

# WEC CO-OP CURRENTS

Vol. 67, No. 1

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

January/February 2006

## System Upgrades

### Are Part of an Ongoing Campaign to Improve Service

**W**ith nearly 1,300 miles of power line to maintain and some 10,000 homes, schools, farms and businesses to serve in the most rural areas of 41 central Vermont towns, you might think that Washington Electric Co-op's operations workers had their hands full just keeping the system running.

And you'd be right. The demands of an electric distribution system are constant, because electricity – unlike almost any other product you buy – is produced and consumed in "real" time. A utility's system is more like some giant appliance that is always running (and which happens to be spread out over hundreds of square miles of challenging terrain, exposed to the whims and extremes of nature). You must operate it and fix it all at the same time.

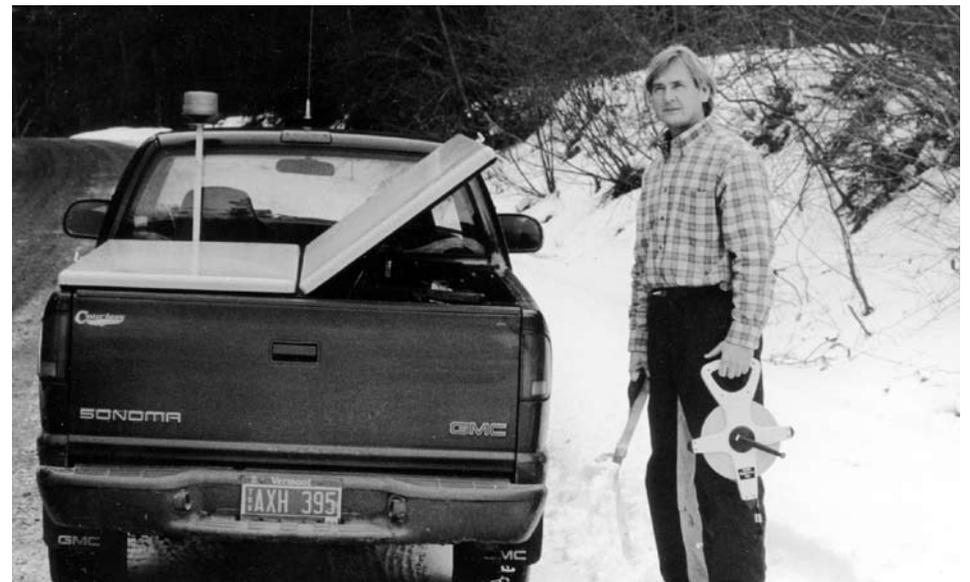
There's also another dimension to "keeping the system running." WEC's operations staff – the linemen, engineers, technicians and right-of-way coordinator – must plan constantly for improvements to the system, to provide people better power quality and diminish interruptions (outages). This means identifying recurrent problems, analyzing their causes, and then updating the

equipment along the lines to improve reliability. In some cases it means actually rebuilding miles and miles of the electric system, which involves negotiating with landowners for changes to the right-of-way (ROW), staking the locations for new poles, presenting the improvements for town and/or Act 250 approval, and then carving out time for the line crews to do the work.

WEC's operations staff is currently involved in three significant upgrades. Two of them involve line relocations; these are being undertaken in the hills north of Chelsea and in Orange near the Thurman Dix Reservoir. The third is a "fusing-coordination study." Fuses are used to sectionalize the electric system, so that when outages occur the loss of power is confined to a smaller group of members rather than affecting everyone along the lines. The study is focusing on the lines linking the Mt. Knox substation to members in and around Corinth.

People in those communities may have seen WEC pickup trucks driving slowly along the roads in recent months. Field Technicians Brent Lilley, Mike Patterson, Brian Wilkin and Steve Hart, and Right-of-Way Coordinator Mike

*continued on page 4*



WEC Field Technician Mike Patterson is designing a major power-line relocation project near the Dix Reservoir in Orange.

## 'Coventry' At Six Months

**W**ashington Electric's "baby" is now six months old and growing.

WEC's landfill gas-to-electric generating station at the landfill in Coventry (owned by NEWSVT, a subsidiary of Casella Waste Systems) commenced operation in July 2005. Since then, WEC has been receiving regular reports from the plant's operators and the project's engineering firm, Dufresne-Henry, detailing the development of the facility's power output. After half a year, it's a good time to review those reports and fill Co-op members in on how their \$8 million investment is doing.

The answer is, quite well. After an expected slow start during the initial period of testing and adjustments, power generation has increased steadily and is today comfortably within the range WEC's consultants had predicted.

When the facility was constructed, three Caterpillar engines were installed. The engines are fueled by methane gas extracted from the landfill via a series of wells that are interconnected by underground pipelines; it is the engines that generate the electricity, which is dispatched to the state's electric grid

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### Inside

#### **Citizens' push needed NOW for wind power.**

Despite Vermont's development of processes to consider and regulate potential wind-energy sites, a group of legislators has put forward a resolution calling for a moratorium on wind power in Vermont. In his Manager's Report, Avram Patt asks members to make their voices heard. Page 3.

