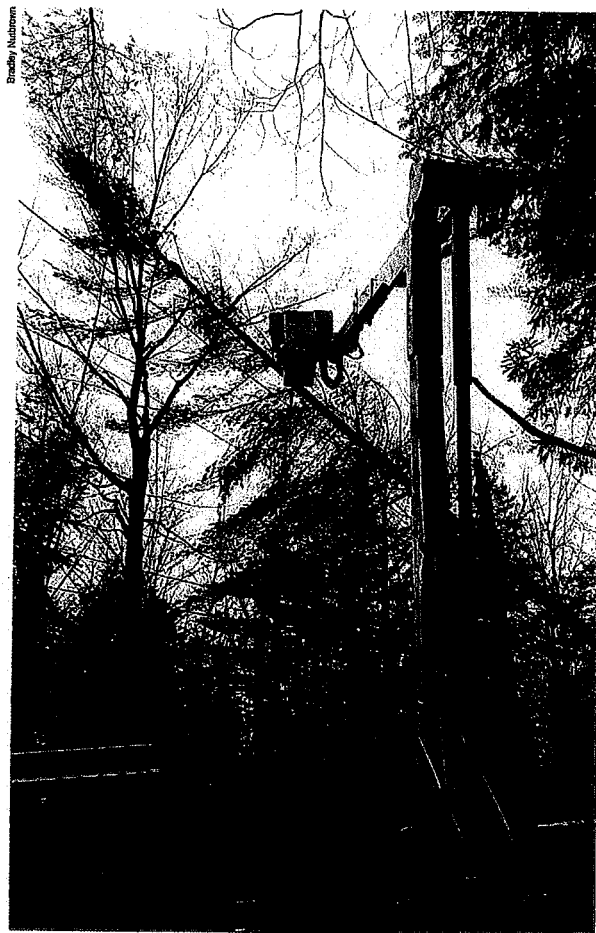
continued on page 12



At right: Note the dangling wires on the left side of the pole. Below: Saturated ground, big pines, and high winds are a bad combination for poles and wires.

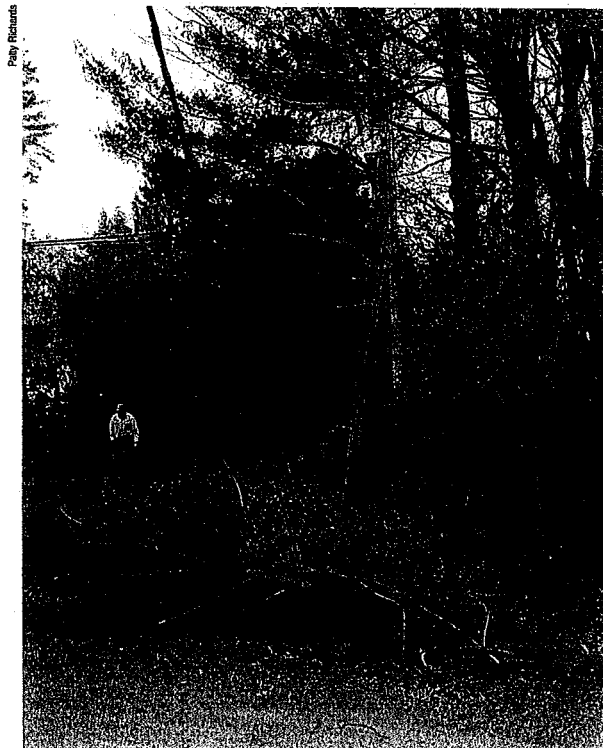


To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.



WEC crews go high to take down this very tall, very dangerous tree over the lines.

Below: Dan Couture, System Maintenance Technician, on Snow Hill Road in East Montpelier. Crews saw scenes like this throughout WEC's service area: wires pinned to the ground by fallen limbs.



Windstorm: An Index

Peak total windstorm outages, by household:

1,400,000+

Peak number of New England outages:

1,273,679

Peak number of Vermont outages:

73,000

Percentage of Vermonters who lost power:

30% (estimate)

Peak number of WEC outages:

7,930

Percentage of WEC membership who lost power:

70%

Number of people affected:

19,054

Number of trees that fell on WEC lines:

420

Number of line breaks that needed repair:

227

Number of poles broken:

19

Total member hours out:

316,465

Average outage in hours:

16.6

Longest outage in days:

6.5

Number of calls taken by WEC's Member Service Representatives:

4,994

Average wait time, in seconds:

47

Number of calls taken by CRC:

WEC's after-hours and overflow answering service:

4,992

Average wait time, in seconds:

41

Number of meals planned by Dawn Johnson and team:

19

Number of meals prepared:

600 (estimate)

Total number of hours line, tree, and field crews worked on WEC lines Oct. 30-Nov. 5:

4,403

Number of hours worked, per crew member:

119

Typical full-time hourly work week:

40

Estimated cost of WEC storm damage:

\$400,000

Estimated percentage of WEC cost covered by FEMA:

75%

Estimated percentage of WEC cost covered by members:

25%

For investor-owned utilities, percentage of storm damage cost covered by ratepayers:

100%

Tim Newcomb



Timeline of the Storm's Aftermath

October 30

At 8:30 a.m., WEC clocked 7,930 of its 10,800 members were without power. 37 of the 41 towns that make up WEC's service area lost power. Over the morning WEC discovered about 50 line breaks—in time, that number would reach 227.

Outages occurred on all kinds of line—from Green Mountain Power transmission lines feeding WEC substations, to breaks at the ends of distribution lines that reach just one or two households. By the afternoon of October 30, GMP repaired a transmission line that fed the Maple Corner and East Montpelier substations, and that alone turned on the lights for hundreds of WEC members.

October 31

On Halloween, 3,900 WEC members were still without power. Crews continued working around the clock—one overnight, five by day. By this point, Hardwick Electric was able to offer help. Crews repaired broken poles and repaired several lines connecting to substations in Tunbridge and Williamstown and Barre (the Jackson Corner sub) as well as phase two feeder lines. Each of these lines reached several hundred WEC members.

Over the course of the day, the Northfield and Fayston feeder lines broke again due to tree damage, but were repaired by nightfall.

November 1

2,400 WEC members were still without power, and crews faced 96 remaining line breaks. Many of these breaks were deep in the woods, with lines still susceptible to falling trees.

By nightfall, 1,100 members were still without power, and the state opened emergency shelters.

November 2

At the end of the day 700 members were still without power. 73 line breaks remained.

By this point, crews completed damage assessments on all breaks in the line. Throughout WEC territory, crews continued to discover gnarly and dangerous conditions: broken poles, wires dangling or on the ground, and wires and equipment pinned under piles of fallen trees and limbs.

November 3

By midday, crews had moved on to repair all the individual breaks on small feeder lines—lines that serve 5 or fewer member households. Meanwhile, trees damaged by the storm continued to knock out small lines, including some that had already been repaired. By the end of the day, 297 members remained without power.

November 4 and 5

By Saturday, 36 members remained without power. By Sunday, November 5, all known outages were repaired, and all WEC members were back online.

If you still have computer power during an outage, check WEC's website for updates: washingtonelectric.coop/current-outage-status

[@PowerOutage_us](http://poweroutage.us) • Oct 30

1.4 Million+ #PowerOutages on the #EastCoast due to a #Severe #Weather system. poweroutage.us



If this was in color, you'd be able to see all of New England and New York in red in this outage map tweeted by poweroutage.us.



Bradley Nutbrown

A transformer dangles from a broken pole. When a pole snaps or wires come down, other equipment usually gets damaged in the process.



At least half a dozen trees or limbs fell on this span of wire in Middlesex.

Patty Richards



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Preparing for the Next Big Storm

During outages, WEC's Member Services Representatives (MSRs) often get calls from people concerned about their elderly parents living alone, from people with disabled or ill family members who require special services, from home-based businesses for whom no power means no income. "It's heartbreaking for us," said Susan Golden, WEC's Member Services Supervisor. "We hear it, but there's nothing we can do to fix it. The thing we need to emphasize is, people need to be prepared."

MSRs take members' calls and feed outage information to Utility Field Technicians. These engineers, along with the IT team, act as dispatchers to line crews, to get power on as quickly and efficiently as possible. Here's what they all want you to know:

1. Have a plan

"If you have elderly folks in your family who can't be without power, you do need a plan," said Golden. MSR Beth Ouellette said, "If you need your heat, you need to think about where you can go."

Even if you or your loved ones are on WEC's medical necessity list, you may still have to wait for your power during an outage with this much damage. Golden explained that when every region of WEC's service area is impacted, and there are people on the medical necessity list throughout the service area, they have no way to prioritize whose medical needs are the most important. Beyond that, crews had hundreds of breaks to fix—not just a couple—and that kept people waiting. For people with medical needs, it's

especially important to have a plan.

Prepare for whatever your family might need: neighbors' and doctors' phone numbers, a spare key, a reliable backup power system. The page "What to do when the power goes out," on WEC's website has a lot of information to get you started: see link below.

"It's heartbreaking for us. The thing we need to emphasize is, people need to be prepared."

— Susan Golden

2. Stock what you need

"If you're a small business, you should have a UPS or a backup generator," said Ouellette. Similarly, she said, people with medical issues should keep reserves of what they may need, like oxygen tanks. More good advice is on WEC's website.

