

# WEC CO-OP CURRENTS



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The newsletter of Washington Electric Cooperative, Inc., East Montpelier, Vermont.

December 2007

*In It Together*

## WEC Draws Folks Out To Community Meetings In Calais, Tunbridge

With a pad of white paper on an easel and a felt pen in his hand, General Manager Avram Patt asked the gathering of Washington Electric Co-op members for guidance.

"Where should the Co-op be heading?" he asked. "What should we be doing, or not doing? What directions would you like to see the Co-op taking?"

The questions were the same at Tunbridge and at Calais, where WEC held its annual community meetings in October. These meetings – two each fall – began in 2003 when the Co-op's leadership conceived the idea of visiting members in their own villages and towns over a sit-down dinner, rather than relying solely on the Annual Meeting in May to provide an opportunity for personal interaction between the members and the board and staff who work for them.

Invariably, the senior staff and board members have subjects they want to talk about. This year Patt and Board President Barry Bernstein explained the proposed revision of the Co-op's rate design, which WEC is preparing to submit to the Vermont Public Service Board in early 2008 and which would have financial implications for some Co-op members. Operations

Director Dan Weston was ready with information about the state of the distribution system in the two towns (see "Poles and Wires, Nuts and Bolts," this page). And Products and Services Director Bill Powell brought a seven-page handout on "The Pledge," WEC's latest idea about helping members and the Co-op itself reduce power consumption.

There was also WEC's power supply to discuss. Washington Electric's landfill gas-fired generating station in Coventry is doing a great job, operating reliably and producing 50 percent of the Co-op's power at well-below market rates. And there is the emergence of wind power. The Vermont Public Service Board had recently approved the 40-megawatt UPC-Vermont Wind project in Sheffield, the first commercial-scale wind-powered generation installation to be approved by the PSB since Green Mountain Power's smaller project at Searsburg in 1997. Presuming it clears its final hurdles for federal approval, UPC plans to begin construction next summer, and by early 2009 Washington Electric could be purchasing approximately 10 percent of its members' power needs

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Olivia Gay, of the Adamant Co-op, was among some 35 WEC members who joined in the discussion at the community meeting down at Gospel Hollow.

## 'Poles and Wires, Nuts and Bolts'

It wasn't intentional, but for a moment when Dan Weston took the floor in the white, low-ceilinged room downstairs at the Tunbridge Town Hall, it sounded a bit like a 12-step program.

"My name is Dan," he began. *(pregnant pause)*

"And I love poles and wires and nuts and bolts and transformers and electricity."

Does he ever. Every autumn Washington Electric Co-op staff leaders and board members head out into WEC's territory to hold community meetings in town halls, schools, or other public spaces. Someone serves dinner, neighbors

come out to rub elbows, and after the meal WEC's general manager heads up a discussion about what the Co-op is doing to provide electric power, system-wide and in the local community. People are encouraged to ask questions – about their Co-op, about energy issues in general – and they always do.

Then, after discussions about power supply, power costs, and WEC's energy policies, Dan Weston gets his chance. Weston is the Co-op's director of operations and engineering, and his enthusiasm for the unique subject of rural electricity – a power-distribution

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### Inside

**Washington [Electric] Year-in-Review:** Co-op President Barry Bernstein looks back at 2007 through a WEC perspective, and ahead to hoped-for accomplishments in 2008. Page 2.

**The spirit of Gov. Aiken and the founders.** General Manager Avram Patt felt a connection to history as he led WEC members, state officials, and school kids on tours of the Co-op's methane-fueled generation plant at Coventry. See Manager's Report, page 3.

**Actually, UPS stands for Unlimited Power Supply,** and these devices aren't just for computers. For backup power, here's an alternative to generators. See page 6.



WEC's community meetings are approved family events (though more interesting to some family members than others). Coverage of the Tunbridge and Calais meetings continues on page 4.

**You said it; Avram wrote it down.** Members at this year's community meetings had thoughts about WEC and its mission. You can read their ideas on page 4.

### Washington Electric Cooperative

East Montpelier, VT 05651

## President's Report

# From Top To Bottom, A Great Co-op

## A Successful Past Year, And an Exciting Future

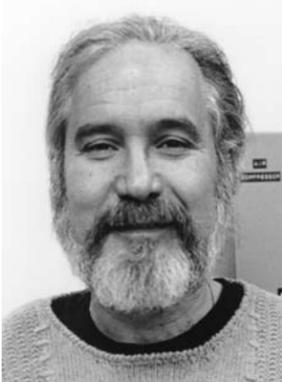
By Barry Bernstein

As 2007 comes to a close we have just experienced our second (last one in April) nor'easter of the year, and like everyone else I spent a good part of a day on Sunday, December 16, shoveling out. What's more, as Co-op Currents goes to press, the word from our resident (and WEC member) weather forecaster Roger Hill is that more snowstorms and high winds are in our future, heading into the final weeks

of the year. It's quite a contrast from 2006 at this time, when the ground was bare. I have just finished reading an article that pointed out that the 10 warmest years on record have happened in this past decade, and that as we go forward New England will experience more severe storm activity.

With this in mind, my New Year's resolution, as the president of your board and on a personal level, is to not lose sight of how important it is that we take action at our local and state level to meet the challenges ahead that are necessary to confront global warming. This involves as small a task as replacing all the lights in our homes and businesses with

compact fluorescent bulbs, as well as larger investments like buying the most efficient appliances we can when our old ones need replacing (or even before), and being conscious of our driving patterns.



Our Co-op has made a conscious effort since the early 1990s to be more environmentally aware as we make decisions that affect our future. We hopefully will continue to be diligent in the decisions we make concerning our long-term

planning for power, the equipment we purchase for our distribution and transmission infrastructure, in our internal operations, and in working with our membership to help each member household and business conserve and use electricity efficiently.

### Highlights in 2007

#### Coventry

After the fire at the plant in August of 2006 we were up and running by the end of that year, and we brought the fourth engine at the plant on line mid January. Now, as the end of 2007 approaches, the plant – which fuels the generating

engines with captured landfill gas – generates 47,000,000 kilowatt-hours of power; this is in the vicinity of 60 percent of our total energy needs.

#### Storms

A two-day nor'easter on April 15-16, with heavy winds and snow, caused outages to 2,000 WEC member/households, a fifth of our membership. By contrast, the December 16 storm dumped one to two feet of snow, but caused very few outages because it was a dry, light snow.