**The federal Energy Policy Act of 2005 is now law.** Homeowners and builders may be interested in financial incentives for home energy conservation contained in the Act. Page 6.

**System upgrades coming to a community near you!** If not now, eventually. Rebuilding and renewing are a constant at the Co-op. More on these efforts as our page-one story continues. See page 4.



A modern wind turbine turns on the Gaspé Peninsula. WEC's general manager accompanied Gov. Douglas and others there last June.

### Washington Electric Cooperative

East Montpelier, VT 05651

## Members Write

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

### A Conservation Success Story

Editor, Co-op Currents:

I read your piece on rolling blackouts in the December issue of Currents, ("ISO Warns: Rolling Blackouts Possible This Winter"), taking special interest in its focus on conservation. WEC is unusual among utilities in its stance on base-load reduction, and I have my own modest success with base-load reduction to share.

I live in a 1,700-square-foot home in Corinth, in the WEC service area. When I moved in about 18 months ago, the building's daily power consumption was 6 to 7 kWh. I reduced this almost immediately to 2 kWh per day, with no discernable loss of amenity. The steps I took were simple and are already known to the readers of Currents.

- Compact fluorescent lamps in all interior fixtures that are used daily;
- A change from area lighting of whole rooms to task lighting for

particular purposes;

- Wall washer lighting to provide a general, low level, but "mellow" lighting to living areas. This sounds like I bought new fixtures, but all that I did was to aim a floor lamp at a ceiling corner;
- Loosening lamps (bulbs) in fixtures to be used only occasionally, so that they cannot impose unintended loads;
- Unplugging "always-on" appliances like TVs to eliminate phantom loads;
- Air drying of clothes, instead of using the propane-fired dryer with its motor and fan;
- Using fans and other appliances sparingly.

To be clear, I do not have central heating with blower fans or circulator pumps. The range is propane fired, but I do have a microwave. The major electrical load for the house is the refrigerator, to which I've done nothing except to occasionally clean the heat-exchange coils and set the thermostat to the highest workable setting. I maintain 40 degrees in the 'frig and zero in the freezer. The freezer is generally half or more full.

My tastes in lighting are different from others'; some would find my longstanding preference for air-dried clothes quaint, but I am nevertheless convinced that it is not necessary to consume vast amounts of power in order to live well. I feel that the above measures impose no hardship and could be adopted by many others with at no inconvenience. Within the modest constraints described above, I consume power ad libitum, much like most consumers.

I offer the above to your readers and all others for their perusal and encouragement.

Regards,  
Timothy O'Dell, Corinth

#### Editor's note:

We appreciate Tim O'Dell's letter, and commend him for the steps he's taken to reduce his energy usage. Given the continuing and increasing need to manage consumption rather than just generating more electricity, he sets a great example – although others may not be able to pare their usage to 2 kWh a day! Readers should remember that any reduction they can achieve helps to lessen the country's dependence on nuclear and fossil fuels, the Co-op's power-purchase costs, and their own electric bills.

The Vermont Public Service Board requires all electric utilities to publish this Herbicide Use Notification periodically. Members of Washington Electric Cooperative are reminded, however, that it has long been the Co-op's policy not to use herbicides in power line rights-of-way. We do not use herbicides in our reclearing program or on members' property. This Co-op does occasionally make limited use of herbicides to control weed growth within our own substations.

#### 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	
VELC06	

## Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.  
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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Deborah Brown, 802-223-5245.

## Manager's Report

# NEK Legislators Seek To Stymie Wind Power; WEC Members Are Urged To Act

By Avram Patt

The Legislature is in session now, which means that I am spending a few hours a week representing WEC at the State House. My job is to explain the policies and positions adopted by your Board of Directors, to respond to specific legislative proposals that would affect us, and to offer our experience and advice when we feel that would help legislators make the best decisions.

In a democracy, nothing ever comes out exactly the way you would have done it yourself, but our comments are sought after, and the attention and respect our little Co-op gets in the committees dealing with energy issues is gratifying. Proposals being considered this session affect very small "micro-generators" of renewable energy, parties intervening in Public Service Board cases who would like to have their costs reimbursed, energy efficiency standards for a wide range of appliances, Vermont Yankee relicensing, and more.

### Some Wind at the State House

On February 2, a group of legislators from the Northeast Kingdom met in an informal caucus and adopted a resolution calling for a moratorium on any commercial wind development in that part of the state.

As WEC members know, our Co-op serves portions of the Kingdom and we operate a landfill gas generating plant in Coventry. Most specifically, we have a vital interest in and support the development of a wind generation project being proposed by UPC in Sheffield and a small part of Sutton, and we have discussed this often in *Co-op Currents* and at community member meetings this past fall.

