

WEC CO-OP CURRENTS

WEC Gets A Checkup

System-Wide Examination Points Toward Improvements

Most electricity consumers have one, predominant expectation of their electric utility – that when they flick the switch, the lights will come on (or the washing machine will start, the oven will heat up, the TV will flicker to life or the computer will power up). Aside from having reasonable rates and a minimal number of outages, that's basically what we ask of our electric company. Just keep the power flowing. That's what all those poles and wires are for, isn't it?

Consumers rarely know what such a simple demand actually means for distribution utilities like Washington Electric Co-op. For example, flicking that wall switch and having the lights come on means one thing when the consumer lives in a bedroom community not far from a substation in East Montpelier or Maple Corner. But it means something else entirely when the Co-op member lives way out toward the end of the power-line system.

This relates to the concept of "power quality." The lights may come on in that very rural setting, but if "line loss" has occurred over the several miles since the electricity was issued at full voltage out of the substation those lights could be dimmer. That's because voltage diminishes as currents flows through the wires over significant distances. And it's a serious

consideration when the power isn't being used only for electric lights and freezers, but also for sensitive electronic equipment like televisions and home computers.

To maintain power quality over distances the Co-op invests in capacitors and voltage regulators. Once you know what they look like, you can identify them where they are attached to the power lines and utility poles that march toward your house from the substation that services you. They are there because Co-op members at the far-flung regions, who can hear coyotes howl



Recognize any of these? You can spot them on the power-line system, and they save a whole heap of trouble. From left: a fuse, a capacitor, and an 'OCR.'

fuses and oil-controlled reclosers (OCRs). They keep the electricity flowing, or at least reduce the number of consumers affected by an outage. You drive by dozens of these things each day without noticing them. But they're there – purposely installed at specific locations identified by WEC engineers.

And since WEC is a co-op, you own those (expensive) fuses, OCRs, capacitors and voltage regulators.

"Running an electric distribution system that didn't try to provide good power quality to all of its consumers, wherever they lived, or didn't isolate outages to the smallest possible number of people, would be the simplest thing in the world," said Dan Weston, WEC's director of engineering and operations. "It's much more complex and demanding for us to run a modern utility in a sometimes very rural and spread-out service territory, which fully meets people's expectations in today's world."

"It's fine if people don't understand what goes into it," Weston continued. "It's not their job to understand it. But it's our job to deliver it."

Investment in cost-savings

Like any other complex, integrated "system" – whether it's your cardiovascular system or your car's computerized engine and drive train – WEC's electrical

continued on page 8

at night and whose roads are the last to be cleared by the snowplows, have the same expectation as folks who live closer to town:

flick the switch and the power – adequate power that fully illuminates their kitchen lights and energizes their computers, sound systems and home office equipment – should be at their disposal, too. The Co-op works hard to meet those members' expectations.

As for minimizing outages, there's more than meets the eye in that respect as well.

It's not just a matter of keeping trees away from the power lines so they don't knock down the lines down in a storm. Every day there are small and not-so-small occurrences that could interrupt the power, but consumers don't notice them because WEC and other utilities invest in

Inside

Four statewide candidates address WEC members on energy, electricity issues. Read the comments of those who responded to our questions on page 4.

Food for thought. It might save you money to turn in your old 'fridge for an energy-efficient model. Page 6.

A time to celebrate co-ops! October recognizes all things cooperative. See Manager's Report on page 3 and Co-op Principles, page 8.

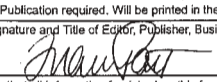


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Board of Directors

President	BARRY BERNSTEIN	1237 Bliss Road, Marshfield, Vt. 05658	456-8843
		bbearvt@aol.com	
Vice President	ROGER FOX	2067 Bayley-Hazen Rd., East Hardwick, Vt. 05836-9873	563-2321
		rfox@vtlink.net	
Treasurer	DONALD DOUGLAS	21 Douglas Rd., East Orange, Vt. 05086	439-5364
		Runasimi2@aol.com	
	WENDELL CILLEY	5 Warsley Road, West Topsham, Vt. 05086	439-6138
		cilley@tops-tele.com	
	CHARLES HAAS	4733 South Road, Bradford, Vt. 05033	439-5397
		budh@sover.net	
	MONIQUE HAYDEN	407 Weir Road; Williamstown, Vt. 05679	433-6170
		mkrvt@aol.com	
	CORNELIA D. SWAYZE	47 Swayze Road, Tunbridge, Vt. 05077	889-5556
		corneliaswayze@innevi.com	
	CARLA R. PAYNE	1554 US Rt. 2; West Danville, Vt. 05873	563-2390
		cpayne@together.net	
	RICHARD RUBIN	3496 East Hill Rd., Plainfield, Vt. 05667	454-8542
		rrubin@sover.net	

AVRAM PATT General Manager Avram@Washingtonco-op.com	WILL LINDNER Editor Willind@aol.com	TIM NEWCOMB Layout
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Editorial Committee

Avram Patt	Donald Douglas	Wendell Cilley	Will Lindner
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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 Management and Programs Administrator Denise Jacques, 802-223-5245.