#### Sheffield Wind Project

The wind project proposed by UPC-Vermont Wind for high-elevation ridges in Sheffield received Vermont Public Service Board approval on August 8, 2007, becoming the first commercial-scale wind project approved since GMP's Searsburg project a decade ago. Although the board's ruling has been appealed to the Vermont Supreme Court, we are hopeful that the court will uphold the PSB decision and that the project will be able to break ground by this summer.

#### New Staff

The co-op has been fortunate to bring on four new employees. Cheryl Willette is our new Director of Finance, and Susan Golden the new Supervisor of Member Services. Both employees come with significant background in utility and co-op related fields, and they have quickly established themselves in their respective areas of responsibility.

We also have two new apprentices on the line crew, Kyle Sands and Donnie Singleton, and we look forward to them becoming journeyman linemen at the end of their apprenticeship. We are fortunate to have a number of younger employees joining the line crew and working with our senior linemen who have much experience and knowledge to impart.

#### Right-Of-Way

As part of your Co-op's efforts to improve reliability in our service territory under the direction of Dan Weston, Director of Operations, and Right-of-Way Management Coordinator Mike Myers (a certified forester), and with our employees and right-of-way contractors, your Board of Directors has continued to approve increases in our ROW budget.

As part of this effort we also support a danger tree removal program and systematic checking and treatment of the system's 24,000 distribution poles. These efforts reduce outages, and the pole inspections extend the life of our system's infrastructure. Special thanks go to our line crew, our engineers, and our in-house staff for their dedication, especially during storms, to keeping the lights on.

#### Union Contract

The Co-op signed a five-year contract with our union employees, who are represented by the IBEW. I extend

my thanks to the union and board/management negotiating teams for their work in developing a contract that recognizes the value of the employees and has an unprecedented five-year term.

### 2008 – The Year Ahead

- **Coventry:** We hope to install a fifth engine at the plant sometime in 2008, which is projected to enable us to produce more than 10 million additional kWh of electricity over the next two years.
- **New Rate Design:** A Rate Design & Cost of Service Study, the Co-op's first in more than a decade, will be filed with the PSB early in the year, and reviewed by the Vermont Department of Public Service, hopefully with approval by this coming summer.
- **Pledge Program:** We will be launching a pilot program to work with members to hopefully accelerate efficiency and conservation at our members' homes. This will provide cost savings for participating members, and help lower the Co-op's energy demand and peak load.
- **Construction Work Plan:** We will soon begin our next four-year construction plan (2008–2011), which will guide our continued upgrading of our distribution system, with the rebuilding of at least one of our substations as we continue modernizing those facilities.
- **Legislation:** We continue to vocally support an increased and active state effort to help Vermonters make their homes and businesses more energy efficient in using all fuels, and help ensure that Vermont's power supply becomes more renewable and less dependent on fossil fuels and nuclear power.

### Special Thanks, Seasons Greetings

I want to thank my fellow Board members, and officers Vice President Roger Fox, Treasurer Don Douglas, Clerk Marion Milne, and our manager, Avram Patt. I also want to thank our management staff for their hard work and dedication to ensuring that Co-op runs effectively. The many hours and thought that goes into decisions that the board and staff make is often unseen and unrecognized.

Please remember that we always look forward to hearing from you, our members. WEC is your co-op. We are fortunate to have a great Co-op and a team effort which I am very proud to be a part of.

As 2007 winds down and we move into the new year, I want to thank all our WEC employees for their work and commitment to our cooperative. In closing I would like to wish all of our members, your families, and our employees and their families, a very healthy and happy holiday season and a great New Year. 

## Co-op Currents

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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 Deborah Brown, 802-223-5245.

## Manager's Report

# In Step With History A Cold Day At Coventry Beckons The Co-op's Past

By Avram Patt

**T**hursday, November 8, was a good day, one of those days when things seem to come together, when complicated things get simple, when everything has a reason and a purpose. It was cold – windy, and getting raw. I spent most of it standing on a landfill, talking at the top of my lungs, saying the same things over and over again until I was hoarse.

November 8 was our second Open House this year at our Coventry landfill gas electric-generating facility. The first one, back in May, was held on a

Saturday morning and more than 60 WEC members and Northeast Kingdom residents stopped by. We did it again in November to give others a chance to see the plant – maybe some people that would be more likely to visit on a weekday.

As we drove up from the Co-op office that morning, Dan Weston and I were expecting to see a few people we knew from state regulatory agencies and from other utilities,

and some school groups that had let us know they were coming ahead of time. We didn't know who else to expect.

The publicity for the event said to come between 10 a.m. and 1 p.m. And they did, non-stop. We were giving tours sometimes to two or three people, sometimes to groups of 10 with others waiting their turn munching on donuts. Well over 100 visitors showed up in all.

The first tour I gave was to a handful of Co-op members, including a husband and wife from Williamstown. "We voted for this," he told me. "So we figured we should come up and take a look at what we voted for."

Absolutely! I gladly launched into the story (which readers of *Co-op Currents* are familiar with). WEC decided to build the plant at a time when we were figuring out how to replace our Vermont Yankee nuclear supply. The plant began operating in July 2005. The strategy adopted by our elected board members called for renewable energy that was affordable and stably priced, not subject to unpredictable markets and world events we have no control over. We preferred that it be generated close to home. We did not at the outset know how much of all these goals we could accomplish, but by building the Coventry plant, in fact, we achieved all of them.

With the addition of a fourth engine last January, we are now getting more

than half our total energy supply from Coventry, at prices well below market. Landfill gas generation is renewable energy, although as we have reported to members before, WEC is currently selling the renewable attributes of the energy to a consumer-owned electricity provider

in Massachusetts, an arrangement that means it cannot be considered renewable in our own members' supply mix. The low cost of the power and the additional revenue from the sale of those renewable energy certificates are why WEC has not had to file for a rate increase since 1999, with no plans to do so in the next few years, either.

We are perhaps the only electric utility in New England in that situation.

### Come one, come all

We were very pleased that five staff members from the Vermont Department of Public Service showed up. Some of them had been involved in reviewing our permitting applications before the Public Service Board, but had never had the chance to see the plant in operation.

It was also great to be able to show the plant to Jim Volz, chair of the Vermont Public Service Board, along with a member of his staff. We

see our state regulators quite often in Montpelier in more formal settings – regulatory hearings, workshops, testifying at the State House, etc. It's a different experience to take them around the plant in a group with some Co-op members from Topsham, Fayston, or Calais, answering everyone's questions alike. It was also great to see a couple of our colleagues from New Hampshire Electric Co-op.