I attended the caucus meeting, and although this resolution has no legal effect, it was frustrating to listen to nevertheless. Despite all the information these elected officials have had available to them, after errors have been patiently corrected with facts, after public-opinion polls and town votes have shown that the majority of Vermonters support wind development, and after most other legislators and the general public have begun to focus on the critical choices that must be made about our energy future, arguments continue to be made that just don't hold up at this point.



If the caucus members had allowed non-legislators to speak (they voted not to), here's what I would have reminded them:

- Wind energy is reliable and proven, all over the world and in neighboring states and provinces. It is the fastest-growing source of new generation in some parts of this country.
- Every kilowatt generated by wind is a kilowatt that is not generated from a polluting source.
- Wind towers attract visitors and tourists worldwide, and are a source of pride in their communities.
- Wind projects proposed in Vermont will supply power to Vermonters. (WEC is not the only Vermont utility that would get power from UPC's project.)
- Developing our own significant (not symbolic) in-state sources puts us in a better bargaining position when we do eventually have to negotiate with huge out-of-state energy generators (like Hydro Quebec) for some part of our future supply. Not developing such sources leaves us at their complete mercy.
- A lengthy, detailed, and public discussion about wind has been underway for four or five years, despite what members of this caucus say. (A map of Vermont's potential commercial wind locations has been on the Public Service Department's website since 2002.) Last year, after a great deal of study and testimony, the House and Senate passed and the governor signed Act 61 which both encourages and instructs utilities and others to significantly increase the amount of in-state renewable generation. It would be difficult indeed to meet the Legislature's own targets and mandates without constructing commercial wind farms in a few locations around the state.
- Washington Electric's own planning process led us to a power-supply strategy that specifically includes wind as well as other renewable sources. That process began in 2000 with the active and

continuing involvement of our elected board members, and we have been discussing it with our members, regulators, legislators, the press and the public ever since then. Wind is included in our "Integrated Resource Plan," reviewed by the Department of Public Service and approved by the Public Service Board.

- UPC's "Section 248" permit application will be filed in February. The review process that will then take a year or so is just now beginning. They and other wind developers are following the recommendations made more than a year ago by a special commission appointed by Governor Douglas to assure increased public involvement in the Section 248 review process when wind projects are being considered.
- The Co-op and every Co-op member will benefit from UPC's Sheffield project through a long-term, economical and predictably priced power supply agreement that will help keep our power costs under control. The Co-op and its member/ratepayers will pay more for energy if we have to find another source to replace what we

hope to get from that project.

The caucus members debated two versions of their resolution. The more hard-line resolution promoted by Sen. Robert Starr (Essex-Orleans) and others was adopted on a 10-5 vote. A more moderate alternative supported by Rep. William Johnson (Canaan) and Sen. George Coppentrath (Caledonia) was turned down.

However, with the two notable exceptions mentioned below, everyone in the Northeast Kingdom caucus supported some form of moratorium. Sen. Jane Kitchel (Caledonia) did not attend but supports some form of moratorium, according to press reports. Reps. Leigh Larocque and Steve Larrabee and Sen. Vince Illuzzi, all of Caledonia County, also did not attend.

It sometimes takes courage to do the right thing and to lead instead of react. Thank you to Rep. Lucy Leriche for being the one voice present at the caucus who opposed both versions of the resolution. Thank you also to Sen. Illuzzi, who while not present, had distributed a detailed statement opposing the caucus' action, supporting wind development and questioning opponents and their arguments.

### Contact your Elected Representatives.

Although we frequently discuss energy issues with WEC's members, we very rarely take the step of directly asking you to contact your state senators and representatives on a specific issue. This one is important to your Co-op and to our present and future members. I urge you to make the effort to contact your legislators to discuss the important energy choices and tradeoffs facing Vermont.

This is especially true for Co-op members in our Northeast Kingdom towns and the Caledonia Senate district (which includes a few towns in Orange County). If your representatives or senators oppose letting wind projects be considered by the Public Service Board at this time, I hope you will ask them why they would block timely consideration of a renewable energy project that will be of economic benefit to their constituents and all Co-op member/ratepayers.

UPC's proposed project will be

*continued on page 7*



*Last June WEC's general manager accompanied Gov. Douglas and other state officials and executives to Canada's Gaspé Peninsula to visit a large wind farm being developed there by Hydro Quebec.*



*WEC General Manager Avram Patt is farthest left. Gov. Douglas is to the left of center in light-colored pants.*

## Making Things Better

continued from page 1

Myers, have been studying the poles and power lines and scouting the terrain to figure out how to transform trouble areas into some of the best-performing sections of WEC's system.

Winter is not the easiest time to do this work. A lot of the patrolling must be done on snowshoes, off-road where the lines run through the woods and countryside, and in most winters the frozen ground makes it harder to pound stakes, set poles and set the ground rods.

"But this is when we have the time to do it," Senior Field Technician Lilley explains. In the summer everyone is busy designing and building power line extensions to new homes going up during construction season.