National Co-op Month is a perfect time to announce the birth of a new electric co-op on Kauai, 300 miles northwest of Honolulu across the Pacific Ocean.



Utility Authority has extended electric lines to 306 homes over the last two

years, which had sat waiting for power just a mile or so from the nearest distribution lines. Even more promising, the Navajo co-op provided solar-electric systems to 44 homes farther away from the poles and wires. In 2000, Congress authorized \$15 million per year for the five-year program, but has only released \$2.8 million thus far. NTUA General Manager Randall Medicine Bear lamented the shortfall of federal funding, but said, "We've got 350 more families with power now. I'm just really happy to be a part of (providing) what a lot of us take for granted."

The founding of Kauai Island Utility Co-op makes Hawaii the 47th state with at least one electric co-op. The tiny, predominantly agricultural community had suffered under the highest electric rates in the nation – about 25 cents per kilowatt-hour. Seeing their costs going nowhere but up, island residents worked for three years to negotiate a financial package that would enable them to buy out the electric company and also provide needed rate relief. They finally purchased Kauai Electric last month for \$215 million. "We wanted to control our own destiny," said Gregg Gardiner, the new co-op's board chair.

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Congratulations to a Vermonter, George Lague, general manager of the Swanton Village Electric Dept. In August, Lague was named President of the Board of the New England Public Power Association (NEPPA), of which WEC is a member. A veteran utility administrator, Lague wears many hats in Swanton, also overseeing the village's water, waste water, police and fire departments.

There are still places where rural electric co-ops perform the original mission of co-ops as envisioned by Congress in the Rural Electrification Act of 1938: providing electric power to people who have never had it. In the Southwest, the Navajo Tribal

Manager's Report

Between Co-op Month And The General Election...

It's A Season For Cherishing, And Employing, Our Democratic Rights

Dear WEC members:

In this year of corporate scandals and greed, and because October is National Cooperative Month, I wish to make the following disclosures about the company you own:

- We don't cook the books here. Concerning our financial statements—what you see is what you get. We have no reason to deceptively inflate "shareholder value" for the benefit of Wall Street analysts, because we have no owners other than our customers. Our annual audit is done by a local firm, and we do not also hire our auditors to do other consulting work that would conflict with their responsibility to conduct a thorough and honest review of our finances.
- We don't endanger our employees' retirement benefits by making them load up their 401(k) accounts with shares of company stock just before the stock value crashes. We couldn't even if we wanted to. (There are no shares of WEC stock.)
- None of the Co-op's management staff have ever been offered stock options (off the books or disclosed), and none of them ever will be. (Same reason—there's no stock to offer.) We get a paycheck and the same benefit package as everyone else.
- Our board of directors is openly elected by our customers. Board members pay close attention to the finances of the company. They can't be accused of violating SEC "insider trading" rules, because they're just Co-op members like all our other customers.
- When it comes to luxury perks for board members, sometimes if they

are going to be meeting through lunch or supertime, we order sandwiches from Dudley's Store, or pizza. (Staff members attending these meetings are also offered slices.)

- We make mistakes. Looking back over Washington Electric Co-op's long history, there are times when mistakes were made, and since we are human, mistakes may be made again. The difference between us and Enron, as just one example, is that we make our decisions honestly, openly, and in the interest of our members. If, as has happened here in the past, the Co-op needs a change of direction, our members have the right and the ability to make those changes.
- If you, as an owner or a customer, have a question about anything Washington Electric Co-op does, just ask. We do our best to keep you informed through this newsletter, our website, our annual meeting and information we sometimes mail with your bill. But if there is anything else you'd like to know, call, write, email or stop by.



Avram Patt

When it comes to luxury perks for board members, sometimes if they are going to be meeting through supertime, we order sandwiches from Dudley's Store, or pizza.

There you have it. While I admit that some of these "disclosures" are a little tongue-in-cheek, they are also all true. They are my way of recognizing that October is National Cooperative Month.

Having Principles Makes a Difference

On page 8 you will find the Cooperative Principles. This is an international statement of values and principles that cooperatives of all kinds use as a guide. When a cooperative utility like Washington Electric, a food co-op, an agricultural co-op or a credit union runs its business according to these principles, it brings real benefits to the people served.

Across our nation, there are about 48,000 cooperatively owned businesses. These co-ops provide marketing and processing for our food growers, healthcare, housing, energy and phone services, insurance, groceries, and almost any other kind of goods and services. More than 120 million Americans, about 40 percent of our population, are co-op members. Many of these co-ops are consumer co-ops like WEC and the several food co-ops and credit unions in our area.

Another type of co-op is organized to serve the needs of businesses, and it is the businesses that are the members. More than 30 percent of all agricultural products produced by farmers are processed and marketed through cooperatives. As another example, did you know that your local ACE hardware store, an independently owned business, is a member of a national cooperative that provides purchasing and other services for its member stores?

