

WEC CO-OP CURRENTS

'Country Road, Take Me... To WORK'

Vermont's Conservation Dilemma: Rural Transportation

When you look at Vermont on a map, you find it's only about 160 miles long and, on average, 80 miles wide. Its population, according to the 2006 Census, is 623,908.

So how on Earth can we be driving 7.7 billion miles a year?

The median household income for Vermonters in 2005-2006, reported by the U.S. Census Bureau, was \$52,174. Then how can we be spending \$1.1 billion a year for gasoline and diesel?

Nevertheless, those appear to be the facts before us, and their impact on our personal finances and on the climate become more severe every day. According to Vermont's 2006 Long-Range Transportation Plan, surveyed residents estimated that they traveled 52.5 miles on an average day. That's almost three gallons of gas for a vehicle that gets 18 miles a gallon, and at \$4.08/gallon (an average price for gas in mid-July), you'd be spending about \$12.25 per day to get around. Or \$367.50 per month.

The climate is suffering, too. The New England Governors and Eastern Canadian Premiers 2001 Climate Change Action Plan blames

more than 50 percent of the air pollution in the Northeast on the transportation sector, and notes that transportation is the single-largest source of greenhouse gases. The state's 2006 Transportation Plan reports, "Greenhouse gas emissions from transportation are both the largest and fastest rising.

"Commuting-Is-Us" these days, with jobs declining on the farmstead and in small towns.

The increased consumption of gasoline and diesel fuel from motor vehicles – mainly cars, light trucks, and SUVs – from increasing miles traveled is the major cause."

This is some pretty bad news, given Vermont's rural nature, and the fact that into our rural setting we have imposed a lifestyle far more urban, or suburban. "Commuting-Is-Us" these days, with jobs declining on the farmstead and in small towns.

These trends certainly apply in Co-op Country. Take Worcester, for example, a town with a large percentage of Washington Electric Co-op members among its approximately 902 residents (U.S. Census data).

As part of the Agency of Transportation's May 2008 "Way to Go Challenge" – which encouraged

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Vermonters drive more than seven billion miles a year, much of it on beautiful rural roads like this in East Montpelier. Our high mileage poses severe economic and environmental challenges.

'The Culprit'

Corinth Couple Borrows WEC's Meter; Tracks Down Their Home's Energy Hog

Tony and Teddy Mason-Sherwood were below average.

When you're talking about electricity usage, of course, "below average" is a good thing. But it wasn't good enough for the Mason-Sherwoods. They kept an eye on their monthly power bill from Washington Electric Co-op – not just the amount of money they owed, but also the line that tells how much

electricity they had used during the previous month – and it always seemed to come in at around 400 kilowatt-hours (kWh) in total.

"That felt excessive for us," says Tony, a computer programmer who lives with his wife Teddy (more formally, Theodora) in Corinth, "because there are just two of us."

Compared to the "average" WEC-member household, their

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Washington Electric Cooperative
East Montpelier, VT 05651

Inside

WEC applies for 5th engine at Coventry as the landfill's methane resource grows. If approved, members will be asked to vote. See Manager's Report, page 3.

How Juneau, AK, got its conservation act together, quickly. See President's Report, page 2.

First Wind's Sheffield wind farm proposal awaits court ruling. An update. Page 5.

Meet the Energy Coach. New (occasional) column helps members get started down the conservation road. Page 6.



A wall-mounted, tankless, LP-fired water heater. This item, in the Mason-Sherwood home in Corinth, has cut their power bill more than in half. Their page 1 story continues inside.

President's Report

Alaska's Crash Course In Conservation

And its Message for Vermont

By Barry Bernstein

I recently returned from a trip to Juneau, Alaska, for a family wedding, and the message of conservation, energy efficiency, and awareness of global warming was being incorporated and seen everywhere.

The wedding was a distinctly Alaskan experience. The bride was the captain of a whale-watching boat and her father was a tugboat operator (growing up, the family spent their summers on the tug). The groom was a native Alaskan attending law school. But on the trip, I, as always, had one eye on the ways that energy matters are handled in other cultures, and in this case I picked up clues as soon as I got on the airplane for Juneau. The feature article in Alaska Airlines' in-flight magazine was on ways to conserve energy and create a smaller carbon footprint – with suggestions ranging from: replacing incandescent bulbs with compact fluorescents (saving 75 percent of energy used and reducing carbon emissions by 150 pounds-per-year/per-bulb, equal to saving 7.5 gallons of gasoline), to an item for PC users about downloading, for free, GreenPrintWorld (www.printgreener.com), which eliminates “junk” such as legal print, salutations, cooking tips,



The seaside city of Juneau, Alaska.

etc., at the end of an email before printing it – saving both ink and paper (and, incrementally, electric power). In addition to Alaskan Air replacing its fleet with new, more fuel-efficient aircraft, they, along with my Continental Airline connection, were recycling bottles and other plastic and paper products used on the flight.