*"I wish Dean Shattuck could've seen this," said Florence Morse. "He would have been very proud."*

*"Yes he would have," I replied.*

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*I think the pioneers who put Washington Electric Co-op on the map would have enjoyed the Coventry tour. It's a different time, and WEC's members today are different people, but we're in the same precious little place on the planet.*

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When students come to see the Coventry plant, they've usually been studying energy issues ahead of time and have questions. At the Open House, we were visited by a group of Twinfield middle school students and a high school group from Cabot, as well as a couple of students from Sterling College in Craftsbury.

People of all ages came, some with young children. We explained things standing outside the plant, showed them the gas wellheads sticking out of the landfill, and the flare that would be burning the gas if we weren't using it to generate electricity. Then we handed them foam earplugs and walked them through the plant's three rooms. It's too loud in the engine room and in the gas scrubber room to talk or answer questions, so we did that when we came back outside.

As things were finally winding down, a car pulled up with two more people, Elliott and Florence Morse of East Montpelier, so I gave them their own tour. As we left the roar of the engine room and stepped outside again, Florence said something I wasn't quite prepared for: "I wish Dean Shattuck could've seen this. He would have been very proud."

"Yes he would have," I replied.

Dean worked for Washington Electric Co-op for an astonishing 48 years, retiring in 1995. He started when WEC was only nine years old, when crews were still building new lines into unserved rural areas. More than any other person, Dean Shattuck's career spanned almost of all of WEC's history, from the days of our founders through the sometimes difficult changes in the 1980s and 1990s that set the Co-op on its present course. I had

been doing so much talking about "now" that I hadn't had a chance to step back and put this little power plant into the perspective of our own history.

### What would Gov. Aiken think?

Dean was related to the Morses of East Montpelier by marriage. So was another Vermonter named George Aiken, who spoke at WEC's first pole-setting ceremony and then again on December 2, 1939, the day the first generators began cranking out power for the pioneering founders of our Co-op.

George Aiken was a champion of rural electrification as governor, and then as our senator in Washington. So I wondered out loud what Governor Aiken and WEC's founders would have thought of all this. They would not have known about global warming, or that methane is a "greenhouse gas," or that a landfill or a manure pile could fuel a small power plant.

But WEC's founders built their own utility because Vermont's native hydro generation was being sold for profit elsewhere. No one else would run lines to their farms and homes, so they fired up two diesel generators and did it themselves.

I think the pioneers who put Washington Electric Co-op on the map would have enjoyed the Coventry tour very much. It's a different time, and WEC's members today are different people, but we're in the same precious little place on the planet. At that moment I felt quite sure that what we've built is true to the spirit and intent of our founders.

Dan Weston was keeping two vanloads of high school students occupied as they waited in the cold to start the final tour of the day. I finished reflecting about our history and people who are no longer with us, and started talking with these kids from Cabot about the present, and about an energy future that might lead to a healthier and more secure world. They'd been studying, they had their questions prepared, and it was a great way to finish a meaningful day. 

*Vermont Governor George Aiken pulls the switch that gets the diesel power started as Washington Electric Cooperative begins operations in 1939.*



**Community Meetings**

*continued from page 1*

from this local resource. That would be a step toward meeting a looming challenge: Vermont's contract with Hydro-Quebec will expire in less than a decade, and WEC must prepare to affordably replace that power (about 25 percent of the Co-op's electricity) or very likely spend significantly more money under a renewed contract.

So there was a lot on the table besides dinner at the Calais and Tunbridge meetings. This year, though, Co-op leaders also wanted, more explicitly, to take some guidance from the members.

"We've been making a lot of plans and policy decisions in our office and in our boardroom," General Manager Patt explained later. "But it's important to know what the members want and expect from us. So we made a more direct

effort to get members' input this year. At both meetings we threw it open for people to tell us what their priorities are for the Co-op, and as a result I think we got a better sense of what's important to our membership."

Said a woman in Tunbridge: "Sensible alternative energy. But don't spend more than we're going to make on it."

Said a man: "Put it out that the information is there for using less electricity."

At both places, suggestions and questions intermingled. A member

in Tunbridge asked, "Are people not converting to efficiency because of costs? How can we as a co-op help that happen? The cost for the average home can be prohibitive."

Patt wrote on the pad, "Help members get over financial obstacles."

*To see what these WEC members suggested for their Co-op, see "On Their Minds," this page.*

**Rate design**

The Co-op's new rate-design proposal has been a subject of interest in recent months. Many people heard about it for the first time at the Annual Meeting last

May, and it has been addressed in Co-op Currents articles as well. But in October, with WEC working to finalize its proposal to the PSB, the plan had taken a clearer shape. Patt and Bernstein outlined it for the members in Calais and Tunbridge.

Rate-design revisions are required of electric utilities periodically by the PSB. Rate designs and rate increases are fundamentally different: When a utility applies for a rate increase, it is seeking permission to increase the company's revenues by charging customers more for their power. Changes in rate design do not increase revenues; rather, they rearrange the utility's charges internally to minimize the degree to which some of their customers are subsidizing other customers' electric bills.

"A rate design," Patt explained, "says

*"We made a direct effort to get members' input this year. At both meetings we threw it open for people to tell us what their priorities are for the Co-op."*

— Avram Patt

**On Their Minds ... What's On Yours?**  
*WEC Community Member Meetings, 2007*

At the conclusion of the discussion at this year's community meetings, members were asked to quickly brainstorm in response to the question "Where are we going?" They were asked to say where they wanted the Co-op to be heading or what they wanted the Co-op to be doing over the long term, with a 10-year horizon and beyond.

The comments below are transcribed from the flipcharts, with minor editing for readability. Comments were recorded as members spoke them, with only limited discussion for clarification to make sure what was written was what the member intended.

Readers who wish to respond to these comments by their fellow Co-op members are invited to contact Avram Patt at Washington Electric, using postal mail, e-mail (see page two for Avram's address), or the "contact us" feature on the WEC website. All comments will be shared with the Board of Directors.

**Tunbridge October 16**

- Sensible Alternative Energy Sources (don't spend too much)
- Efficiency—Keep At It
- Education
- Co-op Principles
- Power Supply Beyond 30 Years
- Help Members Financially With Efficiency
- Wind Power

**Calais October 18**

- Pursue Wind (agreement from several others present)
- New Small Hydro
- Work With Local Communities on Energy Alternatives
  - Local Energy
  - Non-Electric
- Broadband—Help Expand
- Help With Cost of Conservation
- Fuel Co-op Needed
- Provide Information Comparing Member Usage (To Others)
- Promote Co-ops
- Improve Meter Reading Technology

"Are you charging the right members the right amount of money for their power?" It costs different amounts to serve residential, commercial, and seasonal people, for various reasons. It can also differ within one of those classes. Like residential: Are you charging enough to people who use a lot of electricity, as opposed to those who use very little?"