3. Keep in touch

Members' calls are critical. "We need calls to generate the outage [report]," said Brian Wilkin, Utility Field Technician. Member calls generate the search for the break in the line, he said. The computer locates every break using the closest meter location identified by the caller. Fellow Utility Field Technician Steve Hart said that if you know exactly where the break is—where a tree took down a line, for example—give as specific a location as possible for dispatchers to give the line crew.

The Member Services team added that some people on a line see their power come back on—and then it goes out again. Call us, they say. "We encourage people to call back if it goes out, because it may be a situation where we've shut the line down to do further repairs—but it may not be, and we think we've restored it but we haven't," said Golden.

MSR Gordon Matheson wanted to dispel any idea that utilities withhold details from people calling in. "Whatever information we have, we relay," he said. MSR Elaine Gonier added, "People want a timeline, and there's no way we can give them that. Even if we're working in your area, there's no way we can promise you'll be restored at that time."

Why is this? Golden explained, "We just don't know what they're finding, because they're busy fixing it." That's another reason, she said, to call in outages with as much specificity as possible: "The fewer details we have to hunt for, the quicker the problem gets fixed."

4. Stay safe

Power line voltage is deadly. Never

touch or drive over a power line, or attempt to move trees that threaten lines. Gonier took a call from a member who asked if it was possible to personally remove a tree from a line. "I said, 'You will get electrocuted and die,'" she recalled. It's that serious. There were reports of two animals electrocuted after touching a live wire, but fortunately, no humans.

And sometimes, even with plans in place, people still need support during outages. MSRs tell members to call 211 for any needs—from finding a place to charge their phone to locating an overnight shelter.

For more information:

washingtonelectric.coop/
energy-services-safety/what-to-do-if-
the-power-goes-out



A cautionary image courtesy of WEC Director of Products and Services Bill Powell. This molten space rock was created when a downed power line touched driveway gravel. Imagine what that same voltage could do to you. Never go near a downed wire!



Right of Way Management Coordinator Mike Myers surveys the scene. WEC member and Currents designer Tim Newcomb snapped this shot when he stepped outside his Worcester home to see lines down and familiar faces repairing the damage.

Reflecting On the New Reality

At the 2017 Community Meeting in Worcester, conversation about energy use and cost fairness on the cusp of Vermont's renewable future. And that gingerbread!

Before rate design, before net metering, it was the Post Office Café's gingerbread that had the crowd talking at WEC's annual Community Meeting, held this year at the Worcester Town Hall on October 12. "It has a wonderful flavor," raved Richard DeCosta, who lives in town and is also the town hall's janitor.

The Post Office Café provided turkey and cheese sandwiches, soup, salad, and slabs of their famous gingerbread for dinner before the meeting. It's the homemade factor that makes their treats so good. Leslie Sabo, who owns the café with Betsy Gladding, said, "We bake our own bread. We do everything ourselves." She later added that the café uses as much food grown and raised by their neighbors as possible—produce from Good Heart Farmstead, mushrooms from Peaceful Harvest Mushrooms, maple syrup from Rugged Ridge Forest—all Worcester businesses. Post Office Café, which is celebrating five years in business, is well known to locals as the place to get coffee, breakfast, lunch, pastries, and even takeout meals from the cooler.

WEC covers the costs for Community Meeting dinners and makes the event a fundraiser for the host town—proceeds usually support the local school in some way, sending kids on a trip or funding a project. This year, WEC allocated a \$5 donation per plate and Sabo helped WEC connect with Worcester's Doty Memorial School. School cooks Katie O'Rourke and Neha Shukla happily accepted a gift of \$350 to their Local Foods Account. The money helped them buy cider, meat, and produce from local farms to feed



Leslie Sabo (R), co-owner of the Post Office Cafe in Worcester, and Rhianna Weiss provided a delicious dinner for the Community Meeting. These sandwiches were made with turkey from Stonewood Farms in Orwell, cheese from sister co-op Cabot, and fixings from Worcester's Good Heart Farmstead.

Worcester's kids.

After dinner, General Manager Patty Richards gave the full house of Co-op members some other topics to chew on, including asking for volunteers for "listening groups" WEC assembled to tackle rate redesign. She also made a pitch for donations to WEC's Community Fund. All contributions to the fund come from members who earmark their capital credit refunds

or add a few extra dollars per electric bill. All funds are reinvested back into the community, given to "small, local nonprofits that don't have the ability to do major fundraising," Richards said.

At this, member Michele Hill pointed out that the very building that hosted the meeting, the Worcester Town Hall, benefited from a gift from the Community Fund.

Dan Weston, WEC Engineering

and Operations Director, was next to speak. He reported that at the Coventry landfill methane generation plant, the new SRS, or Siloxane Removal System, was working well, scrubbing 99% of all siloxane from captured methane gas.

In the poles and wires arena, this year was a tough one for outages, he told the assembled crowd, though Worcester and surrounding towns enjoyed good reliability. Normally at this time of year, he said, WEC saw about 64,000 "member hours" of outages, a "member hour" being one hour of outage per household affected. This year, by October 12, WEC had already seen 140,000 member hours out. "We've had issues with some big pine trees falling right through our three-phase feeders," he said. But, he said, WEC has continued to improve reliability every year since 2005. He ended with a reminder to always call in downed or danger trees or downed wires—but to never, ever touch them.

At this point the floor opened for questions. A question about a chemical smell on a recently treated pole led Weston to give a quick lesson on the preservative pentachlorophenol, or penta for short. While WEC uses no

"There are a lot of people who would love to be carbon neutral, but don't have the capital to buy a heat pump. Conservation, to me, still is a very important thing."

—Bodo Carey



Member Bodo Carey (L) reflects on the importance of conservation. To Carey's left is member Allen Gilbert, also quoted in this article.



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herbicides in its right of ways, it does use poles treated with penta, which Weston said does not migrate, and degrades when exposed to light. Even so, the presence of penta is why WEC sites poles 200 feet from any potable water source (the state minimum is 50 feet). If poles on your property need to be treated again, he asked, please alert the crew if there is a well nearby. Penta is in widespread use, he explained, because an untreated pole would degrade within a decade, while treated poles last up to 70 years.

Member Allen Gilbert asked what benefits WEC sees from new smart meters installed at members' homes. Weston explained that the meters help determine the locations of outages—helpful especially given WEC's rural territory. Someone needs to call in the outage to "wake up the computer," he said, and then line crews can look at meter reports to tell which line was affected and locate the outage site.

Bill Powell, Director of Products and Services, added the digital meters benefit members too, saying, "You don't need to wait for your bill to see your energy usage." You can even plug a dollar or kilowatt-hour budget into an app, he said, that will alert you when you are close to your limit. Richards also said meters have helped WEC and members diagnose high use issues—identifying time periods and appliances that require more electricity than homeowners may have realized.

There was a brief tangent to discuss the call service WEC uses. "Used to be," said Weston, "if 80 of you called in with an outage, 79 would get a busy signal." Now those calls are diverted to the CRC, or Cooperative Response Center—which is a co-op itself, and works expressly to provide call support to electric co-op customers. It's an enormous improvement and relief knowing that members are able to reach someone with news of an outage, said Richards.

Gilbert followed up to ask about moving data over electric lines, and asked if WEC is considering double purposing utility lines to carry both electricity and high speed Internet. The board has discussed it and may look into it more, Richards said, but WEC would need to hire consultants and currently lacks the technology—fiber optic lines—to pursue it in scale. High speed Internet is "a risky business industry to jump into," she said. Gilbert pointed out that many rural residents lack cellular service and high speed Internet, and in this age, that's kind of like being without electricity. When it comes to high speed Internet, "I don't know how we're going to get it without nonprofit electric services picking up the ball," he mused.



Michele Hill reminds fellow Co-op members that the Worcester Town Hall, site of the 2017 Community Meeting, was a beneficiary of WEC's Community Fund.

From here, the conversation moved to rate redesign as it relates to the state's goal of achieving 90% renewable power in all forms—vehicular and heating power as well as electric power. When a member asked what utilities can reasonably do about this, since electric vehicles are not yet practical for most Vermonters, Richards

"Even if you're net metering, you're still using the grid 99% of the time."

—Patty Richards

like subsidies and rebates, she said.

Member Betsy Hill put it this way: "The idea was, we used to conserve. Now we're encouraged to use?" It did sound like a reversal, Richards agreed, but people need to look at the whole picture. "Look at your total footprint. You're taking your gas bill and moving it over to the already-renewable electric column," she suggested. Hill asked if there was any concern, as households and businesses began using electricity for appliances that had previously been powered by fossil fuels, that the grid wouldn't be able to keep up with increased electric demand. Renewable generation or sources of electricity aren't the problem, assured Richards. "We now have pockets with too much generation and not enough load," she

said.

But switching from gas appliances to electric requires investment, and conservation-minded folks tend to use appliances and cars for as long as they will run. Member Bodo Carey said thoughtfully, "It's tricky. I bought a propane dryer because my electric bill was high. I think you need to be careful and go slow because there are a lot of people who would love to be carbon neutral, but don't have the capital to buy a heat pump. Conservation, to me, still is a very important thing."