Check out your local co-ops

- All WEC members are eligible to join the Vermont State Employees Credit Union. You can find out about the VSECU by checking the "Co-op Store" on our website, or by visiting one of the credit union's offices. If you are looking for basic checking and savings, loans or investment services, at good rates, provided by a business that's working for you, we recommend VSECU, or any of the other fine credit unions in our area.
- If you want high-quality, healthy food and other groceries, and want to support local food growers and processors, join one of the several food co-ops in our area.
- If you heat your home with oil and live in Barre or Montpelier or the immediately surrounding towns, check out the Vermont Consumers Energy Co-op, at www.vcec.org, or toll free at 866-626-HEAT.
- For a great day on the slopes, Mad River Glen, the nation's only coopera-

tively owned ski area, is again offering discounts to WEC members. (See the "Co-op Store" in this issue.)

- Remember that whether you need insurance, dairy products, locally produced crafts, or many other products and services, there are co-ops in our area that do business according to those Cooperative Principles.

My immigrant parents arrived in New York City on Election Day 1940, a fact that my mother never let her children and grandchildren forget.

At Washington Electric Co-op, we take being a cooperative seriously. Especially this year, as corporate executives continue to be indicted for their

misdeeds, the Cooperative Principles are a reminder that doing business can also mean serving people, and caring about the impact we have on others.

VOTING MATTERS!

WEC is democratically governed, and in that spirit as Election Day approaches, we urge all WEC members to vote. As we have in the past, we have asked candidates running for some of our statewide offices to answer some questions we posed about energy issues, as our way of helping members keep informed.

I also have a more personal reason this year to urge you to vote, and it is in memory of my mother, Brucha Patt, who died earlier this year. She and my father were immigrants to this country. They barely escaped the Nazi Holocaust, but left family and much else behind. They arrived in New York City on Election Day 1940, a fact that my mother never let her children and grandchildren forget. She loved this country, and believed that participating in the democratic process is a most sacred and patriotic responsibility. She was also never afraid to speak out about things that she felt were not right.

But more than anything, she understood what a treasure it is to be able to participate freely, and to cast a ballot on Election Day. So on that note and in her honor, I encourage you to consider the issues that are important to you and the candidates who are seeking to serve you, and to vote.



Candidates' Forum

Vermont Political Candidates Address WEC Members On Energy Issues

Although Washington Electric Co-op does not endorse candidates for any political office, we do work hard to keep our members informed about local, state, national and even international developments that affect the energy business, consumers, our communities and the environment.

As WEC members and other readers of *Co-op Currents* know, based on direction and policies set by our elected Board of Directors, the Co-op has over the years been a strong supporter of energy conservation and the development of renewable energy resources. As a utility owned by those we serve, we believe it is our responsibility to provide energy as efficiently and reliably as possible, while also minimizing the impacts of energy use and generation upon our environment and natural resources.

In recent years, Vermont and the nation have debated whether or not to restructure the electric utility industry. Although there are many different components of that industry and various definitions of "restructuring," WEC has taken the position that the form of restructuring commonly called "retail competition" is not in the best interests of residential, small business and other relatively low-usage consumers. We believe that position has proven to be correct, based on experience in states where this form of restructuring has occurred.

Of course, there are differences of opinion. In order to help our members make informed choices on Election Day, *Co-op Currents* asked the major candidates for

governor and for Vermont's single seat in the U.S. House of Representatives to answer a few questions specifically related to the future of the energy business, and the state and federal government's role in that. Of the four gubernatorial candidates invited to participate – Democrat Douglas Racine, Republican James Douglas, Progressive Michael Badamo and independent Cornelius Hogan – all but Douglas chose to respond. House candidates we contacted were the incumbent, independent U.S. Rep. Bernard Sanders, and Republican challenger William Meub. Sanders responded to our questions, while Meub did not.

We appreciate the replies we did receive, and are pleased to publish those candidates' views below.

As a cooperative, we are strong believers in democracy and participation. Energy issues are just one area of concern among many that are being debated this election season, and we urge our members to stay informed, to listen, and to consider what the candidates for all the elected offices have to say about the issues of concern to you, and to vote on Election Day, November 5th.

(On November 5th, all Vermont polling places will be open from 10 a.m. and will close at 7 p.m. Some polling places open earlier than 10 a.m. Voters may also cast ballots prior to November 5th by visiting or contacting their town or city clerk's office)

U.S. House of Representatives Race

Co-op Currents posed these questions to candidates for Vermont's seat in the U.S. House of Representatives.

- 1) This past year, the news has been full of stories about Enron and other energy companies that have been accused of a variety of misdeeds. Specifically regarding the energy industry, what role should the federal government have in protecting consumers from such abuses?
- 2) Although there continues to be a great deal of debate and discussion about "restructuring" of the electric utility industry, there are differing opinions and definitions about what restructuring means, at both the wholesale and retail levels. What is your view of if, and how, restructuring should occur?
- 3) Although most people support the development of renewable energy resources, progress is slow. What are the chief obstacles to developing and siting affordable renewable energy? What should the federal government be doing in this regard?
- 4) How can WEC members find out more about your positions on energy and other issues?