That leaves winter – between the snow, ice and wind storms and the outages they cause – to look at the big picture. And that big picture is an electric system winding through the hills and woodlands of central Vermont, but which could stretch from Montpelier to Atlanta, Georgia; an electric system that is on average 30 years old (though in some places it may date back to the 1940), but which serves people

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*Improving the system means identifying recurrent problems, analyzing their causes, and updating the equipment along the lines to improve reliability.*

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with very modern expectation. That's the picture the field technicians are seeing when they're patrolling the back roads of Co-op Country, planning improvements one project at a time.

## From The Woods to the Road in Orange

Mike Patterson stands at the edge of a steep slope that descends into a wooded ravine 50 feet deep, and trains his scope on the utility pole atop the crest on the other side. At his shoulder is a wooden WEC pole with "1940" stamped upon it to designate when it was set. It's the last pole on this side of the ravine. Several other poles carry the power line down the slope, across the bottom, and up the distant hill. But the forested terrain below is practically unreachable. A broken line down there would present a big problem for a line-repair crew.

Patterson is measuring the distance from one hilltop to the next.

"Eight-hundred and fifty feet," he announces.



*This power line right-of-way, crowded by trees on either side and located deep in the woods in Orange, will eventually be abandoned when Technician Mike Patterson relocates the lines closer to the road.*

That's 850 feet of electric line that had better not break... and just 850 feet of a section a few miles long that presents one potential problem after another in the case of an outage. The line here runs parallel to the road along the Thurman Dix Reservoir, Barre City's water supply. But the line isn't next to the road; it's 240 feet away, up a slope and into the woods, not very reachable for looking for an outage, let alone trying to repair one.

There were reasons that lines were built where they were in former times. For one thing, the REA (Rural Electrification Administration) that grew out of the New Deal had guidelines to ensure least-cost construction of rural electric systems, including a "line-of-sight" requirement that federally assisted co-ops build to the shortest distance between two points.

Whatever the reason, the reality here is that the two-phase line that starts at the intersection of Bisson and Cutler Corner roads in Orange, travels in front of and behind various houses on Bisson Road until it reaches the reservoir, then stretches over small sections of water, over wetlands and smaller ravines until it reaches George Street, is in need of an upgrade. Even where it is visible it would be hard to get to and repair – especially under the circumstance the linemen always find themselves in: searching for outages in the worst weather, in pitch darkness at three in the morning.

The line from Bisson Road crosses George Street (hardly a "street" in the usual meaning; there are no houses around) and heads off into the woods. You would think it would turn west and accompany George Street to the dwellings that start to appear a half-mile up that road. But instead, it disappears among the trees, dips down into the 850-foot ravine and climbs back up again, and then doubles back to George Street through the woods from a point

somewhere beyond the ravine. It doesn't make sense.

Mike Patterson is figuring out how to change that. The veteran WEC field technician is designing what will be a new three-phase line coming over from Cutler Corner Road; but rather

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*There were reasons that lines were built where they were in former times, but they don't always make sense today.*

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than taking to the woods, Patterson would have it accompany George Street (though set back slightly in the trees for aesthetic purposes) as it heads past a handful of residences, the Brookside Kennel and the Bull's Eye shooting range to Orange Center, a small community with a cemetery and a granite marker commemorating the town's founding in 1781.

From there it will be relatively easy to replace the two-phase line along the final mile or so to Route 302 and Orange Village. It's the earlier sections, close to the reservoir and up George Street, that are Patterson's biggest challenge.

As he drives along he's designing the new power corridor in his mind's eye, avoiding wet areas where possible. ("They take away from the structural integrity of your plant," he says. "Plus, it's time-consuming to try to work in them.") But that's not always possible; there are numerous slushy spots where rain and snowmelt gather, and in some instances spanning those areas would exceed the 200-to-250-foot distance between poles that the design criteria allow (as well as subjecting the unsupported lines to stress from wind, ice and snow loading).

There's also another consideration. WEC already has easements for

connections to these Co-op members. Negotiations for changes to those easements can get bogged down and costly. Patterson knows that in some places it is more practical and cost-effective to work within the existing rights-of-way and make the best of them.

Finally, there's permitting to think about. When a municipality has zoning, a town plan and subdivision regulations, Act 250 kicks in when a power-line project reaches 10 acres or more of involved land. Towns without those three elements of local control are "one-acre towns," in which Vermont's development-control law takes effect at the lower threshold.

"Orange is a one-acre town," Patterson says. "WEC will have to apply for an Act 250 permit before we can go ahead with this project."

A little later in the morning Patterson's green-and-yellow pickup is parked in a resident's driveway near Orange Center. Designing a power-line relocation involves more than engineering calculations and permit preparations; property owners need to agree to proposed changes to their easements, or an alternative plan must be developed. Even if no changes are needed (WEC can work within its existing rights-of-way without permission), the landowner at least must be told about the project well ahead of time out of courtesy.