Board President Barry Bernstein appreciated this, saying conservation was still very important to him, too. "For those of us who decided to save, we did the right thing," he said. Now, he went on, we need to look once again at all the ways we use and save energy.

Betsy Allen and Plainfield Energy Coordinator Bob Atchison turned the conversation to net metering. Allen used WEC's member incentive to buy a new electric Nissan LEAF, and wondered if there was an incentive to get a Level 2, or 240 volt, charger installed (not yet). She is also considering installing solar to offset her electric bill—which is increasing, especially with an electric car now plugged in—and wondered how going from WEC's power mix to net metering affects members and the utility.

In a single year, the number of new

net metering installations in WEC territory is going to double the amount installed over the previous 15 years, Richards said. Net metering members invest significant dollars at their home to install renewable systems (mostly solar), and receive credits to offset those costs over time from the co-op and its members. But home based solar systems don't operate off the grid. They need the wires and poles and infrastructure, just like any other member. "Even if you're net metering,

you're still using the grid 99% of the time," Richards said, pointing out it's infrequent that a member's energy generation and use match exactly. In hours home generation is short, the member uses the grid to serve their home's remaining needs. In hours home generation is excess, power is moved onto the grid and purchased by others. Based on the state's new rules for net metering and other legislative decisions, she explained, WEC is forced to rethink how it charges for electric service.

Allen asked, "Is that something you'd consider in the base charge? I would want to be fair," highlighting a possible leverage point that could address the two big issues of net metering and rate redesign. Richards agreed fairness was the key issue—fairness for those who invest in solar and fairness for ratepayers who don't or can't, and good faith in WEC's investment in Coventry, Wrightsville, and a clean portfolio on behalf of every member. New England's larger-scale generation plants are also likely to be scaled back when personal solar goes online—the nature of net metering projects means they're prioritized as power sources, while more dispatchable fossil fuel sources of electricity are treated as fallback. Environmentally speaking, this is great when solar use is high enough to turn off a natural gas power plant.

"We want to see net metering out there. We just want it at a price point that's fair for everyone. If you don't want to do solar, we have already purchased 100% renewable power for you," said Richards.

As that thought resonated, the meeting closed, and members went back for one more piece of gingerbread for the road—"This tastes just like my grandmother's," one was overheard to say, which anyone knows is the highest compliment for a baked good. Afterward, board member Steve Knowlton expressed appreciation for the insightful and thorough conversation. "People were really well informed. What do we do with the Co-op that reflects the new reality?" he contemplated.



Post Office Cafe's almost-world-famous gingerbread.

A Coordinated Response

continued from page 6

Connecting the calls to the trucks

Down the hall in headquarters, Utility Field Technicians Steve Hart and Brian Wilkin, Information Database Technician Sandy Gendron, and Manager of Information Services Kevin Stevens worked dispatch. All week, Stevens stayed overnight, dispatching to the overnight line crew in the field. Hart said that usually just one works as a dispatcher—but in a big storm, they divide up the tasks, connecting outage reports to locations as reliably as they can for the crews in the field.

On the morning of October 30, it took a while to get the full picture of the damage. "You have to wait until the dust settles a little bit," explained Wilkin. "There's a lot of stuff coming at you at once, and you're just trying to get people steered the most productive way, but it doesn't always work that way." He said there's a tipping point: dispatchers try to get as many members back on at one time as possible, and then to move crews as efficiently and productively as possible—"you're trying to clean up an area," one at a time, he put it.

"We send to what affects the most number of people, or what's the most

significant outage. And that changes. Sometimes we have to reroute," said Hart. The dispatchers communicated constantly with Member Services and crews in the field to make these decisions. This kind of strategic work continued all week. Meanwhile, Weston and Lilley made sure everyone in the Operations area covered key functions and met critical needs each day. "You need strong technical leaders during a storm event like this," said Richards. "Weston and Lilley are seasoned professionals in operations." Weston made sure the restoration process proceeded as quickly as possible, and Lilley assured crews were fully stocked with supplies and targeted the right locations. Weston also kept an eye on critical functions, emergency conditions, and dangerous situations like live downed wires. Whenever a call came through reporting a live wire on the ground—these were still being discovered Wednesday—crews redirected to secure the dangerous situation. While work progressed, Weston relayed information to the Member Services team to get updated information out to members.

"Everyone did their job, but more intensely, and with extra care and goodwill toward each other. It's no accident everyone came through unscathed and in good spirits."

— General Manager
Patty Richards

The last group the dispatchers communicated with was WEC's overflow and after-hours answering service, the Cooperative Response Center (CRC), a co-op that serves electric co-ops with member care and dispatch support. CRC, which has offices in Minnesota, Tennessee, and Texas, beefed up staff to support its member co-ops

throughout the Northeast and posted WEC updates on its answering service, so WEC members in the queue could still hear updates. This seemed to work: WEC's CRC liaison said, "In the first few days, half the members calling in listened to the recorded message, and then hung up," indicating they got the information they needed, and didn't need to speak with anyone. WEC's Member Services team confirmed this, saying when they picked up members sometimes told them they were just calling for the update in the queue message. That's good feedback—WEC will continue posting recorded updates during storm events.

In the front office (or out in the field)

Over the week, Patty Richards kept the website outage blog up to date for members while taking calls from distressed members, answering emails, working with emergency management and state officials, advocating to open shelters, and keeping in touch with the press. Along with Weston and Lilley, Richards ate with the lineworkers and field crews each night, and checked on all staff each day.

"It's important to keep an eye on everyone, especially as we get into multiple days. Employees get tired, and that's when injuries are most likely," she said. "But take someone



Apprentice Lineworker Nick LeBlanc inspects a downed line on Hampshire Hill Road in Worcester.

like Rick Stergas, who's our Safety and Environmental Compliance Specialist. He was out patrolling the lines, and he also made sure everyone in the field was safe." She went on to say, "Everyone was like that: they did their job, but more intensely, and with extra care and goodwill toward each other. It's no accident everyone came through unscathed and in good spirits."

Clearly proud of her team, Richards added, "Believe me when I say we put everything we had into restoration. Many WEC employees didn't see their families for days, and missed Halloween with their little ones. Some worked all day to get power restored for members, and then went home at night to a house without power. We all put our lives on hold until power is restored to the very last member."

Board Candidate and Bylaws Petition Deadline Announcement

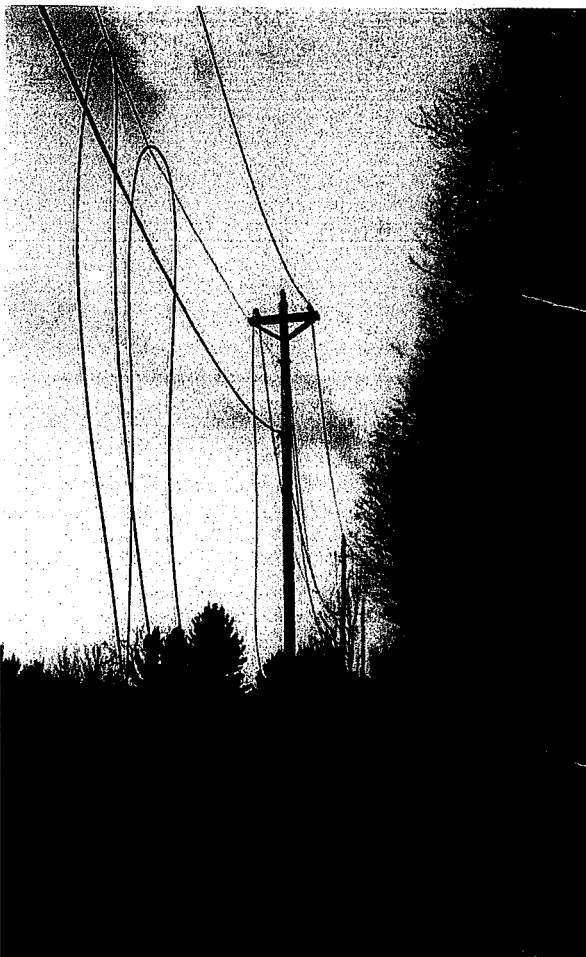
In 2018, Washington Electric Co-op will host its 79th Annual Membership Meeting. The meeting will be held **Wednesday, May 2**, at WEC's Operations Center in East Montpelier.

Considering running for a seat on WEC's board of directors? It's time to start planning. Every year, elections are held for three of WEC's nine board seats. In 2018, incumbents Roger Fox, Stephen Knowlton, and Richard Rubin are all expected to seek reelection. Any member of the Co-op is eligible to run.

Contact WEC Administrative Assistant Dawn Johnson at 802-224-2332 to request a candidate's packet that contains the materials necessary to run for a seat on the board. The deadline to submit all materials, including a petition signed by a minimum of 25 WEC members, is **Friday, February 9**. In March, *Co-op Currents* begins Board election coverage, with candidate introductions, areas of interest and expertise, and policy priorities.

Members of the Co-op have the right to petition for changes to the Co-op's bylaws. The bylaws are available on washingtonelectric.coop, or you may contact WEC for a hard copy. To petition for a change, you are required to collect signatures in support from a minimum of 50 WEC members. Petitions for bylaws changes are due **Wednesday, February 7**.