The following answers were provided by **Rep. Bernard Sanders**

1) The federal government must play an extremely active role in preventing the types of abuses that Enron and other companies perpetrated. Those companies swindled investors, caused many of their employees and others to lose their retirement benefits, and drove up electric rates in California with disastrous and costly results.



It is well known that Enron played a pivotal role in bringing about the deregulation of electricity in California that, in turn, provoked the electric crisis in that state. By exerting political influence over the Federal Energy Regulatory Commission, Enron was able to effectively remove government oversight of its own trading and marketing practices. Rather than putting priority on producing electricity through its power plants, Enron was allowed to speculate on electricity contracts. By manipulating both prices and supply of electricity, Enron gouged consumers in California and reaped billions of dollars in revenues and profits.

Despite the California fiasco, the Bush Administration has gone ahead with the wholesale deregulation of energy utility markets and promoting our continued reliance on fossil fuels and nuclear energy, a policy that I am strongly

against.

2) In too many cases electric "restructuring" really means electric deregulation. As we saw in California, removing government oversight from the electric industry can lead to consumers being severely gouged. In addition, the unreliable power supplies that resulted were disastrous for businesses.

Media headlines have shed light on the egregious practices of energy companies that resulted from so-called restructuring in California. Energy traders such as Enron, Dynegy, CMS Energy and others inflated the cost of electricity being sold to California consumers through a variety of schemes that resulted in sky-high prices and the bankruptcy of two utilities in the state. The Federal Energy Regulatory Commission (FERC) has already fined some companies millions of dollars for purposely shutting down power plants during times of peak demand, creating artificial shortages in electricity, rolling black outs and artificially inflated prices. While it is clear that these manipulation strategies were widespread, FERC's investigation has only begun to reveal the extent of the abuses that occurred in California.

I am strongly opposed to the repeal of federal legislation designed to protect consumers, like the Public Utility Holding Company Act of 1935 (PUHCA). This crucial legislation, when properly enforced, protects consumers and investors from harmful utility monopolies. Had the SEC enforced PUHCA, Enron and other energy marketers could not

have manipulated power markets and gouged consumers in the West. This important legislation must be upheld and enforced, not repealed.

3) Our continued dependency on imported oil is dangerous not only to our economy but also to our national security. We must attack this problem by increasing funding for research into renewable sources of energy such as wind, solar and biomass. The big oil companies and their boosters in the White House want us to believe that these alternatives won't be able to supply large amounts of energy until well into the future. That's only true if we fail to make the necessary investments today.

My office has been at the forefront of the fight to develop a sane energy policy. As part of that effort, I secured a \$1 million federal grant for the Washington Electric Co-op to help create central Vermont's first large-scale wind energy project. This is part of a plan that I am working on to allow 20 percent of Vermont's electricity to be produced from wind in the next decade.

And to move the nation as a whole in that direction, I introduced the Comprehensive Energy Efficiency Act for the 21st Century (H.R. 3274). This legislation requires 20 percent of the nation's electricity to come from renewable sources of energy by 2020. Renewable, non-polluting wind power has been the world's fastest growing energy source, averaging 24 percent annual growth during the 1990s and 26 percent last year.

Candidates' Forum

Unfortunately, wind energy today contributes less than 1 percent of the national supply of electricity in the United States. We can and must do better. Renewables and energy efficiency are the keys to a secure energy future, not oil drilling in the Arctic or the Gulf of Mexico.

4) Please contact my campaign office at (802) 862-1505 or visit my campaign website at www.bernie.org.

Vermont Governor's Race

Co-op Currents posed these questions to candidates for Vermont Governor:

- 1) Although Vermont considered and debated utility restructuring and retail competition for several years, we have not moved in that direction and there have been no recent proposals to do so. There are differing opinions and definitions of what restructuring means, at both the wholesale and retail level. What is your view of it, and how, restructuring should occur?
- 2) In 2001, the Vermont Legislature considered, but did not pass, a bill that would have promoted the development of renewable energy. What are the chief obstacles to developing affordable renewable energy in Vermont? How should we address the fact that renewable resources, such as wind, will likely have some aesthetic impacts on our landscapes? What should state government be doing to promote local renewable energy sources?
- 3) How can WEC members find out more about your positions on energy and other issues?

The following answers were provided by Progressive Party candidate Michael Badamo.

1) The three main components of electrical power systems – generation, transmission, and distribution – have not changed with all this momentum toward so-called restructuring. An operating utility, or a consumer for that matter, might always have been able to shop a more or less limited market for a supply of electrons. Modern restructuring adds a more integrated, computerized grid and large brokerage entities (Enron).

Transmission and distribution remain more than half of one's electric bill, natu-



ral monopolies, and, in my view ought to be publicly owned or very tightly regulated. Deregulation is not an option. Some consumer choice in the source of electrons ought to be considered so long as the rules are clear and simple and the playing field is level.