Upon arriving in Juneau, I learned that they had had major avalanches on April 16 that knocked out a 1.5-mile

transmission-line connection to their hydroelectric dam, causing them to supply power from their backup diesel generators at a time when diesel fuel was at an all time high. As a result of the switchover to diesel fuel, electric rates skyrocketed, retroactive to the date of the damage, from 11 cents per kilowatt-hour (kWh) to 52.5 cents/kWh (for reference, WEC's average is 15.9 cents/kWh).

The city, its residents and businesses, reduced its energy consumption by 40 percent in a week's time, through a massive energy-efficiency and -conservation effort called “Unplugged,” and three months later have been able to maintain much of those savings. There is nowhere you go that you will not see CFL bulbs. Every publication or newspaper I read had major features on saving energy. Folks lowered their thermostats, dried their clothes on lines, disconnected second refrigerators, etc. It was quite an accomplishment in such a short time, but spurred on by a major crisis.

I also saw the Mendenhall Glacier, right on the edge of Juneau, which has receded more than half a mile in the past few years, a fact pointed out to me a number of times by the locals. We visited the Alaskan Brewery, which ships its beer as far as Colorado. The brewery has developed a recycling process that captures the CO₂ emissions from its fermenting process and now uses in its bottling process, which allows the company to avoid its release into the atmosphere and also saves the costs of importing CO₂ from afar. The process is now being adopted by several other breweries.

Here at home

Change is coming to us all through increased fuel, food, and material costs, and Americans all over the country are beginning to respond and brace for next winter's even-higher predicted costs and beyond. While as WEC members you will not see any major escalation

in the cost of your electric rates, there will be added pressure on the Co-op's costs as a number of members try to avoid higher fossil-fuel bills by plugging in space heaters, thinking they may save on a gas or oil bill but finding out too late that they're not saving at all, as electricity is still a very expensive way to stay warm. If our “peak demand” – power used between 6 a.m. and 9 a.m., and between 4 p.m. and 9 p.m., which is our most costly power to buy – should increase, we will feel it, along with ever-rising material costs for operation our electric co-op. We hope that our new proposed three-block rate design – described in the June edition of *Co-op Currents* – illustrates clearly the increased cost of future power, and will encourage members to use electricity wisely.

In addition, when you consider how much your present, older appliances cost to run, or if you are now in the process of buying new appliances, make sure that energy efficiency is at the top of your considerations. The upfront initial cost is less critical, financially, than the purchase price plus the operating costs over the life of the appliance. A new 18–20 cubic-foot refrigerator, for instance, may cost you \$650 delivered, but will only use 400 kWh/year, while your current one, if more than 10 yrs old, may use 1,200–1,700 kWh/year. The result in an annual savings of \$128–\$208 would pay for the refrigerator in three to five years.


However, if you sign up for The Pledge you can get cash rebates toward appliance purchases of ENERGY STAR appliances, helping you lower that upfront purchase price, lower your electric bills, and helping your Co-op reduce our peak load and future energy power purchases..

Join The Pledge

Please call WEC or go online to our WEC website (www.washingtonelectric.coop) to learn more about our new “Pledge” program and consider signing up and being one of the first 400 WEC members to participate.

WEC does not want our membership to have to experience a crisis like the folks in Juneau, Alaska – to be forced to hold down our peak load as a result of overwhelming price increases. But we are a growing Co-op, and responsible for providing more power as time goes by. In the 1990s we were able to hold our peak load to between 13 and 14 megawatts (MW); it is now around 16 MWs, due to growth in our membership and to an increasing number of household items using electricity.

If we begin now to prepare for our energy future, we will be able to lessen a potentially painful experience later on.

I hope all of you enjoy your summer. 

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

Eying Fifth Engine for Coventry Plant, WEC Files For PSB Certificate

By Avram Patt

We are pleased to announce that Washington Electric Co-op has filed an application for a Certificate of Public Good with the Vermont Public Service Board (PSB) to expand our generating facility at Vermont's largest landfill in Coventry. The expansion will increase the plant's generating capacity to 8 megawatts (MW). The landfill is operated by NEWSVT, a subsidiary of Casella Waste Systems.

As readers of *Co-op Currents* know, WEC's facility in Coventry began operating in July 2005, at 4.8 MW. Its capacity was then expanded to 6.4 MW in January 2007. As the volume of gas produced by the landfill continues to increase, it is projected to begin to exceed the 6.4-MW capacity in the near future. Although the plant is not expected to operate at its full 8.0-MW capacity immediately, the expansion will assure that additional gas beyond the current capacity can be used to generate power for WEC's members.