It can take years for the Co-op to plan and execute a major line-relocation like this one in Orange. Until all the myriad details, including aesthetic considerations, have been calculated, the regulatory permits have been secured, and every landowner has been consulted, folks can expect to see a lot of Mike Patterson as he drives slowly along these rural roads – looking at the present, but seeing the future.

## 'Fusing Study' Should Make Inroads in Corinth

**W**EC's Mt. Knox substation is located on Route 302 between Orange and Groton. Its two "feeder" lines – which are "three-phase" lines (three electric lines running parallel from pole to pole, with a neutral line beneath them) – leave the substation in different directions, one heading north toward Peacham and the other south toward Corinth. These are the main arteries of the system; smaller, usually single-phase (one electric line, with a neutral) "taps" branch off the feeders to serve smaller communities and individual members.

The Corinth feeder and its taps wind around for 134 miles – a distance that seems surprising but which reveals how intricate WEC's system actually is. Between the three-phase and single-phase lines, 1,771 Co-op members are served by the Mt. Knox/Corinth feeder.

This web of interdependent power lines is scheduled in 2006 to undergo a re-coordination of its fusing scheme. Senior Field Technician Brent Lilley has been reviewing the configuration of the lines to determine optimal placement for the new fuses.

"The first priority is to keep the three-phase line operating when a fault occurs on the single-phase lines," Lilley explains. "So every tap that comes off the three-phase line will be fused. By fusing all the taps, the feeder will stay on even if a tap goes off."

The taps are at greater risk of outages because they venture into more rural and wooded areas, while the three-phase feeders often travel along cleared highway corridors. Smaller numbers of people depend on those individual tap lines, while everyone – whether they're on the taps or directly connected to the feeder itself – relies on the uninterrupted



Senior Field Technician Brent Lilley is piloting a fuse-coordination study to improve service in Corinth.

operation of the three-phase line. That's why protecting those lines with additional fuses is the Co-op's priority.

Of course, there still could be a failure on the feeder itself, caused by a tree, lightning, a car wreck or faulty equipment. But the other important thing about fuse coordination, besides confining outages to smaller areas, is the way fusing works into WEC's computerized outage-management system. Using GPS global positioning, that system provides the location of every piece of equipment mounted on the lines, including the fuses.

"Once the outage-management system gets updated with new fuse locations, we can find a problem more easily and restore the power more quickly," says Lilley. "Instead of patrolling for a mile – at three o'clock in the morning, in bad weather, looking for

the fault with a spotlight – we can patrol a quarter of a mile." (Blown fuses are identifiable by a hinged 'door' that hangs down in plain sight when a fault has occurred.)

It's important to remember that Co-op members themselves have a role to play in the quick restoration of electricity. By calling WEC to report an outage, a member provides critical information for locating the problem on the computerized system. If another member calls in, his or her information then narrows the area the linemen need to patrol. The more calls there are, the more accurately the system can pinpoint the outage and send a crew to the right spot to fix it.

Lilley's fuse-coordination study is also looking at the tap lines off the main feeder.

"How many fuses we put on a tap

depends on a lot of things," he says, "(such as) the location of the tap, how long it is, how many members are connected to it, the electrical load on that particular tap, and whether it's along a road or through the woods."

These are judgment calls Lilley must make as he works to improve the distribution system while also watching the Co-op's budget. His study of the Mt. Knox-to-Corinth feeder follows similar work performed in connection with the Walden and West Danville substations, and the lines connected to a Co-op metering point (where WEC's system diverges from a GMP power line) near Jones Brook.

Once Lilley has finished his fuse re-coordination study and mapped out the improvements, Linemen will make the fusing upgrades over the following months, as time allows.

## Quitting Ridgeline Will Give Chelsea Neighbors A Break

**M**ike Myers has finally gotten to send a tree-clearing crew to the Washington Turnpike Road. Phew.

The Turnpike Road, which connects the towns of Washington and Chelsea, travels along a valley on the eastern side of a high, rocky ridge, while Route 110 (a main power line corridor) runs along the western side. That ridge just north of Chelsea, and the old section of power line that traverses it, has long been a thorn in the Co-op's side – and a burden for the neighbors who depend upon it for their electricity.

A system upgrade on the Turnpike Road has been a long time coming. Only 10 or so homes are still served by the line that crosses the mountain, because as the system has grown and developed other folks on the road have received their power from different directions. But the homes and farms that remain dependent on that line have endured more than their share of outages; there's a lot of weather up on the ridge – plus, that part of the system connecting people on the eastern side of the ridge to power from Route 110 dates back to the 1940s. The rough terrain has also become heavily wooded in the intervening years.

The combination of weather and woods is a bad one for an electric utility, and more so when it's difficult to reach the lines for repairs.

"Inevitably, when we get a call during a storm that that line is out, it's 'oh no,'" says ROW Coordinator Myers.

WEC's policy for dealing with major outages is to "triage"; the

repairs that will restore power to the most people must take priority over those that serve a relative few. Which means that those Washington Turnpike folks still connected to Route 110 have often had to wait.