The high user costs more to serve because WEC must purchase more power to meet that customer's needs.

One feature of the Co-op's present design is its two-tier structure. Members pay 7 cents per kilowatt-hour (kWh) for their first 150 kWh per month, and 15 cents/kWh for electricity above that amount.

WEC will soon propose the state's first three-tier structure. The details are still being finalized and the precise numbers could change, but the "inclining rate structure" would look something like this: Each member would receive an initial 75 kilowatt-hours, sold at 7 cents/kWh; the next block of power (known as the "Co-op block") would be 300 kilowatt-hours per member, charged at 11 cents/kWh, which is still a relatively low cost for

power in Vermont. The third block, or "tail block," would be all the additional power a member uses, and would be sold at 17 cents/kWh. Patt explained that the reason for reducing the per-member allocation for the first, least-expensive, block from 150 kWh to 75 kWh is that Vermont's supply of that relatively low-cost power from NYPA (New York Power Authority) is shrinking.

The impact of these changes would not be dramatic for most Co-op members.

"We estimate that 95 percent of our non-seasonal, residential members will see their bills go down; for some it will be noticeable, for others not so noticeable," Patt summarized. "Under this proposal, if you used, say, 300 to 350 kWh a month, all of your power would be from the first two blocks."

The breaking point would be at about 1,300 kWh.

"Everyone using that amount of power, or close to it, will see their bills being about the same. If you get a little above that amount, your costs will go up a little. At the high end of the spectrum people could see their bills increase in the neighborhood of 5 percent."



**Co-op Faces.** WEC members of all ages and experience came to the Calais Town Hall for the community meeting on October 18 (top and left). At right, a member draws laughs from his Co-op neighbors in Tunbridge on October 16.

Members at both meetings asked what the effect would be on farms, which use more power than most residences. Patt explained that there was no designated user "class" for farms; they generally fall into the residential class. The basic issue remained how much of the farm's electricity would come from the third, most expensive, tier.

"It was a balancing act," Patt said of the process of designing the rate plan. Creating a plan that could be expected to increase power costs, albeit modestly, for most WEC farmers, "was not something we took lightly. On balance it's the result of changes we felt we needed to make on principles of fairness to our membership as a whole."

He reminded people that the process is still in early stages. The Public Service Board will hold hearings on the proposal, and citizens will have an opportunity to register comments and opinions.

### The 'Pledge'

How to make sure you're one of those members who use less power, and whose bills would decrease under the new rate design?

Take the pledge.

Products & Services Director Powell brought a handout to the community meetings that used charts and pictures to show why electric costs are going up nationwide, and how WEC hopes to control those costs for its 10,000 members. Part of the effort, he explained, was the package of assistance and incentives contained in "The Pledge." WEC is recruiting participants for a pilot program to test The Pledge and determine what changes would improve it.

The basic idea is straightforward: WEC will work individually with participating members to identify what they can do in their homes to reduce electric consumption, and then help them do it.

*The Pledge is a straightforward idea: WEC will work individually with participating members to identify what they can do to reduce electric consumption, and then help them do it.*

The help could come in various ways. New Energy Star-approved refrigerators are dramatically more efficient than 10-year old models, and dryers that run on propane instead of electricity are money savers. Efficiency Vermont (EVT) has an economic incentive plan that helps homeowners switch to these devices, and WEC will essentially match EVT's level of assistance in the form of a loan that can be repaid at little or no interest over time. The idea is to make these conversions affordable up front, because they will definitely be more affordable over the long haul.

To further increase participation, WEC will provide an actual payment to people who achieve their energy-reduction goals. In addition to concerns about pollution and climate change, there is a very practical reason for the Co-op to offer these rewards.

"We are all invested in how much electricity we use as a co-op," said Powell. "If you use less we don't have to buy the power that you're no longer using."

That's co-op talk. And the 70-odd WEC members who turned out at Tunbridge and Calais went home with a sense that we're all in this together. 

## Three-Phase Line: The Key To A Happy Co-op

### WEC's Winter Work Plans

As a rural electric utility, the majority of Washington Electric's members are directly served by single-phase power lines. To figure out whether you are on a single-phase line, look out your window at the poles and wires on your road. If there is just one wire running across the top of the poles, with a neutral wire about four feet below it, you're on single-phase line. (If there are other wires strung below the neutral, they belong to the telephone and cable companies, who rent space on WEC's poles.)

Why, then, are Washington Electric's wintertime construction and right-of-way maintenance plans focused on three-phase lines?

The reason is that almost *everyone* depends on the three-phase lines (three parallel wires strung from pole to pole, with a single neutral below them). Mostly, it's three-phase "feeders" that leave the substations, carrying power over long distances, while single-phase circuits branch off it to serve people in their small communities, farms, and rural residences.

If we were talking about roads instead of power lines, you could think of the three-phase lines as Route 2 or Route 100, and of the single-phase lines as, for example, the "Upper Road" or the "Lower Road" or the "Plank Road" in your rural community. You definitely want your Lower Road to be well-maintained and passable. But everyone in the county relies on the main arteries (a Route 110 or 25, if we were talking about roads). So they absolutely must be kept in good condition.

As 2008 begins, Washington Electric Co-op will be working on some of its major arteries – three-phase power lines – because that's the key to having a reliable electric system, where people get the best service and suffer fewer, and shorter, outages.

#### Building a more versatile system

A funny thing, though. In an extremely rural electric system like WEC's, those "major arteries" often run crosslots rather than sticking to the roadways.

That's true of the reconstruction job WEC has scheduled for the south-central part of its territory this winter. The work will start near McCarthy Road in **Williamstown**, then extend east near the Lambert and Johnson Farms in **Washington**, and over to Route 302 in the **Orange Heights** area. Look for Co-op crews there pretty much until spring, as this is a significant rebuilding project.

"Presently, it's a two-phase line," says Senior Field Technician Brent Lilley, of WEC's Engineering Department. (Yeah, there's also two-phase line, but



not a lot of it; it consists of two wires, and in earlier days filled much the same functions as today's three-phase lines.)

"We're going to upgrade it to three-phase," Lilley continues, "like the reconstruction project we completed in **Chelsea** last year. We're replacing old poles and upgrading the wires to a larger diameter. We're not relocating the line; we'll be rebuilding in the same location."

There are many benefits to three-phase upgrades.

"They reduce energy losses," Lilley explains. "They increase the current-carrying capacity of the system, improve phase balancing on the lines, address voltage constraints if there are any, and

provide better reliability to our members."