Look for more information about board elections and bylaws in the January 2018 issue of *Co-op Currents*.



Loops of wire hang dangerously from this distribution line.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm; toll-free for reporting outages & emergencies, 1-800-WEC-5245.

Listening for Consensus

In listening groups, WEC members consider changes to rate design

On Saturday, November 4, two dozen WEC members gathered at the Capitol Plaza in Montpelier to discuss how, or even whether, the Co-op should change how it charges for energy use. Billed as "listening groups"—unlike the more familiar industry term "focus groups," WEC General Manager Patty Richards prefers to emphasize listening to members' values and wishes—members split into teams. Each group had members from different counties, incomes, and energy use levels. Groups looked at the

current rate structure and two proposed options for change, and each was asked to come to consensus on a preferred rate structure.

It's an issue WEC has been considering for some time. Past *Currents* articles examined in depth the context of the current rate design ("WEC Eyes Changes to Its Rate Structure," June, 2017) and the issue was on the table at 2017's Annual Meeting in May and Community Meeting in November. In both cases, Richards and the Co-op's directors promised members an opportunity to participate in the process—leading to November's workshop.

Before the groups got to work, Richards explained that a rate design change is different from a rate increase, even though both must be approved by the Public Utilities

Commission (PUC).

WEC collects the same amount of money from the membership, she said, but individual members may be impacted differently. "If we make a change to the rates, some members may pay less and others may pay more. Changing our rates creates a redistribution from individual members, but the total WEC collects remains

the same," she said.

In the end, only one of the three groups came to consensus—and that was only after making a change to one of the proposed models. Richards observed, "There's no clear answer—this is about members' perceptions." But lacking a clear solution isn't the same as lacking clarity about what WEC members value. What she heard loud and clear, Richards said, was "People really like the two-tier structure. People really embrace energy efficiency. I also heard we should increase the monthly fixed portion

"For someone to tell me I need to use more electricity, there's only one thing that can make me do that: that's if the cost of electricity is cheaper than buying oil."

—Yvan LeBlanc, Williamstown

continued on page 4



Yvan LeBlanc of Williamstown shares his thoughts as his group discusses changes to WEC's rate design.

Public Power to the Rescue

WEC lineworker joins neighboring utilities in St. Thomas hurricane recovery

The Monday after an intense week cleaning up the worst windstorm in WEC history, First Class Lineman Kyle Sands got on a 5:30 a.m. flight to volunteer a month of his time repairing damage from another historic storm.

2017's hurricane season devastated US territories in the Caribbean. After Hurricane Irma hit in September, the US Virgin Islands Water and Power Authority (WAPA) put out a widespread call for help. That call reached WEC through the Northeast Public Power Association (NEPPA). WEC and its fellow public utilities Stowe Electric Department (Stowe), Burlington Electric Department (BED), and others offered to send lineworkers and equipment to help out.

Sands joined the Vermont team that included Stowe and Burlington lineworkers. Each volunteer helping with recovery works a month long shift, or a "wave." Sands was on the second wave, which happened to begin the week after the October windstorm ripped through Vermont. Oddly enough, the wind hit especially hard in Stowe, where the compact municipal utility rarely sees extensive damage, at a time when several of their lineworkers were volunteering in St. Thomas on the first wave. While two of Stowe's finest were volunteering in the Caribbean, the utility was forced to put out a mutual aid request of its own to repair damage from the storm.

It's important to note as well that

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Washington Electric Cooperative

East Montpelier, VT 05651

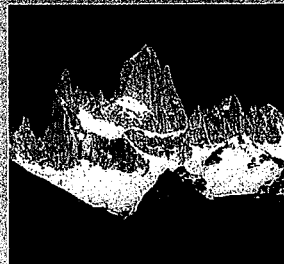
Inside

Reset and refresh: A trip to the end of the earth helped Patty Richards focus on WEC's busy year to come. General Manager's Report, p. 3.

Meter-reading memories: A former member writes in a gem of a letter. P. 7.

Coventry's cooking: Frozen pipes took the plant offline in early 2018 (President's Report, p. 3), but overall, landfill electricity is a gas. P. 6.

Listening group results: How might rate redesign affect your bill? Follow this issue's Page 1 story to the jump for charts. P. 4-5.



General Manager Patty Richards hiked to the base of Fitz Roy Peak in Patagonia. Now back in the office, she plans to tackle WEC's peak.

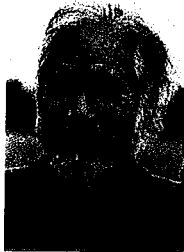
President's Message

Deep Freeze Behind (Hopefully) And Big Issues Ahead

By Barry Bernstein

Cold, Cold, Cold

I hope all of our WEC members and employees had a good holiday season, enjoying a nice snowfall on Christmas day. The end of 2017 and early 2018 brought extreme weather throughout our service territory, with wicked cold temperatures ranging from -15F to -30F in some areas and up to -30 to -45F with the wind chill. WEC experienced a few hundred outages during the first few weeks of January, primarily due to ice loading on our single phase lines followed by intense winds. WEC had



crews working through the nights, with most members out for less than a few hours at a time. A BIG THANKS to our line crews who worked hard in that bitter cold.

Frozen gas lines in Coventry

As we turn the calendar, 2018 started on a challenging note.

We are already looking at expenses and it appears likely we will need to file for a mid-year rate increase. January's cold temperatures have added to our financial pressure. Our Coventry landfill gas generating plant was down for a number of days in the first two weeks of

the year. Frozen lines at the landfill shut off gas supply to the plant. The temperature in Coventry hit -30F, not including the wind chill factor. This was the first time since the plant began operation in June, 2005 that we experienced an outage due to freezing of lines buried several feet deep. Unfortunately, the cost to buy replacement power in the spot market was extremely high due to the severe weather conditions in the Northeast.

Your 100% renewable utility's role in Vermont's transition away from fossil fuels

2018 gives your Co-op, a consumer member-owned electric utility, opportunities to improve on our mission. WEC provides you with reliable and 100% renewable energy, one of only a few electric utilities in the nation to do so. Now more than ever, we're actively supporting our members to reduce your carbon footprint as you work to reduce your reliance on fossil fuel use for heating your homes and driving your cars. That support means financial incentives for weatherization, heat pumps, and more through our Button Up program. It also may well mean redesigning our rates as trends put more of our energy use into the electric column instead of the fossil fuel column.

This is driven in part by a relatively new state mandate for Vermont's electric utilities to encourage fossil fuel reduction. The truth is, the Co-op has led Vermont in clean energy and energy conservation for years. Since the early 1990s WEC has committed to being an environmentally responsible electric utility, working with our members in using electricity and energy efficiently, weatherizing your homes, and keeping our power generation sources renewable and as close to our service territory as possible (Coventry, Wrightsville Hydro, Sheffield Wind, etc), so as to reduce our carbon footprint both home by home and collectively.

Reflection and issues on the table in 2018 and beyond

As I begin 2018, recently released from health restrictions (no bending, twisting, or lifting) placed on me after my back surgery last June, I have begun to refocus my energy as the President of your Board of Directors. That includes reflecting with our Board and management on how we work with our member-owners to meet new challenges and opportunities together. As the landscape in the electric utility

As the landscape in the electric utility industry so rapidly changes, how does WEC continue to lead as it has over the past 78 years?

industry so rapidly changes, how does WEC continue to lead as it has over the past 78 years, speaking out on energy issues that affect our Co-op, and acting as a yardstick by which various stakeholders and policy

makers can both measure and reflect as they attempt to influence and impact the direction of the Co-op and the state?

As we move toward our state's goal to use 90% renewables for all energy, including heating and transportation, and to use energy more efficiently in our buildings and in our communities, we need to remember to do it wisely so as to not waste valuable and limited resources. WEC will continue exploring new ways to supply and deliver energy to our member-owners. We are looking for ways to improve reliability and harden our system so we can withstand ever growing extreme weather events. We welcome net metering and innovative equipment like battery storage. We also want to explore home generators that keep power on during outages. All of these technologies come with promise and opportunity, but we must be vigilant making sure costs are fairly determined and not transferred inappropriately to others. As an example: the state's new net metering program created a wave of installations in 2017 that far exceeded anyone's projections. We hope the state regulators will take a look at the pace and economics of their plan, and we hope they will revisit the incentives WEC and other utilities are required to pay.

Let me be clear: WEC has and will continue to support net metering at our members' homes and businesses. But as we aim for 90% renewable energy in all sectors, we want to reach that goal in a fair, equitable, and sustainable way.

Your WEC Board and management will work on this and many other timely issues over the next few years. Others include evaluating our rate design to meet changing times, limiting the size of rate increases while needing to meet increased regional power costs, exploring newer battery technologies on our system and at our individual homes and businesses, helping educate our members about incorporating new technologies in order to reduce environmental impacts, and more.

Please engage me, our Manager and staff, and our directors as we move forward in discussing our options. And a very happy New Year to each and every one of you.