"And then," says Myers, "as the storm winds down and we're exhausted,



Many power line corridors that were built across the countryside decades ago are now hard for linemen to reach and repair in outages – a situation the Co-op is working to improve.

we get on the six-wheeler and the snowshoes and go over the mountain looking for the outage. If a pole breaks up there we have to use old skid roads to get our backhoe in to replace it."

There are always parts of the electric system that need to be updated. They're on the Co-op's radar, but it can take a while to find the opportunity finally to address them. The opportunity came in the fall, when Field Technician Brian Wilkin worked with local people to obtain new rights-of-way that will enable the Co-op to disconnect members from those ridge top power lines. Essentially, the revised system will connect two existing, and far more accessible, sections of power line, to the benefit of those in the middle.

"Everyone knew we needed to get the line out of the woods," says Myers, "and Brian worked on this quite a while to make it work, obtaining the ROW easements and staking the new line."

Finally, Myers could report in January that the arrangements had been made and that M&J Tree Service (of out of Greensboro Bend) was busy clearing new right-of-way. When the work is finished and weather permits, the Co-op will send a crew back up to ridge – this time, however, not to repair the old, troublesome section of line, but to dig up the poles and get them out of there.

It's in increments like this – new fusing here, a line-relocation there (and constant re-clearing of existing corridors) – that WEC upgrades its 1,300-mile system. The goal is to improve reliability from one end of the service territory to the other, and each project makes a difference.

All the same, it's a job that's not complete, and never will be. 



# Efficiency Tax Credits and Incentives Provide a Window For Homeowners, Builders

By Bill Powell  
Director of Products & Services

Energy conservation and renewable-energy tax credits are back in the news for 2006. Rising fossil fuel prices seen in home-heating bills and threats of rolling regional electric blackouts have raised members' awareness of their energy use.

Although the Co-op has longstanding programs and support services to help members reduce their electrical usage and costs, there are several changes, both in tax code and in energy-efficiency program offerings, available to members for 2006.

## Energy Act provisions for homes

Last year's federal Energy Policy Act creates a total tax credit of up to \$500 for energy-efficiency improvements to your home, including credits of up to \$200 for installing new exterior windows; up to \$300 for installing a highly efficient central air conditioner, heat pump or water heater; up to \$150 for installing a highly efficient furnace or boiler; and credits for 10 percent of the cost of insulation, energy-efficient doors, and cool, reflective roofs.

The credits will be available for taxes paid in 2006 and 2007. The maximum

amount of homeowner credit for all improvements combined is \$500 during that two-year period, and will apply to improvements made between January 1, 2006, and December 31, 2007. Selected items eligible for tax credit treatment are shown in the chart below.

## Tax Credits for Home Builders

Home builders (contractors) are eligible for a \$2,000 tax credit for a new energy-efficient home that achieves 50-percent energy savings for heating and cooling over and above the 2004 International Energy Conservation Code (IECC) and its supplements. At least a fifth of the energy savings must come from building-envelope improvements.

This credit also applies to contractors of manufactured homes conforming to Federal Manufactured Home Construction and Safety Standards.

There is also a \$1,000 tax credit to the producer of a new manufactured home achieving 30-percent energy savings for heating and cooling over the 2004 IECC and supplements (in this case at least one-third of the savings must come from building-envelope improvements), or a manufactured home meeting the requirements established by EPA under the ENERGY STAR program.

*Last year's federal Energy Policy Act creates a tax credit of up to \$500 for energy-efficiency improvements to your home*

These tax credits apply to qualified new homes built or produced between December 31, 2005, and December 31, 2007.

The following chart summarizes selected items eligible for tax credit treatment under the Energy Act of 2005; a full summary is available at [http://www.energystar.gov/index.cfm?c=products.pr\\_tax\\_credits#chart](http://www.energystar.gov/index.cfm?c=products.pr_tax_credits#chart)

## Vermont Energy Star Homes

2006 also brings changes to the Vermont Energy Star Homes program (VESH) to advance Home Performance Standards and update building codes.

The Co-op has for many years provided "Home Energy Ratings" (HERS) based on national HERS guidelines for members building new homes. With the advent of Efficiency Vermont (EVT) – the state's "energy-efficiency utility" – in 1999, all Vermont consumers building new homes have access to HERS performance ratings through EVT. HERS has been adopted

by the U.S. Environmental Protection Agency (EPA) as the standard for ENERGY STAR-rating home construction.

WEC provides enhanced VESH services and incentives to members beyond what may be provided by other utilities. The Co-op does this because the ENERGY STAR home performance standard is the most comprehensive national process to measure and verify a home's energy performance (whether a new or an existing building).