That final point – "better reliability" – stems from the fact that the upgrade eventually will give the Co-op more versatility when trouble develops on the lines.

"We'll have the ability to backfeed power in this area," says Lilley. "We have different substations we can tie together if needed – the Jackson Corners (Williamstown), East Montpelier, and eventually Mt. Knox (West Topsham) substations. So during a planned outage or a storm we'll be able to switch power around and supply people from a different source."

Working crosslots in winter isn't the easiest job. But in summer the crews are kept busy extending power line to new homes on WEC's system. And there is a benefit to the schedule. "Some of the area there is a little wet for working in," says Lilley, "so when things freeze up we're able to minimize disruption to the property."

With the Co-op's "track digger" – a large vehicle with an auger for digging holes, which moves on tracks like a tank and can navigate any terrain – the linemen can work pretty much anywhere in winter.

The Williamstown/Washington/Orange project will necessitate occasional brief outages so the crews can work safely on the electric system. For interruptions that are more than just a few minutes long, the Co-op will try to advise members ahead of time.

#### Eliminating clear and present dangers

Washington Electric's right-of-way (ROW) work will also be concentrated along three-phase lines this winter. Two main "feeders" are definitely on the agenda. One is the line from the Jackson Corners substation that heads south and southwest, supplying members in **Williamstown, Brookfield, Roxbury, and Northfield**. The other leads from WEC's East Montpelier substation and runs northeast toward the Calais Elementary School. It serves members in **East Montpelier, Plainfield, Calais, Marshfield and Cabot**.

The job of the right-of-way crews, who are contractors to the Co-op, is to prevent trees and other vegetation from interfering with power transmission. But that's a different job in summer than in winter. In summer, ROW Coordinator Mike Myers deploys crews for large re-clearing projects, in which WEC attempts to revisit every part of the electric system on a multi-year rotation and completely clear the right-of-way.

In winter, he reduces the number of crews and concentrates on "danger trees" – weakened or decaying trees, or trees exposed to strong winds, that are leaning toward the power lines and could fall into them in bad weather. Shortly after New Year's Myers and Field Technician Brian Wilkins will begin patrolling the three-phase lines by truck and by snowshoe, marking every danger tree they see.

"After we identify them, a two-man tree crew follows up and gets them safely on the ground," says Myers. "These highly skilled crews are capable of taking these big trees down next to energized lines."

The effort focuses on three-phase lines for an important reason. "When we have trouble on one of these lines," Myers explains, "it can affect hundreds, or even a thousand, Co-op members."

The narrower scope of the work makes sense for another reason, too.

"Doing full re-clearing projects in deep snow isn't very efficient because you'd end up with lots of high stumps and a crew would have to go back in the spring and re-cut them," says Myers. "By concentrating on danger trees, you can spend the time it takes to clear the snow away and make the cut close to the ground. These tend to be big trees, and the most difficult ones take a couple of hours to take down."

Mike and Brian will also keep their eyes out for cracked insulators and other potential equipment problems. Line workers can then follow up and make repairs before they cause an outage.

Each January WEC submits an outage report for the previous calendar year to the Vermont Department of Public Service. The report indicates where WEC is having reliability problems, which helps the Co-op decide where to patrol for danger trees the next winter.

"We go back two or three years to see how many tree-related outages we've had," says Myers. "That, and the number of members who are affected, are our two biggest considerations."

Staying inside where it's warm and comfortable is a nice way to spend January, February, and March. WEC's linemen and ROW workers don't get to do a lot of that. But if you do, it's partly because they are out there rebuilding and protecting WEC's three-phase lines, trying to keep you from losing your power. 

# Expanded Capabilities For 'UPS' Backup Power Systems

By Bill Powell  
Director of Products & Services

We've written from time to time about what members can do to prepare to ride out the inevitable outages that happen in Co-op country: prepare emergency water and food supplies, flashlights, and battery radios, and network with your neighbors to lend a hand if needed.

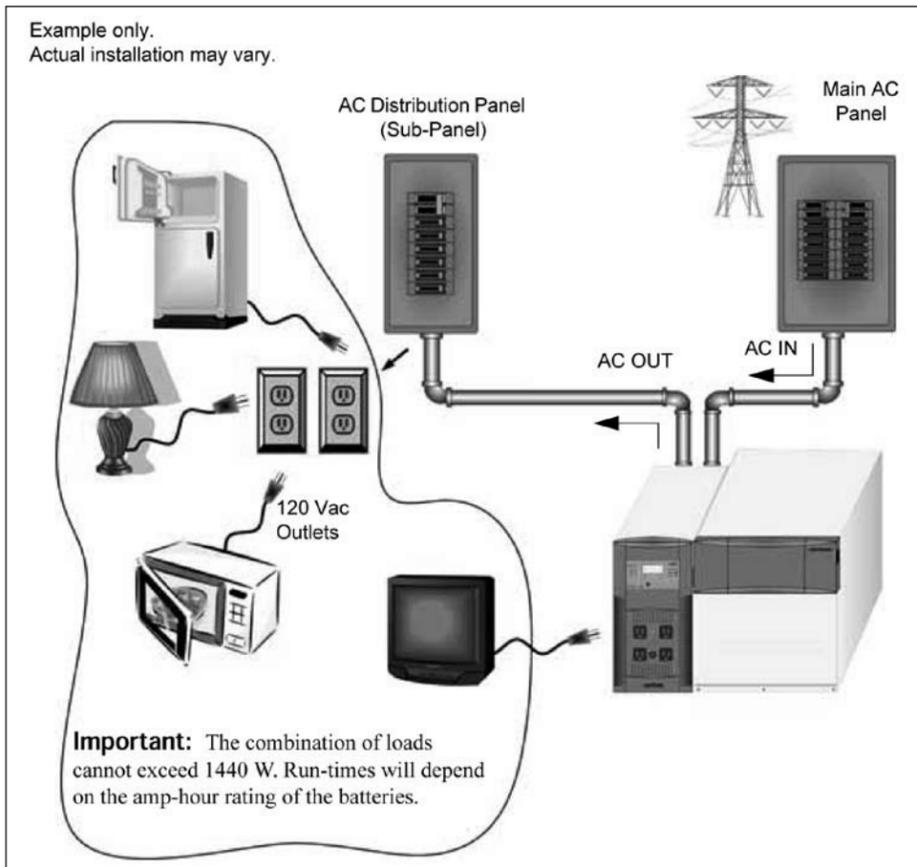
Part of an outage strategy may include backup power systems. We believe the Co-op provides objective advice about high-quality products and safe practices for members who want to invest in a backup system. With each Co-op Currents article we have also described an alternative to the typical engine-powered generator many members might think is the only choice for backup power. A properly installed generator may still be a common solution for residential member households. However, there are a number of members who would be physically challenged to move, connect, start up, and maintain an engine-based generator.