The Coventry landfill-gas generating facility is currently generating about two-thirds of all the electricity used by the more than 10,000 member households and businesses in our service territory. This baseload supply source cost the Co-op 4.1 cents/kWh in 2007 including all capital, financing and operating costs. With this new expansion, the levelized cost of power through 2027 is expected to be 4.9 cents/kWh. Market power supply prices in the New England region have now risen above 10 cents/kWh. WEC is currently selling surplus power as a result of the project, further reducing our power costs.

We built this plant in order to secure

a long-term, low-cost and stably priced source of power. It was intended as our Co-op's long-term replacement for our Vermont Yankee contract, which ended in 2002, as well as to meet future needs as other supply contracts end. We also wanted to develop new renewable resources, close to home.

The Coventry plant has done exactly what we hoped it would for us, and WEC's total power-supply costs have actually declined in the last two years as a result of the project. This next expansion is more of a good thing, and we are hopeful the PSB will agree.

The Coventry facility is the largest power plant of any kind to have come on line in Vermont since 1992.

As members who have read about it or visited the plant know, it generates electricity by burning the methane created by decomposition of material in the landfill. Because methane is a potent greenhouse gas, landfills such as NEWSVT's already collect and flare it. The generating plant simply makes productive use of the gas and displaces the need for other energy sources.

Landfill gas is considered a renewable energy resource as defined by federal and state statutes, including Vermont's. In addition to receiving low-cost baseload power from the plant, the Co-op has also been selling all Renewable Energy Certificates associated with the present generating capacity in the New England market. This additional revenue has allowed WEC to stabilize rates at a time of dramatically increasing energy costs overall. We filed our last rate-increase request in 1999, and based on our forecasts we won't need to increase rates again for another few years.

The project will add a fifth engine

and generator to the four already in operation, and will require a small expansion of the existing building. The total cost is expected to be approximately \$3 million, to be financed through the Rural Utilities Service, USDA.

WEC hopes that the PSB will issue a Certificate of Public Good this summer, after which the project must also be approved by a vote of WEC's membership as required by Vermont statute. (WEC's members previously voted overwhelmingly in favor of the original project and of the 2007 expansion.) We hope to have the project completed and the fifth engine ready to operate by the beginning of 2009.

Operating the plant and expanding it as the gas volume grows has been a major undertaking for our small Co-op. We could not do it without the dedication and commitment of our management staff, board members, consultants and engineers, legal counsel, NEWSVT and Casella Waste Systems, and our plant operator, Innovative Energy Systems. Although there is a lot of work involved, and sometimes headaches too, it has certainly been worth it. It is gratifying when people I know at other Vermont utilities note what a smart move it was for WEC to develop this power source for ourselves.

It is even more gratifying, however, when Co-op members come up to me at WEC meetings, on the street or at the store, or as several did at the July 4th festivities, and say the same thing. Most utility customers don't know where their power comes from, and most also don't get to have a say about it, but WEC's members are more aware than most these days.

Get ready to vote

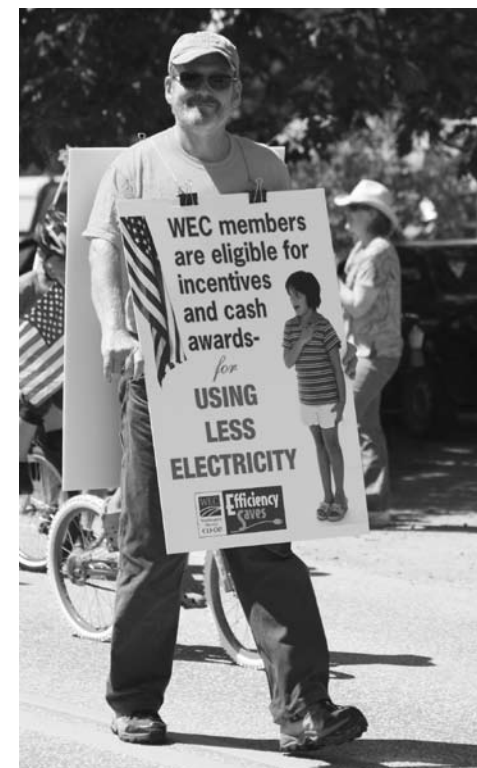
Which brings me to my final point: your opportunity to vote on this second expansion of our Coventry plant. As soon as possible after the Public Service Board issues a Certificate

of Public Good, we will call a special membership meeting and election, and will ask for your support once again. If all goes well this vote will occur in early September, but we cannot be sure of the timing at this point.