2) The renewable energy bill that failed in the House did so because near the end of the session representatives of IBM came in and said it might increase their electric bills. This caused a near panic among legislators and represents a good example of the kind of obstacle renewable energy faces. This charge was false of course, but in other cases renewable energy is more expensive. This will change as the price of non-renewables goes up.

In my view, wind turbines will have a positive aesthetic impact on our landscapes, assuming they are designed and sited appropriately.

My own proposal is for Vermont state government to plan and facilitate the implementation of statewide wind-energy projects equal in generation capacity to Vermont Yankee nuclear (approximately 500 MW) by the 2012 Yankee license-expiration date.

3) I have been a renewable energy activist for 25 years. Please see my campaign web site: www.badamo2002.org. Or give me a call: 229-0185

The following answers were provided by independent candidate Cornelius Hogan.

1) So what are the measures that Vermont needs to take to assure that future energy supplies will be ample, the price more competitive, and the sources environmentally sound?

Two Vermont utilities represent 73 percent of overall utility usage, and five utilities (including those two) represent 85 percent. The remaining 15 percent is divided among 17 other utilities. One of the things we need to do is examine the general efficiency for the long haul of such a fragmented industry for a population base of only 608,000 people.

Many of these small utilities have provided innovative leadership in establishing new approaches to supply and conservation. The Vermont Public Power Supply Authority and the Burlington Electric Department have been particularly progressive in addressing energy problems with imagination. Nonetheless, given the very large number of utilities serving us, we owe it to ourselves to do a



careful review to look for possible inefficiencies and opportunities for cost savings through consolidation.

We also need to continue to carefully pursue the development of renewable sources of energy such as wind power along the lines of the recent CVPS proposal. However, that development, even in the short run, should not result in increased costs to consumers and business. Moderating energy costs over time will be an important part of a larger economic vibrancy strategy.

Along this line, we also need to promote ways that individuals can contribute energy to the network. Tax credits for conservation and/or small consumer energy production could be important initiatives.

2) Overall, a general policy of continuing to seek mixtures of clean energy should be pursued, using existing technology and careful development of new technology along with incentives for small producers. However, the watchword as we move forward is to take great care as it relates to the price tag. The economic future of Vermont is partially dependent upon controlling costs of large expenditure items to business such as energy. (IBM for example, spends \$38 million per year on energy from Green Mountain Power, which represents 24 percent of GMP's total energy sales.)

We also need to begin the planning to determine the right mixture and sources of energy both to potentially replace hydro power in 2016 and the potential replacement of power from Vermont Yankee in 2012, if that plant's license isn't renewed. Currently, Vermont Yankee produces about 65 percent of all the electricity produced in Vermont, and Vermonters receive about 32 percent of their electricity from Vermont Yankee. Given the favorable price to Vermont of Yankee power, homework today as a contingency for future power purchases from the New England grid is important.

In two words: balance and care will be the watchwords for developing our future energy policy.

3) To find out more about the Hogan for Governor campaign and Con Hogan's position on energy and other issues, please visit the website at <http://www.conhogan.com/> or call our campaign office at 802-262-8683.

The following answers were provided by Democratic candidate Lt. Gov. Douglas Racine.

1) Retail competition in the electric industry was proposed in Vermont in 1997 but never passed. As governor I will not propose re-introduction of retail competition in Vermont's electricity markets

unless some evidence is provided that it has worked elsewhere and will benefit Vermonters. Retail competition has so far proven to have major problems in many states such as

California. Retail choice has been a failure particularly for residential customers.

Some of the benefits proposed as part of retail competition efforts – new ways to support renewable energy and energy-efficiency programs – are already being implemented in Vermont. The energy efficiency utility, Efficiency Vermont, is already working in partnership with WEC to support and build on its long history of delivering energy-efficiency services.

I strongly support further exploration of another idea on which WEC has provided leadership, the notion of creating a "consumer co-op" that could deliver all forms of energy to members while providing a method for financing efficiency and renewable energy investment. Unlike the false promise of "retail choice," this strategy might actually provide a partnership between customers and the co-op that would meet customers' needs: stable supplies and lower energy bills.

An ongoing concern that deserves strong state leadership and attention is the evolution of new and very complex national and regional wholesale power markets. Vermont's primary interest here is to protect customers from decisions by very powerful interests that could disadvantage Vermont because of its small size or limit our ability to develop efficiency and renewable energy efforts -- in effect, penalizing us for being small and innovative in meeting our needs and solving our energy problems.

2) I was a strong supporter of S. 262, which passed the Senate. The Republican House killed this bill. I will re-introduce that bill and make sure it passes. It cleared the way for voluntary renewable energy pricing, a renewable energy portfolio standard, and an incentive program for small-scale solar and wind. I will also support tax incentives, financing assistance, and coordination among agencies of state government to promote renewable energy systems.