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

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Manager's Report

Looking Back and Looking Ahead

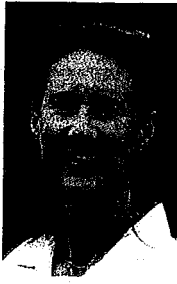
By Patty Richards

As we put away the holiday lights and prepare for a new year, it is a good time to reflect on the past, present, and future. The end of 2017 is a time of special reflection for me as I spent time with my 20-year-old daughter in Argentina after she finished a semester studying in Cordoba. With Kaitlin fluent in Spanish and both of us primed for adventure, we traveled throughout the Patagonia region on the Argentina side of the Andes Mountains. We also made it to the farthest south city on the South America continent (Ushuaia), which is affectionately known as the end of the world.

From majestic blue glaciers, green lakes, and absolutely breathtaking mountain hikes, to walking with penguins and meeting fellow travelers from all around the world, we were reminded every day that our planet and Mother Nature are amazing, and the human spirit is alive and well. This was a reset for both of us, and a reminder to look within—to make sure we are acting to make our lives, communities, and planet better. I'm dedicating 2018 to living life with intention, gratitude, and a grounded sense of meaningful direction. With this trip I bring a new energy and passion to all things at WEC, and I'll share a few pictures with you too in hopes of sharing a bit of our trip.

The year past

We are in the midst of closing fiscal year 2017 and are actively preparing for FY 2018. In 2017 we were challenged



We were reminded every day that our planet and Mother Nature are amazing, and the human spirit is alive and well.

by what seemed like endless storms that resulted in power outages in every town we serve. We know how hard it is to lose power at home, as electricity is woven into so many aspects of our daily lives. When the power goes out it is disruptive, challenging, and even dangerous.

The biggest storm in 2017 was the October 30 wind event that rocked the state of Vermont and the entire northeast, taking out power for millions and leaving trees scattered like toothpicks. In January the windstorm was declared a disaster by the federal government, which means FEMA will help cover the

Co-op's costs for storm restoration. WEC is working to secure these finances.

As they always do, our staff rose to the occasion during the windstorm and all year long. Line crew and field staff put in endless hours to get the lights back on to our members whenever the power went out and in all outdoor conditions: day, night, wind, rain, cold, snow. Our member services team responded to calls and emails with a smile, determined to help every member who called in. Our entire team, including staff in finance, engineering, IT, administration, and management, worked tireless hours to serve the needs of our members each and every day through the year. Day in and day out, the 37 employees at WEC get the job done. They're upbeat and dedicated to all the members we serve. To every employee at WEC, I want to extend a heartfelt thank you!

Here's a recap of some of important

milestones and events that occurred over the past year:

- WEC was honored to receive the **2017 Governor's Award for Outstanding Workplace Safety**. Our 37 employees not only finished the year with no lost time injuries, but we have also passed 800 days without an injury! This is a credit to all of our staff and their commitment to promoting a culture of safety.
- WEC was also honored with the **2017 Award for Excellence in Workplace Wellness**, sponsored by the Vermont Department of Health. Assuring our employees' health and wellness is a complement to our culture of safety, and we continue to champion healthy living habits.
- We implemented the state's new **net metering program**, and members are busy adding solar to their homes. WEC staff are busy reprogramming the billing system, setting up meter connections, and getting credits to those that join the program.
- This was a big year of activity at **Coventry**, as our **SRS system** came on line in January. That's the new gas scrubbing system we installed at the landfill gas plant in Coventry. The device, known as a Siloxane Removal System, helps increase energy production by removing impurities from the gas produced by the landfill. It also allows us to lower the emissions coming from the engines. A year after its installation, it is running well! We are making more power with less impact on the environment. This was a successful project that benefits everyone in Vermont.
- We installed our **fifth EV charging station**. WEC received a grant to install five electric vehicle charging stations in our service area, and the last is up and running at the new East Montpelier park and
- ride. We also have charging stations at Harwood Union High School in Fayston, Rumney Memorial School in Middlesex, the commuter parking lot at I-89 Exit 9, and at Cabot Cooperative Creamery's administrative headquarters in Fayston. The stations were made possible by a \$147,000 grant from the Vermont Low-Income Trust for Energy (VLITE, a public benefit corporation formed in 2012).
- We rolled out incentives to help members reduce fossil fuel use through our new **Button Up Program**. The program is set up to achieve our compliance requirements for the state's Renewable Energy Standard laws. If you are looking to weatherize your home or are in the market for an electric vehicle, we have dollars available to lower the cost. We also have incentives for heat pumps that heat water or provide heat for your home, as well as dollars for pellet boiler systems and solar hot water. In 2018 our requirements from the state mandate increase, so please contact us to learn more!
- We filed a new **Integrated Resource Plan (IRP)**. The IRP is WEC's plan for obtaining and providing energy at the lowest cost to Co-op members while meeting Vermont's renewable energy and greenhouse gas emission goals. A copy can be found on our website. The plan summarizes how we plan to buy and distribute power for the next 20 years. It's a great resource and document to explain how WEC plans to serve our members' power needs into the future.
- In January 2017 we **increased rates by 5.95%**. While no one likes prices to go up, it is sometimes necessary in order to maintain the financial health of the Co-op. This

continued on page 8



GM Patty Richards and daughter Kaitlin explore the imposing and beautiful Mount Fitz Roy in Patagonia.



Richards captured this waddle of penguins enjoying the Antarctic chill.



Listening for Consensus

continued from page 1

of the bill. What we ultimately do will reflect feedback and insights from the listening group sessions."

The current rate structure and three proposed options

WEC's current rate structure uses five numbers to determine each member's monthly bill. These are: number of kilowatt hours used per month, a fixed monthly member fee of \$12.97, an Efficiency Vermont charge, and two energy use blocks that are billed at different rates: the first 200 kWh are billed at \$0.10373, and any kWh used over 200 are billed at \$0.23160.

This two-tier energy block design is intended to encourage energy efficiency by incentivizing low energy use and discouraging high use. But in recent years, other factors have complicated this simple goal. As the state moves toward its goal of using 90% renewable energy by 2050, WEC faces penalties if members don't shift fossil fuel-burning appliances and vehicles to electric alternatives that use its 100% renewable power portfolio. But encouraging members to use more electricity conflicts with the incentive to use less that WEC has built into its rates—and conservation is something many members value. In another twist, the current structure may put businesses—who by and large use more energy than households—at a financial disadvantage in WEC territory.

Another factor is WEC's monthly member fee, which is assessed the same to each member regardless of how much energy they use. This charge, Richards says, is intended to cover a portion of the utility's fixed costs and gives the Co-op stability when energy use fluctuates. But \$12.97 is nominal and doesn't come close to covering the real fixed cost it takes to serve each member. If WEC were to cover its actual fixed costs through the monthly member fee, the fee would be near \$76. Instead, the current design collects a low monthly charge, and the bulk of fixed costs are picked up through the energy portion of the bill.

Several important considerations have cropped up within the last decade. These include the recent legislation that encourages Vermonters to use more electricity in lieu of fossil fuels, a state-mandated net metering program, and WEC's 10-year pattern of flat or declining sales. These changes have spurred debate about the Co-op's monthly fee and the two-tiered structure WEC uses to charge for electric service. "To encourage participation in programs designed to curb fossil fuel use and increase electric use, the rate we charge for the second block of electricity needs to be lowered," said Richards, but pointed out that that change would require increasing the universal monthly member fee to make up the difference.



Group 3 moderator Ted Chase and GM Patty Richards discuss three potential rate design options during his group's breakout session.

Further pressure to adjust the system comes from a rise in net metering participation. "Given the trend of increasing net metering, we are trying to figure out how to charge fairly for service," said Richards. Net metering members still use the WEC

grid, but generate some of their own energy, mostly through solar installations. The low monthly fee doesn't cover the cost to serve net metered members. However, raising the monthly fee may cause a struggle for lower-income members who already face rising rates. On the other hand, a higher steady fee may soften future rate increases.

These factors and others caused WEC's Board of Directors to ask if the current rate structure still makes sense. In addition, Richards reflected, it is simply good practice for a utility to examine its rate structure every few years: it's an opportunity to look at how pricing affects members, by signaling WEC's priorities and incentivizing behaviors.

So, with the help of a consultant, the board looked at the numbers and came up with two potential changes to WEC's rate design. These options are not final candidates—the listening group process is a chance to identify the strengths and weaknesses of each option. The first of the three options presented to listening groups was the status quo: no change to the current rate structure.

The other two options introduce these changes. In short: option 2 would increase the monthly member fee to \$25 and do away with the two energy block structure, instead charging just one rate for energy use. The rate would be significantly lower than what WEC currently charges for kWh over 200, but higher than the current low block rate.

Option 3 would also increase the monthly member fee to \$25. It would maintain two separate energy blocks, but reduce the low block to 100 kWh. Prices assessed per kWh would decrease for both the low block and for kWh over 100. See the chart on page 5

to see the options side by side, with numbers.