The announcement, detailed information about the proposed project, a summary of the PSB's decision, and vote-by-mail ballots will be included in a special package that will be mailed to all members. In the meantime, there is lots of information about the plant and about landfill-methane generation on our website. Please contact me or any of your board members with questions as well.



Avram Patt



A Patriotic Proposal on Independence Day. Local Energy Committees have been forming in many towns throughout Vermont to look at how local residents, businesses and governments use energy and to encourage small-scale renewable generation opportunities as well. WEC General Manager Avram Patt walked with the Worcester Energy Committee's float in his home town's Fourth of July Parade. Patt was a human billboard, promoting the Co-op's new Pledge Service, a package of incentives and cash rewards designed to get members to use less energy. (To take advantage of WEC's Pledge Service, visit WEC's website or call the office.)

Correction: Comparison of Current and Proposed Electric Rates with New Rate Design for Residential Seasonal and Commercial Seasonal Members

In the June 2008 issue of *Co-op Currents* we published a chart representing the effects of WEC's proposed new rate design on various categories of Co-op members. The chart misleadingly indicated that seasonal WEC members are

charged monthly, like our year-round members. They are actually charged in May and November, as indicated by the corrected chart below.

Class Of Service	Monthly Customer Charge	Existing Rates As Of 12/1/2000	Proposed Rates Effective 5/7/08
Seasonal Residential	\$55.44 6-mo. Prepayment (\$9.24/mo.) - 2.97 Discount of 5.36% for prepayment \$52.47 = \$8.75/mo. Current	1st 228 kWh/6 mos. \$0.07387 Over 228 kWh/6 mos. \$0.15322	1st 108 kWh/6 mos. \$0.09684 109-558 kWh/6 mos. \$0.09765 Over 558 kWh/6 mos. \$0.17342
	\$48.00 6-mo. Prepayment (\$8.00/mo.) Proposed		
Seasonal Commercial*	\$59.34 6-mo. Prepayment (\$9.89/mo.) - 3.18 Discount of 5.36% for prepayment \$56.16 - \$9.36/mo. Current	Per kWh/6 mos. \$0.14523	1st 450 kWh/6 mos. \$0.10765 Over 450 kWh/6 mos. \$0.17342
	\$48.00 6-mo. Prepayment (\$8.00/mo.) Proposed		

Rural Transportation

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commuters and school children to find alternate, healthier ways to make their trips, hoping to combat both obesity and greenhouse gases – local resident and WEC member Lise Thibodeau and Selectboard member Kathy Johnson (who chairs Worcester's energy committee) performed an unscientific study on commuting habits in the small Washington County town. Using 2003 census data, they determined that Worcester citizens commute to work in 26 towns (not counting eight cities and towns so far away – in Massachusetts and New Hampshire, for example – that Johnson concluded those workers likely stayed over during part of the week). Eighty-four people commuted within Worcester itself, while 162 residents made the 10-mile (one-way) trip to Montpelier, making that the most popular destination. The farthest commutes were to Colchester (five people) and Hinesburg (two), which are both 100 mile round-trips.

With those assumptions in place, Johnson did the math.

"I calculated these numbers as if every worker was traveling to their workplace alone, in a car, every day," says Johnson. In addition to miles traveled, she computed cost, she says, "at the lovely old rate of \$3.35 per gallon" – an average price of gas when she made her calculations in May.

The conclusions: Worcester commuters travel 14,146 miles round-trip every workday (roughly two and a half trips from Worcester to Seattle and back). That's 70,730 miles per week. At the supposed gas-mileage rate of a Subaru – 25 miles per gallon – they consume 2,829 gallons of gas per week, spending (at that nostalgic rate of \$3.35/gallon) \$9,478 every week.

"We know that the numbers were ballpark," says Washington Electric General Manager Avram Patt, one of those 902 Worcester residents (he commutes to WEC's office in East Montpelier). "Nevertheless, it was kind of a jolting discovery, how much energy usage and climate impact comes from our one little Vermont town."

Settlement patterns

From a climate standpoint, and increasingly from an economic standpoint, numbers like these seem unsustainable. But what are people in Washington Electric's 41-town service territory, which is entire rural, supposed to do? When it comes to conserving money and greenhouse gases, rural transportation is one of the most intractable problems we face.

"I think transportation is a looming disaster for New England," says Brian Shupe, director of planning programs for the Vermont Natural Resources Council (VNRC). "The cost of transportation is higher than the cost of housing for some low-income families, and as we continue to develop in scattered-development patterns that make people more automobile-dependent, we're not doing anything to address affordability

or global warming."