As energy codes change over time, so has the HERS standard, which will undergo several changes for 2006. The primary differences include:

1. ENERGY STAR New Homes Performance specification guidelines
2. ENERGY STAR builder option package
3. Thermal bypass checklist

Specification guidelines for ENERGY STAR ratings now reflect recently revised international building codes. The former Five Star (86 points or higher) rating score for meeting VESH standards has been revised; starting in July, 2006, new homes must be able to score 80 points or lower to meet the current standard. The scoring has been reversed. Although the system now represents higher efficiency with lower scores, the performance standard to get a HERS Energy Star Label rating is actually slightly higher than previously calculated.

The ENERGY STAR Builder Option Package (BOPS) is another means by which contractors can meet ENERGY STAR by standardizing a set of building-construction practices. The intention is to better identify and document air leakage throughout a building.

While focused on new homes, ENERGY STAR performance has value for existing homes, as well. ENERGY STAR Home Performance services for existing homes provide a suite of diagnostic services to identify and remedy air leakage, deficient insulation and moisture/ventilation systems, and other fuel-using and comfort-decreasing conditions in our homes.

For more information on ENERGY STAR HERS or ENERGY STAR Home Performance programs contact the Co-op at 802-223-5245, or (toll-free) at 1-800-932-5245. You can also contact EVT at <http://www.energystarvermont.com/index.cfm?L1=85&sub=res> or call 1-888-921-5990.



Product Category	Product Type	Tax Credit Specification	Tax Credit	ENERGY STAR Specification
Windows	Exterior	Meet 2000 IECC & amendments	10% of cost, max. \$200	Climate dependant – 4 zones
	Skylights	Meet 2000 IECC & amendments	10% of cost, max. \$200	Climate dependant – 4 zones
	Exterior Doors	Meet 2000 IECC & amendments	10% of cost, max. \$200	Climate dependant – 4 zones
Roofing	Metal Roofs	ENERGY STAR qualified	10% of cost, max. \$500	Climate dependant – 4 zones
Insulation	Insulation	Meet 2000 IECC & amendments	10% of cost, max. \$500	Meets FTC's "home insulation" definition
HVAC	Gas, Oil, Propane Water Heater	Energy Factor .80	\$300	N/A
	Gas, Oil, Propane Furnace or Boiler	EFUE .95	\$150	N/A
SOLAR Energy Systems	Solar Water Heating	System must be rated by SRCC and use solar power to provide 50% of home's hot water (not for pools or hot tubs)	30% of cost, max. \$2,000	
	Photovoltaic Systems (PV)	PV (solar electric) system must meet VT net-metering law for residential use.	30% of cost, NTX \$2,000	

## Manager's Report

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soon be subject to the tough, detailed, lengthy and public regulatory review of the Public Service Board. It is our hope and expectation that appointed state officials at the Department of Public Service and the Agency of Natural Resources will fulfill their statutory roles objectively and without bias as they consider the facts and evidence presented. It is our hope that the legislators who would rather stop this public process from going forward according to law will also find a way to consider the specifics of the handful of proposed wind projects in Vermont with open minds, and to reflect on the consequences of doing little or nothing.

### Two updates from back at the Co-op...

I am pleased to report that we recently reached an agreement for a two-year contract with I.B.E.W. Local

300, the union representing most of our employees.

As with most labor negotiations these days, we wrestled with our desire to continue to compensate our employees

well in wages and benefits, while confronted with dramatically escalating health insurance costs. The agreement enables WEC and the capable, dedicated and hardworking employees

who keep the lights on and the phone calls answered to continue to serve you and to strive to improve that service.

We have applied to the Public Service Board for approval to replace our Maple Corner substation in Calais at the current site. We then expect to ask all members to approve the project, as required by law, at our Annual Meeting in May.

This project, which will improve reliability for more than 800 members in that area of Calais and in Worcester, is part of a long-range plan to rebuild one of our older substations every few years. We have done similar substation replacements in Moretown and South Walden, and we will be providing more information and asking for your support for the Maple Corner project in coming issues of *Co-op Currents*.

### Call or write

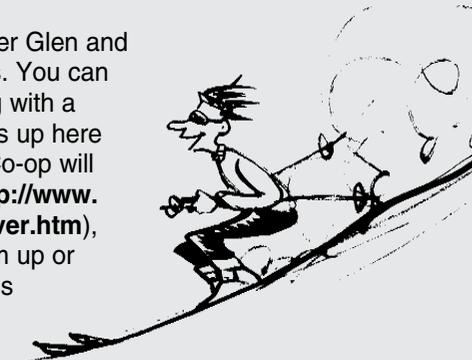
As always, please contact me or any of the members of your Board of Directors about any matter of interest or concern. Contact information is listed on page 2.

## 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, but weekday adult passes are one-third off, compared to tickets purchased at the basebox.

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!



# WEC CO-OP STORE

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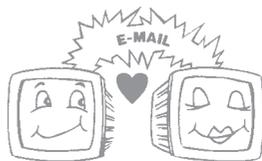
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## Coventry

continued from page 1

over transmission lines from the plant to a VELCO substation some seven miles away.