It is the unpredictability of fossil fuel prices that leaves us particularly vulnerable as a nation and state. Energy efficiency and most renewable energy forms have few if any costs once installed. In addition to enormous environmental benefits, this can provide real improvements in reliability, stability, and local economic activity. The primary obstacle to adoption is that those benefits are not usually rec-



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Candidates Forum

continued from page 5

ognized in current markets or in most energy planning.

The State, utilities, private developers, and our institutions of higher learning need to help develop the hundreds of new businesses and the thousands of new jobs that can help us solve our energy needs in a way that is environmentally friendly, affordable, and good for the Vermont economy. We need, for instance, to work in broad partnerships to develop siting standards for wind turbines. WEC, with its grant from Congressman Sanders, can help lead in that effort. We need to continue our work on farm methane and clean wood chip combustion systems. These efforts will be given high priority in my administration, as will the work that WEC is doing with Northern Power Systems to develop an innovative distributed generation project.

3) Please visit my website at www.dougracine.com, and the Lt Governor's Home Page at www.leg.state.vt.us/ltgov/ or call my campaign at 802-846-2294

Runnin' with the big dogs

Because of its rural, sparsely populated territory, WEC serves most of its membership on single-phase power lines. It's easy to differentiate single-phase from three-phase line; with single-phase, there is just one conductor (wire) running from pole to pole (with a neutral wire attached below). But in some places, things are changing. One of the summer's major construction projects has been to upgrade a section in **Fayston** to three-phase line, largely in response to development at the Mad River Industrial Park.

"The park has been growing considerably," said WEC Engineering and Operations Director Dan Weston. "They've added three new industrial buildings, and two more are preparing to go in. Plus, Northern Power Systems recently broke ground on an additional building."

Three-phase lines provide appropriate power for industrial and commercial areas, as well as more densely populated residential neighborhoods. Most of the existing power poles can remain in place, with the Co-op adding crossarms at the top to carry the two additional conductors. The three phases must be balanced so that they all carry a similar electrical load.

Temporary shutdowns ahead

Sometime in November folks served by WEC's **Tunbridge** substation can expect two planned power outages, each lasting perhaps five hours, to enable crews to replace insulators – those devices that hold the wires away from the poles – along a section of transmission line that runs down a steep mountainside.

Members may recall a 15-hour outage two years ago, which was caused when a fallen tree broke the line near the top of the

LINEMEN'S



CORNER

mountain, putting a strain on the insulators, which then broke one after the other in a domino effect. The Co-op replaced the broken insulators with porcelain ones, but now will change to a polymer device more able to take the strain.

"The Tunbridge substation feeds 1,170 members," said Weston, "but prior to the planned outages we're going to try to reroute the system to feed the majority of those members from our Jackson Corners substation. If we can do that, it will limit the number of affected members to 400 or so."

WEC will notify people by postcard and automated phone call in advance of the planned outages.

An ounce of prevention

A three-hour outage took place on Saturday, October 13, when WEC and Green Mountain Power

coordinated repair efforts at the **East Montpelier** and **Maple Corner** substations. It also affected members in **Adamant, Calais, East Calais, Orange** and **Barre Town**. GMP, which owns the transmission lines that carry power to those subs, installed four new poles and replaced wires and equipment. With the substations idle, WEC's crews took the opportunity to perform maintenance tasks of their own.

But even a planned outage is an outage.

"There's never an opportune time," Weston admitted. "We scheduled it for a Saturday morning so it wouldn't interfere with the schools, but we know it inconveniences the members."

However, the project enabled GMP to redesign its transmission system to serve our substations from two different directions, providing back-up power if one of the transmission lines becomes disabled. The three-hour planned outage in October may have averted an unplanned five-hour outage next winter.

WEC CO-OP STORE

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What's To Gain? Deciding When To Upgrade Home Appliances

By Bill Powell
Director of Products and Services

Members of Washington Electric Cooperative often call the Co-op with questions about how much electricity their major appliances are using. Frequently the question they are really grappling with is whether they would be financially better off keeping the appliances they have — even if those appliances are outdated and consume too much electricity — or whether in the long run they would save money by purchasing new energy-efficient units.

We get more inquiries about refrigerators than other appliances, and we have therefore profiled refrigerators and their energy usage occasionally in *Co-op Currents* over the past decade. Meanwhile, the federal energy standards for refrigerators have changed several times, most recently in 2001 when both the federally required minimum standards and the ENERGY STAR performance levels of refrigerators were increased

The Co-op loans out test meters that measure power usage for all 120-volt appliances

(more about ENERGY STAR below).

Currently the “best-of-class” refrigerators — new, modern units built with conservation in mind — use about 1.2 kilowatt-hours (kWh) of electricity per day, which translates to 440 kWh per year. (For context, it might help readers to know that the average total electricity usage of WEC’s year-round residential members is about 19 kWh per day.) The range of electric usage for the existing inventory of refrigerators found in WEC members’ homes is undoubtedly considerably higher, and so is their impact on the monthly electric bill.

Where would your refrigerator fall on that scale?