So the Co-op has been promoting the use of a battery-based backup option for members who wish to take on the additional investment. This option is called an uninterruptible power supply (UPS). Typically a UPS would have a cost two to three times higher than a generator of similar capacity. More precise estimates of cost would depend on particulars of each member's situation.

The benefits of having a UPS include: no noise, no need to move the equipment into place to operate it, and no combustion

fumes. Plus, it works automatically, whether you are at home or not.

This UPS option evolved out of the growth in computer use in businesses and in homes. Computers don't do well when the power goes out suddenly. A computer UPS combines a battery and a



Typical wiring schematic for 1800 watt uninterruptible power supply (UPS).

surge-protection device in one box, and has enough battery-stored energy to be able to carry the computer's load for a short period – typically, long enough so the computer can be safely shut off without loss of data or files. Most computer UPS devices now are also able to affect a shutdown of the connected computer, even without an operator doing so.

But the UPS concept is not limited to computers. By increasing the size of the battery, the same device can provide backup to any number of residential electric loads. The Co-op believes that members who are considering installing a means of providing emergency power

*The UPS concept is not limited to computers. By increasing the size of the battery, the same device can provide backup to any number of residential electric loads.*

1-5). This amount of power will operate: (1) the fridge; (2) a boiler or furnace; and (3) some lighting. It will not, without an additional component called a booster transformer, operate a typical 240-volt submersible water pump; it could operate a 120-volt jet pump if this were present. This unit has an uninstalled list price of \$900.

Although such a residential UPS can be moved, and appliance loads can be directly "plugged" into the device as needed, the illustration at left shows a permanent, hardwired application. Here, the member has installed a separate "sub-panel" next to her existing main service panel.

The emergency loads that the member wants to be able to operate during an outage are then re-wired to the UPS sub-panel. The UPS sits between these emergency loads all the time. When the power is lost, the UPS continues to provide the loads connected to the sub-panel with electricity. How long the UPS is able to provide backup power is a function of how much storage is in the batteries. All sizing and installation should be done by a licensed electrician. The Co-op also provides members with technical assistance, sizing, and analysis of possible emergency electric needs and solutions.

Another smaller UPS unit is available on a wheeled dolly. This has a price of \$322 on Amazon.com.

Here's an important detail with regard to using a UPS. Most Co-op homes use a water pump, often a submersible pump wired with 240 volts. Although the pump energy usage (measured in kilowatt-hours, or kWh) is not a large load, the UPS is typically a 120-volt device. For emergency use for 240-volt water pump loads, an additional component is required to enable the UPS to provide "artificial" 240-volt service. Assuming that the UPS were sized for 4,000 watts (4 kilowatts), then a buck boost transformer built into an Outback UPS would cost an additional \$390 (list price). It is not recommended to consider using a UPS for other 240-volt loads (meaning, no electric hot water, no electric clothes dryer).



more common as members seek their own renewable energy sources to complement or partially replace Co-op power, as well as providing a backup when the grid goes "down."

The main differences between the two UPS devices shown here and a "whole house" UPS are in the cost and size of the device, and the amount of energy stored in batteries.

One UPS manufacturer (www.xantrex.com) has an 1,800-watt UPS, which is rated at 80 percent of its full capacity for sizing purposes, or 1,440 watts (see fig.

## Washington Electric Cooperative, Inc.

### Statement of Non-Discrimination

Washington Electric Cooperative, Inc. is the recipient of Federal financial assistance from the Rural Utilities Service, an agency of the U.S. Department of Agriculture, and is subject to the provisions of Title VI of the Civil Rights Act of 1964, as amended; Section 504 of the Rehabilitation Act of 1973, as amended; the Age Discrimination Act of 1975, as amended. In accordance with Federal law and the U.S. Department of Agriculture's policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, religion, age, disability, sexual orientation, marital status, family status, status as a parent (in education and training programs and activities), because all or part of an individual's income is derived from any public assistance program, or retaliation (Not all prohibited bases apply to all programs).

The person responsible for coordinating this organization's nondiscrimination compliance efforts is Avram Patt, the Cooperative's General Manager. Any individual, or specific class of individuals, who feels that this organization has subjected them to discrimination may obtain further information about the statutes and regulations listed above from, and/or file a written complaint with, this organization; or write USDA, Director, Office of Civil Rights, 1400 Independence Avenue SW, Washington, DC 20250-9410, or call, toll free, (866) 632-9992 (voice). TDD users can contact USA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice users). USDA is an equal opportunity provider and employer."

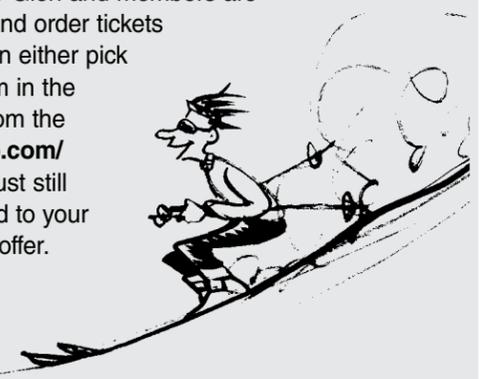
Complaints must be filed within 180 days after the alleged discrimination. Confidentiality will be maintained to the extent possible.

### Now, Call WEC for Mad River Glen Tickets

The geese have flown south, the temperatures have plunged, and ski season is coming! This year the Co-op has an improved deal for WEC members who ski at Mad River Glen – which is also a cooperative. You can now purchase day passes at the Co-op office. The ticket price varies depending on the day; weekday adult tickets are \$35.

WEC is a ticket retailer for Mad River Glen and members are eligible for special prices. You can call and order tickets by phone, paying with a credit card, then either pick your tickets up here or have us put them in the mail. The Co-op will fill orders placed from the website (<http://www.washingtonco-op.com/pages/madriver.htm>), but members must still either pick them up or have them mailed to your address. This is not an electronic ticket offer.

See you on the mountain!



# Think Now About Running For The Board

## Deadlines Approaching for Petitions and Bylaw Amendments

**W**ashington Electric Cooperative will be holding its 69th Annual Membership Meeting in May 2008. Members interested in running for a position on WEC's Board of Directors should begin thinking now about their potential candidacies.