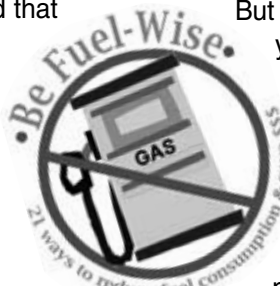
There are two paths for mitigating the problems associated with rural transportation.

The first is to find immediate solutions: reducing our usage of the single-occupancy vehicle and getting the best mileage we can from the vehicles we have (or trading for more fuel-efficient ones). Individuals are taking these matters into their own hands by finding carpooling partners, and – when their employers are willing – working some days at home.

But for people who haven't yet worked out carpooling arrangements the Vermont Agency of Transportation is a great resource. The AOT coordinates bus routes, carpooling partnerships, vanpools and other programs, and endeavors to make its own programs flexible to meet people's needs.

The second solution is longer-range. It involves making Vermont more like it used to be – a place where people didn't need to commute because jobs were available close to where they lived.

"Our rural-transportation problem is basically a land-use problem," says VNRC's Shupe. Because. Shupe says, the bottom-up planning vision at the core of Act 200 (1988's "Growth Management Act") never really got traction in Vermont, there have been no effective brakes on scattered and



You can get there from here. GMTA's "Montpelier Link" to Burlington has four stops in the capital city, and ridership has grown by 36 percent over the past year.

strip development. Consumer goods are concentrated in malls and our largest cities, leaving most villages and smaller cities with little to offer. This, and the trend of segmenting property so that it is not productively rural but occupies a lot of land, encourages dependence on the automobile.

That's how Vermont turned into a state of some 12,800 square miles where people drive more than seven billion miles a year.

But by encouraging local financial enterprise – farmers markets, community-supported farms, greater agricultural diversity and new forest products (for example, the wood pellets

and grass pellets that are increasingly in demand for heating fuel) – not only can we meet essential needs like food and shelter, we can also put more jobs in the countryside and reduce work-related travel.

Furthermore, by living up to the ideals envisioned in state initiatives like the Village Center Program we can revitalize our smaller communities so it's not necessary to travel 50 miles to get to a decent job.

Of course, we could blithely remain a state where people drive around for miles by themselves. But necessity may well force changes upon us, and the transition will be more palatable if we take our destiny into our own hands.

Fuel Wise

Whether you're the "commuter" or the "commutee" – in other words, whether you're the driver or the passenger on the daily trip to work – or if you're driving around for any other reason, the AOT has some tips for you about getting the best mileage you can out of your car.

You can find this list on the agency's website, <http://www.aot.state.vt.us/>. Do the same thing you would if you were looking for commuter information. Look under "VTrans Spotlight" and click on Go-VT. When that page comes up, scroll to the bottom and find the Be Fuel-Wise" logo (pictured above), and open it up. There you will discover 21 well-described methods for reducing your automobile fuel consumption.

The site reminds us: "For every gallon of gas that you don't have to buy, you save money. You also reduce pollution significantly – every gallon of gas you burn generates 20 pounds of carbon dioxide, the primary contributor to global warming."

Many of the tips are standard stuff, though they bear repeating:

"Maintain proper tire inflation," "Remove unnecessary weight," "Keep your car well maintained" – except that the site provides explanations and information even about these more-obvious recommendations. For example, under "Remove unnecessary weight," the column informs us that "an extra 100 pounds can decrease your fuel economy by more than 1 percent."

Then there are the less-obvious tips, and the answers to questions that in many families have caused long-running battles. Who's right, the air conditioning advocates or the open-window advocates? Here's what Be Fuel-Wise tells us: "Use air conditioning sparingly. On average, a car uses about 20 percent more fuel if the air conditioning is on. If you are driving less than 40 mph and can be comfortable without the A/C, open your windows instead. Above 40 mph, A/C is preferable because open windows increase wind resistance. Try to keep the A/C at 75 degrees." (See, you're both right.)

There are more such tips. In fact, the page makes interesting reading and is worth going back to occasionally. Being "fuel wise" is getting more important by the day.



"People need to know basic things about conserving gasoline, like 'don't drive around with your canoe on the top of your car,'" the AOT's Gina Campoli told your Co-op Currents editor, who had just put his canoe on the top of his car.