To help our members make the economic decision of whether to stick with their current unit or trade for a more efficient one, the Co-op loans out test meters that measure power usage for all 120-volt appliances, such as refrigerators, freezers and dehumidifiers. We loan the test meters free of charge.

Test meters are easy to use. Basically, you attach them between the appliance and the electrical outlet (wall socket), just as you would a power strip or surge

protector.

Knowing how much electricity your present appliance uses can help you compare your unit to the newer models found in the showroom. Manufacturers must report the expected energy usage on a tag attached to the unit. Read it and compare it with what you’ve learned about the one you’ve got a home.

Be warned, however, that it may not be a simple comparison because electricity usage varies depending on a refrigerator’s features (such as water spigots and ice makers on the doors) and design (top freezer/bottom freezer, and the biggest offenders in terms of energy conservation, side-by-side freezer-refrigerators).

Significant Energy Savings Are Possible

Measuring your appliance’s electricity usage can help answer your basic economic questions. For example, the average 12-year-old refrigerator uses about 5 kWh per day, or 1,825 kWh per year. That means it costs about \$270 a year to operate.

By contrast, a new ENERGY STAR-rated unit (there are several brands) uses about 1.2 kWh/day — annually saving about 1,385 kWh of power and more than \$200 in electricity costs. If the purchase price of the ENERGY STAR-rated refrigerator is \$650, it will pay for itself, strictly in terms of energy usage, in just over three years.

And by improving your home’s energy efficiency you also will have helped the Co-op, and Vermont, reduce our energy consumption.

About Energy Star

The ENERGY STAR program is sponsored by the United States Environmental Protection Agency and the Department of Energy. Besides appliances, it covers many building-system components, such as heating and cooling systems, boilers, heat pumps and windows, and even energy-consuming devices like computers. The website “www.energystar.gov” offers information on the most current



The average 12-year-old refrigerator costs about \$270 a year to operate.

models of all rated appliances, ranked by the amount of electricity they use.

You can link to the ENERGY STAR website from WEC’s own website: www.washingtonelectric.coop. Your Co-op recommends that you choose ENERGY STAR-rated appliances whenever possible.

Dehumidifiers

Another appliance found in some Co-op homes, and evaluated by ENERGY STAR, is a dehumidifier.

Interestingly, dehumidifiers are often needed in both older and newer homes. In older buildings people use dehumidifiers to fight mold and mildew in basements, where air can be damp due to the permeable construction of earlier foundations. In newer homes the construction is frequently tighter to reduce the infiltration of cold winter air; however, that also tends to trap humidity. Statistically, about one out of every 100 residences in the U.S. purchases a dehumidifier each year.

These appliances use a lot of electricity. But when they’re parked in the cellar it’s easy to forget about them. When members call the Co-op with concerns about their electricity usage we sometimes find that they haven’t thought about the power consumed by their

dehumidifiers.

This is another instance where borrowing a WEC test meter can be a first step in confronting and reducing your electricity consumption.

A dehumidifier operates much like an air conditioner. It has both hot and cold coils; an internal fan draws the room’s air over the cold coil, causing the moisture to condense into liquid; in most models the water drips from the coil into a removable container. The dry air then passes through the heated coil to restore its original temperature. (In an air conditioner, the warm air is discharged outside the house.)

There is an ENERGY STAR standard for dehumidifiers, but it is not directly expressed in a kilowatt-hour measurement. Rather, the “Energy Factor” (EF) is based on liters of water removed from the air per kilowatt-hour of energy consumed. ENERGY STAR-labeled units typically remove around 1.5 liters from the air for each kilowatt-hour of operation (although with dehumidifiers there are many variables, including the ambient moisture of the basement or other surrounding, and how high you set the controls).

Therefore, it’s not as simple as with refrigerators to gauge whether you have an efficient dehumidifier or an inefficient one that should be replaced. WEC can help you through that process. But the first step is to borrow our test meter and get a handle on the machine’s energy consumption.

Electricity is not a cheap commodity. Still, there are ways to reduce your consumption of it without sacrificing quality of life. ENERGY STAR-rated appliances are state-of-the-art and in most cases perform better than earlier

models, and cost less to run. We’d be glad to help you figure out whether the time to switch is now.

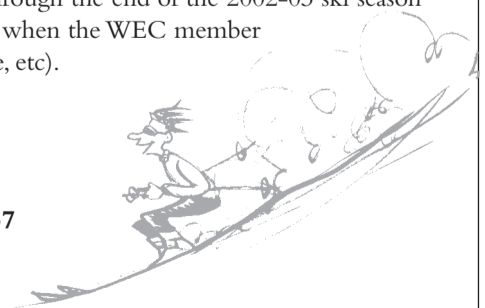
Andrew Rudin, a Co-op member and energy consultant based in Philadelphia (www.efficology.com), contributed to this article with information from his article in the September-October 2002 issue of Home Energy magazine (www.homeenergy.org).