To qualify for election, candidates for the Board of Directors must submit petitions at WEC headquarters signed by at least 25 Co-op members. For information about the February 2008 deadline for petitions, and with further questions about the process, contact executive assistant Debbie Brown at the Co-op. Directors are elected the three-year terms, and serve at-large rather than representing districts. Each year three board seats expire, so there are openings for three directors on the board. Incumbent members are permitted to run for re-election. When there are more candidates than open board seats, the three candidates with the most votes win.

Co-op members might also be considering offering amendments to WEC's bylaws. This is also done by petition, requiring, in this case, 50 member signatures. Bylaw amendment

proposals also are due in February 2008. You may wish to contact Debbie Brown at the Co-op for a copy of the existing bylaws (and deadline information) before drafting an amendment.

### Will You 'Round-Up' For Neighbors In Need?

**W**ARMTH is the program by which Co-op members can provide heating assistance to people in need – people who well might be their neighbors. WEC provides two ways to donate to WARMTH. Members can make direct contributions in response to an annual solicitation that was enclosed this year in WEC's December electric bill – although responses to the brochure can be made at any time. Or they can give to WARMTH through Operation Round-Up. Contact the Co-op for an Operation Round-Up consent form.

When you sign up for Operation Round-Up you authorize Washington Electric to round your electric bill up to the next-highest dollar amount. The change – anywhere from a penny to 99 cents – goes into a fund that WEC forwards to WARMTH each month. Round-Up is a small, virtually unnoticeable way to make steady contributions to a program that protects people from losing their heat, and in certain cases their electricity.

Please consider adding your name to the Round-Up list. And if your name is already there, WEC's staff and Board of Directors extend their thanks.

### MARKETPLACE

**For Sale:** 2002 Silverado LS 2500HD. Four-wheel drive with extended cab, plow package, trailer package. 51,000 miles. Excellent condition. Asking \$16,750, or best offer. Call 244-1565.

**'Sentimental Value':** On July 8, 1950, my father, Clifford Bruce of Moretown, Vermont, bought a new 1950 Ford 8N tractor from W.E. Collins & Sons, a Ford car and tractor dealer in Waterbury. As his son, I grew up with this tractor, so it holds a lot of sentimental value to me. The last place I could trace it to is Twin City Equipment on the Barre-Montpelier Road in 1991. The serial number is 8N295327. I sure would appreciate any help in locating this tractor. Thank you. Call 802-223-5676. Ronald H. Bruce, 89 Bruce Drive Rte 100B, Moretown, VT 05660

# WEC CO-OP STORE

## WHOLE HOUSE SURGE PROTECTION

Protect Individual Appliances, Valuable Equipment with a meter-based SURGE DEVICE. Be Safe, Not Sorry! Special Member Discounts!



## A Full Line of "Plug & Play" (DIY installation) Surge Devices

**Panamax MAX 2 SPECIALS!**

Highest protection, compact size.  
Three models, all in stock.  
Offer good through February 2008.

Product	List price	Member discount price
Max2	\$39.95	\$32.95 (save \$7.00)
Max2 Coax	\$49.95	\$34.95 (save \$15.00)



If you own a single item such as a TV, a VCR, a computer connected to the internet by a cable or satellite provider, audio equipment or pay TV service, without surge protection you'll have to make up the replacement cost out of pocket in the event of a surge striking. Full protection, and an iron-clad warranty for all connected equipment.

Your equipment is exposed to power surges until you connect your equipment to one of the Panamax heavy-duty Max2 family of products. Be safe, not sorry!

## Home Performance with



## HOME PERFORMANCE WITH ENERGY STAR

**ENERGY STAR**® is a fee-for-service program designed to improve home comfort, durability, health & safety and to reduce homeowners' energy costs.

### Services provided as part of a Home Assessment?

- A comprehensive home audit, which may include an evaluation of your heating system, lighting, appliances, windows, building tightness and insulation effectiveness (blower door test, infra-red/thermal scan test)
  - Professional advice on ways to improve the comfort and durability of your home, as well as to solve problems and lower your energy bills
  - Assistance in prioritizing improvements
  - Information on energy-saving products
- Contact the Co-op (1.800.932.5245) or Efficiency Vermont (1-888-921-5990) for more information on Home Performance with ENERGY STAR®

## Co-op Long Distance Telephone Service

- 6.9 cents per minute (outside VT)\*\*
- 8.9 cents per minute (within VT)
- No per-call minimum
- 6-second billing interval
- No gimmicks

Billed by Powernet Global. Call to sign up today: 1-866-216-0332, or [www.washingtonelectric.coop/pages/phone.htm](http://www.washingtonelectric.coop/pages/phone.htm) or call the co-op with questions: 1-800-932-5245.

\*\* 4.9cpm if billed online.



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or visit us on the web at:  
[www.washingtonelectric.coop/pages/prod.htm](http://www.washingtonelectric.coop/pages/prod.htm)

**Nuts and Bolts**

*continued from page 1*

system constructed over mountains, through forests, across swamps – is infectious. Weston always comes to the meetings prepared to inform people about what’s happening with THEIR poles and THEIR wires and at the substation that serves THEM.

What could be more important to the 35-to-40 people who usually attend these community meetings? The gatherings are always held in the fall, when wind, snow, and ice are just around the corner and people are wondering whether they’re going to get whacked in the winter ahead by a crippling storm that shuts down their electricity.

This year’s community meetings were in Tunbridge, on Tuesday, October 16, and in Calais, on Thursday, October 18. The latter meeting took place at the town hall in Gospel Hollow.

When Weston got his shot he got right to specifics.

“Our Co-op has 1,289 miles of power line, with an average density of around seven members a mile,” he said. “There are 25,000-plus poles out there, in varying stages of condition.”

These communities’ substation connections, of course, were different. And these folks understood that the



*Operations Director Dan Weston speaking to Washington Electric members at Tunbridge’s Town Hall, following a sumptuous dinner.*

condition of the substations and the miles and miles of power line that link you to it go a long way in determining how vulnerable you are to outages in bad weather.

Co-op members in Tunbridge – and Brookfield and parts of Chelsea – get their power from WEC’s North Tunbridge substation, which receives its high-voltage power from WEC-owned transmission lines. (Substations reduce the voltage and send the electricity through smaller

“distribution” lines to consumers in their homes, schools, stores, farms, etc.). That’s both rare and fortunate for those members: rare, because most of WEC’s substations are supplied by Green Mountain Power transmission lines; and fortunate, because failures on GMP’s transmission more-extensive transmission system are the second-leading cause of outages (measured in “consumer-hours out”) for Washington Electric Co-op members.

On the other hand, Tunbridge-area members live in some of WEC’s most rural, hard-to-serve territory, so they have problems

of their own. But Weston delivered some good news at the Tunbridge meeting.