Buses are for riding

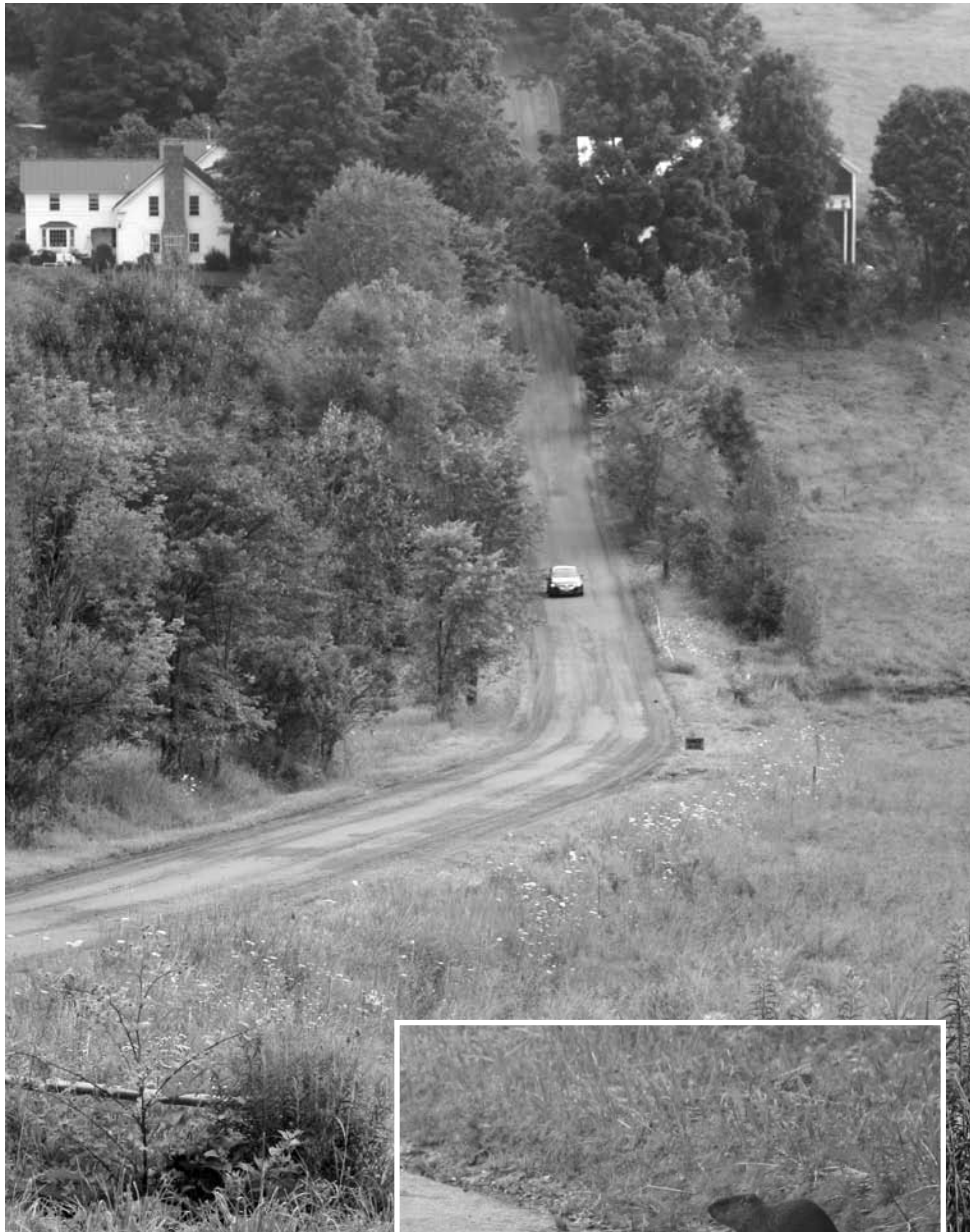
If you work someplace distant from home – even if it's only eight or 10 miles away – and you want to make your daily travel more affordable, the best way to start is by sitting down at the computer and going to <http://www.aot.state.vt.us/>.

It's the website of the Vermont Agency of Transportation, and while it's full of interesting information, the kernel, for folks looking to reduce or eliminate their daily driving, comes under the banner "VTrans Spotlight." Clicking on Go-VT (subtitle, ConnectingCommuters.org) will take you to a webpage with links for each of Vermont's counties – and those links, in turn, inform you about carpooling and vanpooling and guide you to "Park-and-Ride" facilities where you can safely leave your car.

There is also a link to each county's public transit provider and its services and routes. In Orange County, the providers are Stagecoach Transportation Services and Advance Transit. In Washington County it's the Green Mountain Transit Agency (GMTA), and in Caledonia County it's Rural Community Transportation. GMTA and Rural Community also serve parts of Lamoille County.

We frequently fall into the mindset that if we have to drive to a bus stop we might as well drive all the way. Today's gas prices, and that good angel on your shoulder urging you to tread lightly on the environment, should convince you to rethink that assumption, because once you're in or close to a more urban environment public transportation can take over.