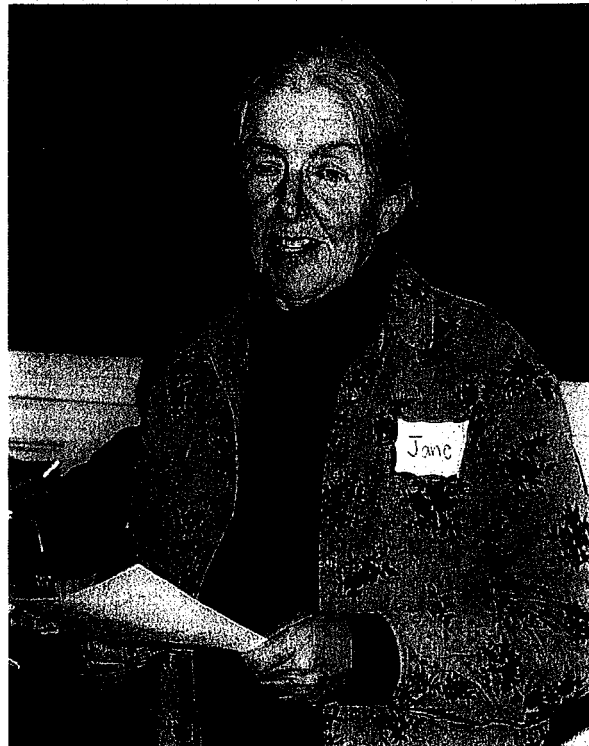
In general, both proposed changes would raise the bills of members who use less than 500 kWh per month, and lower the bills of members who use more. For context, WEC members fall into roughly four quarters based on monthly kWh use: about 25% use less than 300 kWh, 25% use 300-500, 25% use 500-750, and 25% use more than 750 kWh.

The art and science of listening groups

The next step was to introduce these options to WEC members and hear their thoughts. The listening group process was led by Susan Randall, a private investigator from Charlotte. While her job title may seem like an odd

match for an electric co-op studying rate design, Randall is seasoned at exactly this kind of work: she helps attorneys arrange focus groups to find holes in legal arguments. Setting up WEC's listening groups and selecting a jury are similar, she explained, in that a carefully selected, diverse group of peers makes for more meaty and thorough conversation: people naturally provide perspectives that others in the group haven't considered.

That's why, she said, she used three questionnaires to determine WEC's listening groups. The main factors were county, income, and energy use, with use the driving diversification, she said. "We study the research. The first questionnaire was basic info about work, income, household size, how long a member. The second was about



Group 2 moderator Jane English reports back to all listening group participants.



values: do you care about the mission, do you care about your neighbors. The last was a quick sort—where do you fall on options one, two, and three.”

Randall and her team divided WEC members into groups of seven, because, she explained, “research shows groups of seven give people room to talk” and a group of seven can contain enough diversity to bring value to the conversation. She heard group members introduce themselves and exclaim, “Wow, we’re well represented!”

Randall’s team included her husband, Matt Sargent, a senior energy consultant at VEIC, and several assistants who filmed each group’s conversation. Afterward, Randall said, they commented on the civil and constructive quality of members’ conversation. “The people filming said this is inspiring to see: seven strangers from different walks of life could open up a space to really hear each other,” Randall recounted.

How the listening groups responded

Every participant had a chance to see and respond to the options before breaking into groups: some were passionate about their option of choice, some changed their minds, some started and finished undecided. The goal for each group was to come to consensus and present their reasons to the assembly at lunch. Each group was moderated by one WEC member, who then served as each group’s presenter.

Right away, group 1 showed their willingness to listen to each other and compromise. After the group decided they would modify option 3 to increase the low energy block from 100 kWh to 200 kWh, three members who began with different preferences agreed to join consensus. The group wanted to keep the incentive to conserve—“I didn’t like the idea that energy guzzlers were getting a break,” one said—and wanted to create a rate system that is equitable for low energy users and stabilizes the utility’s revenues.

They also voiced catch-22s created by Vermont’s renewable goals. Yvan LeBlanc of Williamstown said, “I’m considered a high user. I’ve gone to LED lights. I burn wood. For someone to tell me I need to use more electricity, there’s only one thing that can make

me do that: that’s if the cost of electricity is cheaper than buying oil.” He suggested the state’s well-intended policies force Co-op members to subsidize the renewable industry at large, in the form of incentives to install net metering funded by the member-owned utility, and rate increases that apply only to members who must buy energy from the Co-op. The unintended consequence of this, he said, results in keeping oil cheaper than electricity for members who don’t or can’t install solar. “The logic is good, but the practice doesn’t make sense,” he said.

In group 2, half wanted to keep option 1, the status quo, and half were interested in option 3. But, they considered, they could probably reach consensus with some slight changes, like a smaller raise to the monthly member fee, instead of nearly doubling it from \$12.97 to \$25. Mack Gardner-Morse of Calais said, “I think the group recognized it would help to up the fixed cost charge. For low energy users, the fixed charge is a big increase in their cost. Our consensus is a smaller increase—\$15-16.”

Group 3 was the most divided, with more of the group leaning to the status quo, and strong holdouts for options 2 and 3. Equity was a sticking point for this group: Ted Chase, the moderator, wondered if there was a way for the Co-op to adjust rates sensitive to income. Ginny Blaine of Orange, advocating for option 3, pointed to the detrimental effects current high rates for high energy users have on business growth. “Everyone I’m meeting around here has a home business,” she said. “I want to support people who want to run a business, because, man—you need jobs here. I’d rather help someone make a go of it.”

Final reports and next steps

After regrouping—and a few minutes to mingle and fill up at the sandwich and salad bar—each team’s moderators made their report.

David Strong of Plainfield, moderator for group 1, said, “We reached consensus on option 3. It’s less extreme and helps stabilize rates by increasing the base rate. It maintains an incentive for low energy users,” which he added they would keep at 200 kWh.

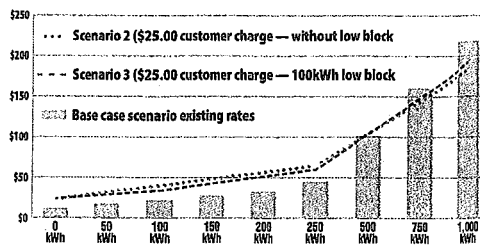
Strong also said as part of group 1’s



Moderated by David Strong (L), group 1 was the only group to reach consensus on one of the rate options. But even that took making a change to the option as presented.

Bills by Scenario

WEC’s current rate structure, or Option 1, is shown here as the bars of the chart. Option 2 is represented as a dotted gray line, and option 3 is represented as a dashed black line. To estimate how your costs may change under each option, check your bill to see how many kWh you use per month. At right around 500 kWh, all the options break even.



WEC Rate Design at a Glance

Option 1 / Current rates

- All members pay a low fixed monthly fee of \$12.97 (covers less than 20% of WEC’s fixed costs)
- Rate per kWh:
Under 200 kWh: \$0.10373 per kWh
Above 200 kWh: \$0.23160 per kWh

Option 2 / Increased monthly fee, single energy rate

- Fixed monthly fee: \$25
- Rate per kWh:
\$0.16140 per kWh

Option 3 / Increased monthly fee, lower two-block energy rate

- Fixed monthly fee: \$25
- Under 100 kWh: \$0.09961 per kWh
Above 100 kWh: \$0.17511 per kWh

Members’ average monthly energy use



- Below 300 kWh (25%)
- 300-500 kWh (25%)
- 500-750 kWh (25%)
- Above 750 kWh (25%)

concern about fairness, they wanted to give “landlords incentive to reduce electric load on tenants.” This rang a chord with Peter McKenney, who said, “When I see my electric bill, I’m frustrated,” because he rents a home that needs efficiency upgrades. McKenney would make the upgrades himself, but he wouldn’t get reimbursed, he said, so he pays the price for an inefficient house through his electric bill.

Jane English of Calais, moderator for group 2, announced that her group was divided between the status quo and option 3. But they did acknowledge, she said, the \$12.97 monthly member charge “is an artifact of an earlier time and it needs to be increased.” Before concluding, she extended her group’s appreciation for the process. “Most people don’t get to talk to their utility the way we’re talking today,” she said. “That’s really awesome. It’s important to have the spirit of the Co-op in this conversation instead of everyone for themselves.”

Ted Chase of West Danville, moderator for group 3, outlined his group’s stalemate, and acknowledged the difficulty of acting when faced with so much complexity. “None of the three options fix the long term issues,” he mused. “We don’t understand how to solve the impact of any of these options, other than status quo on low-income and low-energy users. We’ll leave it to the WEC board to make that decision.”

Afterward, Patty Richards reviewed the three different and illuminating responses and nodded with recognition. “The board is having the exact same debate,” she said. She was grateful to these Co-op members for spending half their Saturday participating, she said, and was pleased with the process and the excellent feedback members produced. The board will absorb the results from the listening groups and use them to help guide the next steps of WEC’s possible rate redesign. Look for updates in future issues of *Currents*.



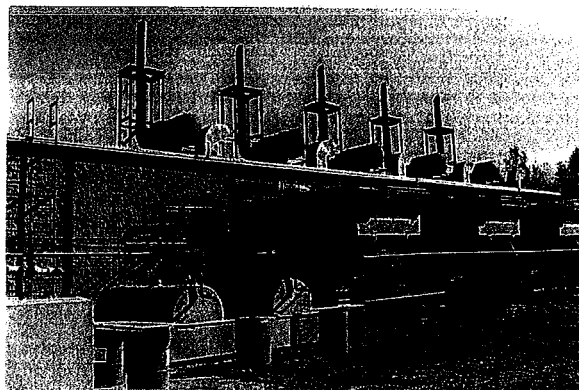
The Gas is Still Cooking in Coventry

On October 17, a glorious, warm day, WEC hosted its annual open house at the methane generation plant at the NEWS-VT landfill in Coventry, the state's only open landfill. The plant supplies about 66% of WEC's power. "It's not typical for a utility to be dependent on one power source," said Roger Fox, WEC's board vice president. He said WEC's membership was courageous in choosing to invest in the plant, which has been online since July, 2005, because the technology was relatively new, and it would provide such a large portion of the Co-op's power. "Our judgment in deciding to build this facility has panned out. It was a good thing to do," he confirmed. Patty Richards, WEC's General Manager, noted that Coventry is one of WEC's least expensive sources of power. "Coventry provides a clean and renewable resource to WEC that also keeps power costs down," she said.