“In our next construction work plan, which begins in 2008, we have just under \$900,000 earmarked for the North Tunbridge substation area,” he said. “A lot of it will be going into pole replacement, so you’ll see our crews more and more over the next few years. We’ll also be doing a lot of trimming in the rights-of-way, to prevent outages caused by fallen trees.”

In Calais, Weston had a different story to tell. The area – which includes East Calais, Adamant, and part of East Montpelier – is divided between two substations, one in East Montpelier and the other at Maple Corner. The Maple Corner sub was rebuilt in 2006, and Weston used photos to contrast the old (wooden supports, rotted at ground level) with the new (steel supports, modern

equipment, environmentally friendly technology).

“We’re a small utility, folks,” Weston said, “But I’ve worked for other utilities in the state of Vermont and I can tell you, in most ways we are state-of-the-art.”

In that spirit, Weston explained that WEC was busy with the complex project of tying the distribution systems connected to the Maple Corner and East Calais substations together, so each could provide power to the other’s territory if one system should suffer an outage. Additionally, Washington Electric has installed fault-distance indicators at its substations, that can tell, with remarkable accuracy, how far away from the substation a fault has occurred (if it’s on the three-phase main line); that, and new trip-fault indicators that WEC is mounting at selected locations, help steer the line crews to the outage causes.

“We’re quietly improving the reliability of the system,” Weston attested.

In the near term, though, one thing isn’t likely to change. Weston reminded listeners in both communities that they had a critical role to play in reducing outage times. WEC needs them to call and report outages rather than expecting

the Co-op somehow to know about them; otherwise, hours can pass before repairs are begun. There may come a time when “smart metering” will make calling unnecessary. Smart metering is a technology that enables long-distance, automated connection

between WEC headquarters and people’s electric meters, which also gives it the capacity to indicate someone’s power has quit. WEC conducted a limited, 50-meter test of this technology five years ago, but encountered an 80-percent failure rate and so decided not to invest in smart metering quite yet.

Otherwise, Weston told the members, “We have just about everything we need for responding to outages. Every pole is on a GIS database, which is tied into a computerized outage-management system. Once we get three calls or more, the system can identify which fuse has broken and we can get our linemen there to look for the cause.

“So the point is that we need your calls – or else this capable, efficient, modern system that we’ve built just sits there.”



*Weston always comes to the community meetings prepared to inform people about what’s happening with THEIR poles and THEIR wires and at the substation that serves THEM.*

The Vermont Public Service Board requires all electric utilities to publish this Herbicide Use Notification periodically. Members of WEC are reminded, however, that it has long been the policy of this cooperative not to deploy herbicides in its right-of-way management program.

**PUBLIC NOTICE**

**PUBLIC NOTICE**

**HERBICIDE USE NOTIFICATION**

Vermont 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. The application of herbicides may start as early as April 1. **Requests to utilities for notice by mail, however, must be made by February 15.**

The Public Service Board requires Vermont utilities to carry out vegetation management techniques which allow maintenance of electrical systems in a cost-efficient manner.

The types of herbicide treatment used to keep utility lines clear are: stump, injection, basal, soil and foliar. These are the common methods used, although they may not all be used by the utility in your town. Landowners have the options of requesting herbicide treatment on cut stumps only, or that no herbicide be used at all. In the latter case, an administrative fee would have to be paid to the utility. Only electric utility rights-of-way which have tall-growing tree species with the potential of threatening the electric utility system are treated.

Utilities advertise by radio and newspaper prior to herbicide applications on all lines. Lines usually are treated only once in a four-to-six year period depending on the specific management cycle of the utility. Please check with your utility regarding the cycle of a particular line.

Some utilities use metal letters and numbers on distribution and transmission line poles. Others use them only on transmission lines. The letters, such as V.E.C. (Vermont Electric Co-operative), or V.E.L.C.O. (Vermont Electric Power Company), are not found on every pole. A check of several poles on a line should aid you in determining whether poles are marked and which utility is the owner.

**Persons owning or occupying land within 1,000 feet of a utility right-of-way may request in writing that the utility notify them individually by mail anytime, but at least 30 days prior to treatment of the line with herbicides.** The landowner or resident is responsible for contacting the utility, in writing, to request placement on the mailing list. The utility should be provided with sufficient information as to the exact location of the residence and land. It is the duty of each landowner or resident to make the utility aware of the location of any potentially affected water supply, and any environmentally sensitive areas where herbicide application ought to be avoided.

**CONTACT YOUR ELECTRIC UTILITY WITH QUESTIONS OR SUBMIT THE COUPON PROVIDED**

If you have further questions or concerns contact:

Plant Industry Division, Agency of Agriculture  
Phil Benedict, Director  
116 State St., Montpelier, VT 05602  
1-802-828-2431

Consumer Affairs & Public Information  
Dept. of Public Service  
112 State St., Montpelier, VT 05620  
1-800-622-4496 or 1-802-828-2811

**COUPON FOR PERSONAL REQUEST**

Name	Town/City of Affected Property
Street Address	Telephone Number (Home)
Town	(Work)
State	Zip Code
Electric Account Number	O.K. to use Work Number: Yes <input type="checkbox"/> No <input type="checkbox"/>
Property of Concern: <input type="checkbox"/> Year Round Residence <input type="checkbox"/> Summer Residence <input type="checkbox"/> Commercial Property	Best Time to Call
<input type="checkbox"/> Water Supply <input type="checkbox"/> Land <input type="checkbox"/> Other	

Line and Pole Identification: Utility Initials	Numbers
--	---------

We need all of this information in order to determine if you qualify for personal notification. If information is unobtainable, please state why. Use an extra sheet of paper if you need more space.

**RETURN TO YOUR LOCAL UTILITY** VELCO08

**Generator Registration Form**

Member name \_\_\_\_\_

Account number \_\_\_\_\_

Map location \_\_\_\_\_

**Type of back up system:**

Stand alone generator \_\_\_\_\_ (manufacturer) OR

Power Take Off (PTO generator) \_\_\_\_\_ (manufacturer)

Horsepower rating \_\_\_\_\_ (hp) Generator size \_\_\_\_\_ (watts)

Transfer switch \_\_\_\_\_ (manufacturer)

Installation complies with National Electric Code (NEC): \_\_\_\_\_ (Yes)

*For the safety and protection of our linemen, your generator needs to be on file at the Co-op. Generators that are not properly installed pose danger for our employees. Please have an electrician do the installation, or check it if your generator is already installed, and use the form below to register it with the Co-op. Thank you.*