Examples: drive to Barre and take the bus to Montpelier; or drive to



An early summer morning found a driver (above) and a pedestrian (right) out and about in East Montpelier.



Montpelier and take the commuter buses to Waterbury or Burlington (or the Snow Cap Special for to the Mad River Valley and its ski areas). You may have to do a little walking on the other end (though there are several stops in each town), but that's not a bad thing. Or you may find that a local bus system can finish off your trip conveniently.

People are beginning to see the light and take more advantage of public transit. The AOT reports that ridership has increased on all 12 of Vermont's public bus systems, and the "Montpelier Link," which offers several trips at morning and evening commuting times between Montpelier and Burlington, has seen its usage grow by 36 percent over the past year. Besides its various downtown bus stops, the Montpelier Link also stops at the Montpelier, Waterbury, and Richmond Park-and-Rides. For central Vermont commuters to Chittenden County, this service can save you thousands of dollars a year.

Information on schedules, fares, and other details are on the AOT's website.

There's no denying that public-transportation opportunities are more abundant in Washington County than in other parts of WEC's service territory (although for people centered closer to Randolph it's worth checking the AOT website for public transportation opportunities to Bethel, Dartmouth-Hitchcock Medical Center, and other points east and south.

Carpooling and vanpooling

Let's go back to the G0-VT web page (<http://www.aot.state.vt.us/government/>) and look at the links on the left. If public transportation can't help you, perhaps "Carpool" and "Vanpool" can. "Carpool" takes you to the state's RideShare programs, "Vanpool"

provides information on vans that are made available to groups of people who want to combine their resources and travel together.

"Vermont RideShare has been around for a long time, but it's being

revamped to make it more user-friendly," says AOT's Gina Campoli.

Essentially, Vermont RideShare is a carpool matching service, also with links to other carpool websites. An important feature of the RideShare program is its "guaranteed ride home." Vermont RideShare will pay up to \$50 in taxi fare per emergency – an estimated 30-miles trip – and can be used up to twice a month and six times within a calendar year.

"People think this is a big issue – their ability to get home in case of an emergency – and they are sometimes reluctant to commit to a carpool out of fear that they won't be able to get home," says Campoli.

The surprising thing is how little it's used. "We have thousands of people in our database, but the Emergency Ride Home has been used a minimal number of times." Still, the service

'First Wind' Awaiting Supreme Court Ruling On Sheffield Proposal

The 40-megawatt wind-power facility planned for construction in Sheffield, Vermont, has been delayed by an appeal of the Certificate of Public Good granted to the project's developer in August 2007 by the Vermont Public Service Board. Appeals of Public Service Board decisions are heard by the Vermont Supreme Court.

A spokesman for First Wind (formerly UPC-Vermont Wind) said in mid-July that the company had made good use of the time while awaiting a decision on the appeal. Matt Kearns, First Wind director of project development for the Northeast, said the company had been busy finalizing details on construction planning, making minor electrical changes to the 16-turbine project, and mapping out a route for transporting large equipment through small towns and rural roads en route to the site. Kearns was not willing to speculate when the final decision might come from the Vermont Supreme Court.

"We're committed to the project and looking forward to beginning construction," he said. "The value of the project to Washington Electric Cooperative is only getting better in terms of the economic and environmental benefits to the WEC consumer. When you look at the energy market, there are only increasing uncertainties."

Yet no progress on Sheffield can be made until the state Supreme Court issues its decision. Opponents of the project, an organization known as the Ridgeline Protectors, appealed the PSB's decision in January 2008. The Supreme Court heard the case in May.

The date when the Court will announce its decision is unknown. First Wind officials indicated that they could not, therefore, predict when construction could begin if the Court affirmed the PSB ruling. No one can say for certain when Washington Electric might receive its first wind-generated electric power. First Wind has agreed to sell WEC 4 megawatt-hours, approximately 10 percent of the project's output, once the Sheffield facility is in production.

As with most regulatory approvals, the Certificate of Public Good (CPG) included conditions the developer must meet to comply with its permit. Those 32 conditions included maximum noise levels, wildlife protections, and minimizing the effects of construction traffic.

"We've been doing transportation planning, and I think we've got good solutions that folks will be pleased with," said Kearns.

Additionally, the Army Corps of Engineers has undertaken a detailed review of the project's compliance with federal wetlands regulations.

"There are certainly still challenges ahead," Kearns conceded, "but we have high confidence that those will be resolved. We think the project works on its merits. The Public Service Board agreed, and we expect its approval to hold up."

The Sheffield proposal was the first commercial-scale wind-power proposal to win approval from the PSB since Green Mountain Power's 6-MW Searsburg project in 1997. For WEC, it would be the first wind-generated electricity in the Co-op's power portfolio.