When the time comes that those engines and the methane wells that provide their fuel are operating together at their peak efficiency and capacity, they will generate approximately 4.8 megawatts (MW) of electricity. The first report from Dufresne-Henry, in August (see accompanying chart), showed the facility producing an average of 3.4 MW. By the end of 2005, production had reached 3.7 MW.

As this issue went to press, the final report for January was not yet available, but WEC General Manager Avram Patt said the reports would show the Coventry plant generating an average of 4 MW of power last month.

"It's heading in the right direction," said Patt. "The output is slightly better than we expected it to be at this point."

A landfill is, in a sense, a living, breathing organism. The gas it produces is created by microorganisms that colonize the landfill and consume the organic waste within it, producing methane as a byproduct.

But the systems for extracting the gas, and the engines that produce electricity, must be brought into harmony. The wells are monitored individually for methane and oxygen content, and modified for the appropriate

methane extraction. It takes constant tinkering in the early stages to get the collection system and the power plant working in unison. For this, the Co-op has relied primarily on Scott Wilson, an employee of IES (Innovative Energy Systems), the company that designed the station project for WEC, as well as IES'

*When the time comes that the engines and methane are operating at peak capacity, they will generate 4.8 MW of electricity. By the end of 2005, production had reached 3.7 MW.*



Plant Operator Scott Wilson has been fine-tuning WEC's electric-generation facility in Coventry. Under Scott's watchful eye, the plant has become increasingly productive.

proprietors, Pete Zeliff Jr, and Pete Zeliff Sr.

After construction, WEC contracted with IES to operate the plant. Wilson spent a lot of time in those first months refining the operation, and as a result there was considerable "down time" in July and August when the generators weren't operating at all. The Co-op had been advised from the outset that this would be the case.

"But by now we're almost done with the start-up phase, and the volume of gas coming from the landfill continues to improve," said the manager. "That's why we're seeing the power-output numbers steadily increasing. Actually, they have been, all along."

### Looking ahead

This level of performance has the Co-op and its consultants already thinking about the next stage: adding a fourth engine to increase power generation.

"Four-point-eight (4.8) megawatts is the maximum capacity our three engines will be able to put out when they are supplied with sufficient gas," said Patt. "The gas volume is growing slowly toward the capacity of our present equipment."

In late 2004, NEWSVT obtained a permit from the Vermont Public Service Board (PSB) to expand its operation and open new areas at the landfill to receive solid waste. As the facility grows and the organic waste "ripens," it will produce more methane gas. Adding a fourth engine will, in time, enable power production to reach 6 MW.

Encouraged by the production reports, the Co-op's Board of Directors is entering preliminarily planning for the next stage. That will include figuring out the financing

## Washington Electric Cooperative Coventry LFGTE Facility Production Summary

August 2005 - December 2005

Prepared by Dufresne-Henry

Month	Export to Utility (MWh)	Average Rate (kW)
Aug-05	2,123.1	3,408
Sep-05	2,408.0	3,514
Oct-05	2,569.7	3,640
Nov-05	2,689.9	3,750
Dec-05	2,760.0	3,777
<b>Totals</b>	<b>12,550.7 MWh</b>	<b>3,618 kW</b>

for the fourth engine and calculating when to begin the application process for a permit from the PSB. The additional engine will require another permit – called a Certificate of Public Good – but it's not expected to be as involved a process as obtaining the original Certificate for the landfill-gas operation.

"Originally," said Patt, "our advisers told us we might be ready to install the additional engine in 2008. But the way things are going now, it could be sometime in 2007."

At its present rate, six months into the project, the Coventry landfill gas operation is providing about a third of WEC's total power needs – at a cost far below what WEC would have spent purchasing the same amount of power in today's wholesale market.

This level of performance has the Co-op and its consultants already thinking about the next stage: adding a fourth engine to increase power generation. 

## Change In Plans For WEC Annual Meeting

### Later Date Gives Board Candidates Additional Time For Petitions

The date for Washington Electric Cooperative's 67th Annual Membership Meeting has been changed. It will be held this year on Tuesday, May 23.

The December, 2005, issue of *Co-op Currents* informed readers that the Annual Meeting would be held on May 2, 2006. However, scheduling changes related to issues that will be on the ballot have necessitated that the meeting be moved back three weeks. Members should also be aware that the location for this year's meeting has not been established as this issue goes to press. It will be announced in the March and/or April issues of *Co-op Currents*.

The change in the Annual Meeting date requires a similar change in the date by which members who are interested in running for a position on WEC's Board of Directors must submit their petitions. Previously that date was given as February 22, 2006. Potential Board candidates now have more time for collecting the required 25 signatures of WEC members. Completed petitions now are due on Wednesday, March 15.

Each year three seats on the Co-op's nine-member Board expire. Incumbent directors are permitted to run for re-election. When there are more candidates than open Board seats, the three candidates with the most votes win. Directors are elected to three-year terms, and serve at-large rather than representing districts. You must be a WEC member to run.

If interested, contact the Co-op to learn more about becoming a candidate for the Board of Directors.