Fox and fellow board members Steve Knowlton and Don Douglas, along with spouses Lindy Biggs and Charo Douglas, were on hand to greet guests and tour the plant. Engineering and Operations Director Dan Weston led informal tours, joined by Member Service Supervisor Susan Golden and Safety and Environmental Compliance Specialist Rick Stergas. Visitors ranged from State Representative Kimberly Jessup of the Washington-5 district to a fleet of youngsters, some in hard hats, who were drawn by the promise of big loud machines. Golden ensured there were cider and doughnuts for all.

While Coventry may generate two-thirds of WEC's power portfolio, its output represents only about 1% of Vermont's total power needs. That's another reason the plant aligns with WEC, whose rural, low-density membership represents only about 1.3% of the state's total energy use, Fox noted.

Hundreds of landfill methane generation plants have opened around the country since WEC contracted with NEWS-VT (a subsidiary of Casella Waste Systems, which owns and manages the landfill)—though,



These five engines burn methane gas to create electricity that's roughly two-thirds of WEC's power portfolio. The engines are so hot that on a cloudless day, visitors to the plant could see heat shadows moving rapidly over the ground.

according to POWER Magazine's 2015 report on landfill gas plants, not as many as the 2015-era EPA would have liked to see.

Here in Vermont, WEC's contract gives it an exclusive on renewable landfill methane supply from the Coventry landfill. Coventry is the only active landfill in the state. An active landfill is best for maintaining or increasing methane gas production, because methane is produced by organic matter decomposing, which happens relatively quickly. And when it enters the atmosphere, it is a powerful greenhouse gas. By tapping into the landfill, WEC is able to harvest an affordable energy source from a gas that would otherwise be a harmful byproduct of Vermont's waste stream.

All landfills produce methane—and methane buildup can cause explosions. Nobody wants to deal with a giant trash explosion. So before landfill generation caught on, landfills collected the gas and disposed of it in flares—simply burned the gas off to eliminate the harmful methane. Many still do.

At the Coventry plant, backup flares are used only when gas production exceeds what the plant can manage.

Under normal production conditions, after collection, gas is scrubbed of impurities and siloxane, a relatively new chemical compound found in thousands of disposable products that rapidly grinds down engines ("Cure for the Siloxane Problem," Sept. 2016). WEC's new Siloxane Removal System, or SRS, came on line in early 2017, also results in cleaner air emissions from the plant. After scrubbing, the gas is burned in the plant's five engines. The engines turn a generator to make electricity, which is then transmitted to the grid. The plant can serve roughly 6,000 Vermont homes.

Those five huge engines need oil for lubrication, and true to the "use it up, wear it out" maxim, WEC makes an effort to recapture that, too. According to Ed Schunk, Transmission and



Erin Patoine of Sutton came to WEC's annual open house with Emmett (7), Milo (5), and Sawyer (2) to enjoy big machines, loud engines, and as Milo shows, cider doughnuts.

Distribution System Technician, WEC carts Coventry's used engine oil back to East Montpelier to heat the warehouse and garage on Fassett Road. They get about 115-150 gallons of oil per engine with each oil change, he said, and the warehouse uses about 2,500 gallons a year to keep warm, depending on how cold the winter is. Reusing fossil fuel—not to mention capturing a naturally occurring greenhouse gas for good use—is conservation-minded and scrappy, in keeping with the culture of the Co-op.



Every landfill has pumps like these to remove methane gas from decomposing matter underground. Most flare the gas; at Coventry, WEC harvests it as a sustainable, renewable source of electricity.



L-R: Member Services Supervisor Susan Golden, Board Treasurer Don Douglas, and his wife Charo Douglas outside the Coventry landfill methane plant on a beautiful fall day.



Public Power to the Rescue

continued from page 1

WEC's storm cleanup and bad weather didn't end after power was returned to all members: after Sands left, WEC's crews continued to hustle. WEC Operations Director Dan Weston said he is proud of Sands for volunteering and pleased he was able to, and also recognizes "Kyle's co-workers were stepping up efforts here at home, wrestling with ongoing weather events that continued after the October 29 – November 5 wind event. Their efforts made it possible for Kyle to lend a helping hand to the Virgin Islands."

What does it take for public utilities to help each other out—especially when help is going to a distant island? *Currents* spoke with both Sands and with Ellen Burt and Trish Waugh of Stowe Electric about the experience.

Setting up the volunteer effort

When the Virgin Islands utility requested help from other US utilities, NEPPA managed the response from our region. WEC, Stowe, and many other community-owned utilities in the region are members of the association, based in Littleton, MA. One of the association's most used and valued services is called mutual aid. Mutual aid is a sort of cooperative insurance program: when utilities commit to helping each other, each can scale up their emergency response in the aftermath of storm damage. General Manager Patty Richards said WEC has been successfully using mutual aid in our region for many years. "This agreement means we get help when we call, if crews are available. It works well and is one of the best ways to temporarily increase lineworkers when we need them to help us get power back on as quickly as we can," she explained, saying it's especially effective when storms hit in localized areas. When WEC is hit by a storm, a call to NEPPA generates help from other Vermont, New England, and New York utility crews. It's why lineworkers from nearby utilities were working on WEC lines after Storm Damon in 2014 and the October windstorm this past year.

During region-wide events like October's storm, NEPPA utilities may first need their crews in their own areas. But once their work at home is

finished, they travel to help out other utilities still working to recharge power.

The Co-op benefits from this arrangement, and reciprocates as often as possible. "WAPA in the Virgin Islands put out a call to the Northeast because they were so shorthanded after the hurricanes devastated the island. Both BED and Stowe responded for Vermont," explained Ellen Burt, General Manager of Stowe Electric Department. As much as WEC wanted to help, the Co-op couldn't respond directly to the request. WAPA asked for trucks as well as workers—but WEC didn't have a truck to spare. The solution was partnership. Stowe arranged to send a bucket truck and other equipment, along with two lineworkers to work the first wave, and one to work the second. "Dan [Weston], whom I've known for years and is super great, called me and asked if I could take any of his linemen," Burt went on. "I had an opening on the second wave, and I said sure, so that was Kyle Sands."

Weston said he was grateful both that Stowe's bid was selected and that the utility welcomed Sands on their team. "If not for them and their willingness to work with us, WEC could not have participated," he noted. NEPPA had more responses than it needed, but Vermont's crews were selected to go. Burt said that's a very good thing—she knew how much her crews and WEC wanted to help people in the Virgin Islands, and felt lucky they were able to contribute.

Before departing, Sands worked a few shifts with Evan Bilodeau, the Stowe lineworker he was paired with for the trip. "They got along famously, and Evan was very happy to have met Kyle," said Burt. Richards pointed out that a side benefit of mutual aid programs is the opportunity to build cooperation by having different crews working together. An experience like working in the Caribbean also is a form of professional development, she added—crews learn new skills working under different challenging circumstances, and bring those skills home to share.

Normally, sending crews and equipment on a mutual aid support effort requires hard work and a lot of logistics. Burt says Stowe often pitches in to help WEC after storms, and she sent crews to help recover from Superstorm Sandy. But this was a whole other animal: crews needed to drive their trucks to Florida, put the

Members Write

Former Member Writes: On Hugging a Pole

By Edith Matthes

Have you ever hugged a pole? I have! My dear husband Bill and I had moved from Quincy, MA to Corinth, VT to enjoy our retirements. Our lovely home was set next to a meadow and our pride was a big, red barn with a loft for our visiting grandchildren to enjoy.

Having been "cityfolk," we knew we were in a "little-bit-of-country" when our homeowner requirement was to monthly do an electric meter reading and send it to the Washington Electric Co-op, Inc. However, the meter was on a pole down the road! With great excitement and anticipation we had located the pole ahead of time, which was standing in a four foot deep gully next to the road, but not too far from our driveway.

All went well as long as the weather was good! Because one morning, when our reading was due, we discovered that a big snowstorm surprised us overnight! Now, my husband had a health problem and was unable to do the task, but like Superwoman, I soon was ready and bundled up for our great mission! My dear husband was to be my backup man. He with snow shovel in hand, I with pen and paper in pocket, we finally reached the spot, no problem, we thought!

Our pole was snowed in, surrounded with fluffy snow, level with the road and seemed like a mile away. How do I get there from here?

A little path was cut through the pile which the snowplow left us, and by now frozen. After I carefully made it to the edge of the road, I took one step and sank to my waist into the gully, not even close to the pole. I thought, as I scrambled back out, I looked like Superwoman-Snowlady. My husband and I looked at each other and burst out laughing. How did we get into this mess? So, now what? The pole seemed unreachable!