Dehumidifiers use a lot of electricity, but when they’re working in the cellar it’s easy to forget about them

Mad River Glen Renews Discount Offer to WEC Members

Washington Electric Cooperative (WEC) is proud to offer a member discount at the nation’s only cooperatively-owned ski area, Mad River Glen in Waitsfield, Vermont. This discount is valid for WEC members through the end of the 2002-03 ski season (or April 2003). This discount is valid only when the WEC member provides sufficient photo ID (driver’s license, etc). Call the Co-op to get your coupon.

**MAD RIVER GLEN’S
2002 – 2003 SPECIAL TICKET PRICING:
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October: National Co-op Month

Cooperatives world-wide generally operate using the same principles as adopted in 1995 by the International Cooperative Alliance. The principles are part of a cooperative statement of identity that also includes the definition of a cooperative and a list of cooperative values.

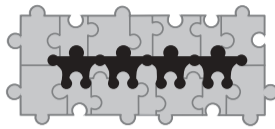
Definition

A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.

Values

Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of

COOPERATIVES



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honesty, openness, social responsibility and caring for others.

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.

WEC Gets a Check-up

continued from page 1

distribution system is due for a check-up every now and then. Over the past several months the system has been comprehensively examined by outside experts, E/PRO Engineering and Environmental Consulting (E/PRO), and Power Technologies Inc. (PTI).

WEC received the report on October 18. It included a number of specific recommendations for improving the system to increase efficiency and reliability — both of which are also related to a third important, consideration: cost.

“Line loss on the Co-op’s entire system is presently 7.79 percent, which is down from 11 percent seven years ago,” said Weston. “We’ve been moving in the right direction. But it still means that WEC has to purchase 7 percent to 8 percent more wholesale power than our members actually use, in order to compensate for line loss.”

And as for reliability, it’s more cost-effective to invest in equipment that prevents widespread outages than it is for WEC’s employees to respond to emergencies flung far and wide across 41 towns on WEC’s 1,233 miles of distribution line.

As a rural electric co-op that qualifies for federal funding, WEC regularly submits loan applications to the RUS (Rural Utilities Service) for its four-year work plans. The application process includes obtaining the approval of state regulators. It was within that process that WEC and the Vermont Department of Public Service mutually agreed that a compre-

hensive study of WEC’s distribution system would be beneficial.

“It’s helpful for us to undergo a review like this one,” said Weston. “The process brings in a fresh set of eyes to examine our whole system, and identifies opportunities for us to improve it. In many cases the improvements that E/PRO and PTI have recommended will be folded into our Long-Range Plan — which is a formal document we file with the state — and will be included in our four-year work plans.”

But, Weston conceded, there are economic constraints.

“We have to live within a budget,” he said. “That will call for progressive implementation of the recommendations. Within the next four years we’re going to tackle those that will reap the greatest reward for our system.

Over the following four years we’ll invest in the other improvements that the study brings to our attention.”

Things to come

In many respects, the consultants found WEC’s system to be in good condition. Improvements were not necessary or would not be economical.

The improvements they did call for applied mostly to the equipment men-

tioned above: fuses, capacitors, voltage regulators and OCRs. WEC members can expect to begin seeing more of these

devices installed along the poles and wires.

Adding **fuses** will further “sectionalize” the system, so that some members may not experience an outage even if it occurs fairly near to them. Also, line workers can easily identify a blown fuse because its trap door hangs open, which means they can find the fault more quickly.

OCRs (oil-controlled reclosers) can actually prevent small power interruptions from becoming full-blown outages. OCRs are triggered, for example, when a falling tree brushes across the power line but does not bring it down, or when a squirrel simultaneously contacts the electric wire

and the power pole. (He’s safe on the wire and safe on the pole, but not, unfortunately, when he touches both at the same time). Responding to these faults, the OCR quickly opens and closes three times; if power has not resumed by the third time it gives up and an outage ensues. But in many cases the power corrects itself and members may not even know that anything happened until they discover that their digital clocks are




This big daddy is a voltage regulator. Positioned at a substation or out on the lines where voltage starts to weaken, voltage regulators keep the current at full strength.

blinking and need to be reset. Weston said the OCRs quickly and automatically resolve approximately 30 percent of the outages the system experiences.

Voltage regulators do just what their name implies. Some are located at substations, where they ensure that the power going out to WEC’s homes, farms, schools and businesses is of safe and proper voltage. But other regulators (“line regulators”) are placed farther out along the system and boost power as needed to counter the effects of line loss.

Mounted along the power lines, **capacitors** also improve both efficiency and voltage.

By and large, WEC members are “conservative”; though their political ideologies diverge, they believe in conserving costs and electricity. The recent electrical distribution system study will help WEC achieve those same goals on a system-wide basis.

Washington Electric intends to file an implementation plan with the state Department of Public Service and Public Service Board by the end of October. 

Marketplace

FOR SALE: Kubota tractor. B7100, 4-WD, 16-HP diesel. Hydraulic front snow plow, rear mower. New tires, chains, engine block heater. Six speeds, roll bar. Excellent condition. Has manuals. Asking \$6,795. Call to request photo. (802) 685-3321.