But I was not a carpenter's daughter for nothing. My mind was working... maybe a board? I'll get a six foot long board from the barn and after placing it on top of the snow I edged myself closer to the pole like a tightrope walker, inch by inch. We could not believe that I made it!

While hugging my pole tightly with one arm, pulling pen and paper out with the other and taking notes, I noticed that I was slowly sinking down into the white stuff, like a slow elevator! Now, I better put a rush on it, but did not want to let go of my pole.

My backup man was alert though, to reach me one end of the snow shovel to guide me back to safety, and it felt good to have solid ground under me!

We were probably the laugh of the town for days, as people driving by would honk or stop to offer help, to see that new woman hanging on a pole, what a sight! It still makes me laugh out loud when I think of it.

Special thanks to Edith Matthes for sending in her story. She lived in Corinth from 1984-1995, and now lives in Hingham, MA. WEC would like to assure future members considering moving to WEC territory that members are no longer asked to read meters on poles in snowdrifts.

Got something to say?

Letter to the editor, comment, or a story tip? Drop us a line at currents@wec.coop or Washington Electric Cooperative, Inc., P.O. Box 8, East Montpelier, VT 05651, Attn: Co-op Currents.



trucks on barges, and ship them to the St. Thomas. Office staff needed to sort out insurance and paperwork. Because FEMA was involved and WAPA was a utility they'd never worked with before, Burt said, there was a lot of paperwork.

Trish Waugh, Stowe's Business and Customer Care Manager, said, "They left on Columbus Day. We made the final arrangements on Wednesday. We had our staff out shopping for them on Thursday. They were ordering spare parts for the truck Friday. Hotels were booked at the last minute." They planned flights, hotels, and a driving route to Florida with the BED crew so they could spot each other—which was smart, since each utility's truck had a flat on the drive south.

There were supposed to be four waves of volunteers, Waugh

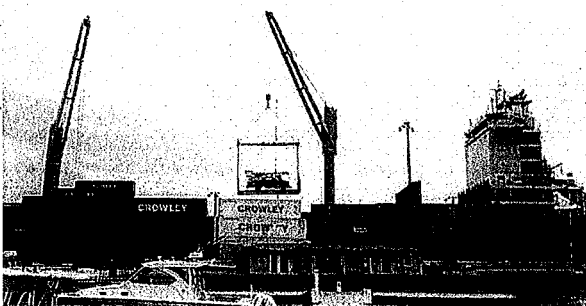
mentioned, with another BED crew on the final wave, but that last one was canceled. Since Stowe's tall bucket truck was so valuable for restoration work, they left it and other gear on the island for the BED team to ship and drive home. But since there is no fourth wave, at the time of the interview, Stowe was still working out how to retrieve their equipment.

Sands' experience in St. Thomas

Sands flew into St. Thomas on a plane full of lineworkers from around the country volunteering on the second wave, he said, and at the airport, all the first wave lineworkers were waiting for their flights home. He and his fellow

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Courtesy: Stowe Electric Department



Stowe's bucket truck arrives on St. Thomas after its long trip from Vermont to Florida to the Caribbean island. As of *Currents'* interview with Stowe, they are still working out how to get their truck back home.



Public Power to the Rescue

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volunteers got on vans and drove to a cruise ship FEMA commandeered as lodging for recovery workers. "Everybody was on it. Red Cross, doctors and nurses, military. Quite a bunch of different people," he recalled. On the drive over, he noticed the state of the island's grid: broken poles and lines down everywhere.

"They lost everything," he explained. "The crews prior to us were starting over from the beginning, rebuilding the main transmission lines and distribution feeders." Sands worked as a high-performing team with Stowe and BED's crews under the supervision of a group leader of about 20 lineworkers from the Northeast, and the island's WAPA utility. It helped that the team also happened to have one of the tallest bucket trucks on the island, Burt said. She added that Scott Edwards, the mutual aid director from NEPPA, "said they're getting wonderful feedback from FEMA about what a great job the Northeast's public power did. I got feedback from a couple of the managers that our crews did us proud. It's wonderful to hear things like that."

Every day, the crews drove their trucks through hilly terrain and terrible traffic to work across the island from the cruise ship where they stayed. Between the narrow passes and drivers zipping along on the left side of the road, trucks needed an escort from the police to get through safely and together. Sands said, "There'd be 30 or 40 line trucks in a row going up over the hill escorted back to the stockyard. It was like going over Smuggler's Notch



with bumper to bumper traffic on both sides and a police escort."

The work was slow for a few reasons, he said—the island is steep and formed entirely of ledge, it was hot and sunny, and there weren't enough materials to go around to rebuild the island's infrastructure nearly from scratch. "We were just going through and stringing the primary neutral wires, getting the main lines put back together, then trying to get transformers and service wires up," he said, piece by piece, trying to get the power on a little bit at a time. Not having enough materials made the work especially hard, because crews had to adapt to stopping and starting different projects based on what was available. "You had to do whatever you could with whatever you could to get it back together. A load of transformers would come in, but you'd have only three for your crew, and you might not have any for the next few days, so you'd work on something else, like running primary

wire," he explained.

Sands got a chance to talk to several St. Thomas residents. "The people were incredible down there. They were extremely appreciative, very thankful, went out of their way for us," he said. Their accounts of the storm were chilling, he said: "One of the guys told me it came through in one direction and defoliated everything he could see from his window. After it passed it turned around and the wind came right back the opposite direction at 200 miles per hour." The man

This destroyed solar field is evidence of the damage hurricanes Irma and Maria wreaked on the Virgin Islands' energy infrastructure.

described it as though a grown man were snapping utility poles between his hands, Sands said. "It was pretty crazy. You could see that in the restoration work: if it didn't break the poles, it ripped the transformers right off the poles."

During the restoration work, he said, people came out of their homes to shake the lineworkers' hands and offer them cold water and sodas. "These are people running generators for the last two and a half months. To me, it meant a lot, for someone who's paying a few hundred dollars a week to keep their fridge cold and they're coming out giving you their stuff out of it," Sands said. He said the recovery would clearly take a long time—years, even—but that he'd love to return to St. Thomas in the future with his family. It's a beautiful, but vulnerable, island: "I can't imagine being out of power for two months. Some people said storms like this hit and they can be out of power for over a year. It's definitely a different place."

Manager's Report

continued from page 3

increase was kept to a bare minimum. Generally, WEC has been able to keep the level of increases very close to the rate of annual inflation: our rates have risen at roughly 2% per year since 1999. Rate increases are thoroughly checked and vetted by staff, the Board, and state regulators to make sure they are as low as possible.

The year ahead

As we look to 2018 we know we must continue to evolve and innovate.

These are just a few big and important issues we will explore this year:

- In 2018 we will focus on ways we can reduce the impact of power outages (fewer of them, and shorter amounts of time when we do have an outage). The resilience of our power grid is critically important, and we must work to harden the system as we see the rate and pace of storms increasing in frequency and severity.
- We must also look for ways to stabilize rates and minimize cost pressures on our members. Transmission costs and expenses from the bulk power system are on the rise, and we are looking for ways to reduce the Co-op's peak during the state's and

region's peak power needs. One way to manage the increased costs driven by peak is to install battery systems. We will investigate this technology in the upcoming year.

- We will also continue looking at redesigning our rate structure. Our current rate design is intended to encourage energy efficiency, but as Vermont policy calls for increased use of the electric grid to lower the amount of fossil fuel that is used statewide, our rates must be structured so the Co-op can deliver on state mandates in a way that is fair and equitable to our membership. Please read more about the rate design process in this issue and in several past issues of *Currents*. We will continue to explore this important issue and share our progress.
- We have begun an important milestone for the Wrightsville Hydro dam relative to its federal hydro license. This is a long and complex process. We have the next five years to assess the plant's impacts on Vermont waterways and to determine the future of the plant's operation. In short, 2018 promises to be another busy year filled with important issues to tackle. Everyone at WEC is committed to our mission and will work hard in all cases to bring the best outcomes we can achieve for our members.



Kyle Sands repairing WEC lines during the October windstorm. He left to volunteer for hurricane recovery a few days after this picture was taken.

Have Your Say: Run for a Seat on the Board of Directors!

Are you looking for a meaningful way to serve your community? Are you interested in Vermont's energy landscape? What do you envision for the future of your Co-op?

There is still time to run for a seat on WEC's Board of Directors. All Co-op members in good standing are eligible to run. Contact WEC Administrative Assistant Dawn Johnson at 802-224-2332 to request a candidate's packet. The deadline to submit all candidacy materials is **Friday, February 9**.

Every year elections are held for three of WEC's nine board seats. In 2018 incumbent directors Roger Fox, Stephen Knowlton, and Richard Rubin are seeking re-election. At this writing, there are no challengers. WEC benefits tremendously from its directors' service, commitment, and vision. The Co-op also knows democracy works best when we all participate. If you've been thinking about getting involved, now is the time to call for your packet and start collecting signatures. We all want to hear what you have to say.



To call the Co-op, dial 223-5245 Mon - Thur 7:30 am - 5 pm and Fri 7:30 am - 4 pm.; toll-free for reporting outages & emergencies, 1-800-WEC-5245.