"We're hopeful that the Vermont Supreme Court will support the Public Service Board's findings in this case and that they'll issue a decision in the next few months so that First Wind can get a start on the project," said Washington Electric President Barry Bernstein. "We're excited about the possibility of adding wind power to the already substantial renewable energy sources that supply our power."

removes a barrier to enrollment for people having a hard time giving up their autonomy.

Campoli is also enthusiastic about the imminent overhaul of the Vanpool program.

"We're contracting with a company that will provide a van, which comes with insurance. You need at least eight people who will commit to using it regularly," she says. "There will be a per-month charge to the group. If you have, for example, 10 people going 70 miles a day round-trip, they could expect to pay between \$75 and \$85 per person per month, which is a lot cheaper than driving a car."

WEC General Manager Avram Patt is a former public transportation planner and developer as a co-director of CVTA (forerunner to GMTA) in the early 1980s, as well a former bus and van driver.

"The vanpools are kind of like a

co-op," Patt says. "Usually, the group selects one person to keep the van and be the driver, maybe someone else to handle membership duties. Vanpools can be a very flexible alternative for people in a rural area; you do have to find a gathering point for people to leave their cars. It cuts way down on costs and wear-and-tear on the personal automobile. And it makes sense even for someone who may need to drive their car to work one or two days a week because they need to stay late or travel during the day."

If you can coordinate your own carpooling system – as AOT's Gina Campoli does, carpooling to Montpelier from Craftsbury – then knock yourself out. But if you haven't done that, the AOT webpage is terrific resource.

You can also call the agency. They'll tell you about ways to leave your car at home – and survive!



AN OCCASIONAL COLUMN FOCUSING ON PERSONAL ENERGY USE AND TAILORING CONSERVATION TO YOUR NEEDS.



Meet the Energy Coach You Can Do Better Than 'Average'

By Bill Powell
Director of Products & Services

Members are always asking us here at the Co-op about various issues of electric usage or energy usage generally. Often the member will say that he or she wishes to be "efficient" and do the right thing. That's commendable, but what is "the right thing" to do when it comes to "efficiency"? There are some universals, and some conservation fixes that must be tailored to your house, your needs, and your life.

From an engineering perspective "efficiency" is about the energy used to perform a task (or "work"), compared to the gross energy input. So one can think of efficiency as the gross-to-net ratio. And today there's a lot of information about "efficient" appliances – for example, those with the "ENERGY STAR®" label, which use less energy than "standard" appliances or equipment.

However, it makes no sense to have efficient equipment if the human beings using that equipment don't use it correctly. So the Co-op advises that members begin to learn about their role and responsibility for energy use. Because remember, the equipment is just equipment; you're the one with the brains.

Another aspect of helping members understand their role in all energy use is to help them gain an appreciation of the volume of energy being used, especially as compared to the "average." It's not a difficult calculation, but it's critical to know how you and your household compare in the great big universe of energy consumption.

As an example, the average kilowatt-hour (kWh) consumption for residential households in Vermont is around 19 kWh per day (nearly 7,000 kWh/year). The question you should be asking is "What's my number?" because you need to understand where on the consumption spectrum you now are in order to gauge where you need to go.

The Energy Coach has had members, who upon hearing this and realizing that their electric usage was "about average" then state, "Oh, we're using an average amount of electricity! No problem!"

This is exactly the opposite reaction that an "efficient" consumer should have.

In this context being "average" is "bad," and being above average is "more bad." Maybe "above average" is okay Lake Wobegon, but not here. In

today's global energy situation we need to assess where our personal energy use goes and then make changes to lower our use, cost, emissions, and carbon footprint.

The rule the Energy Coach uses is: "reduce the use; make your own." While it's possible today to make some or all of the electricity a household uses, that's not the first thing one needs to do. First order of business is to skinny down on your household electric consumption, to a place where your daily average is significantly less than "the average." You've got an easy way to do this: you can find your average (kWh/day) by looking at your Co-op bill.

Once your average is down in the area of 10 kWh/day or less, then if you're so inclined (and the Energy Coach hopes you are) you should consider making some or all of the power you use.

For members already using single digits of electricity per day, that's something the Co-op applauds and encourages. The Energy Coach, as they say, "tips his cap." And it's really the starting point for the next step: "making your own." Vermont allows member self-generation of electricity under its net-metering law. You can find out more about it by going to our website (www.washingtonelectric.coop).

In the big picture, the Co-op's power consumption, for all of its 10,000 members, can be seen in the graphs to the right. The first graph shows that our membership is nearly evenly divided between those who consume more than 15 kWh per day, and those who consume less than that amount (the graphs are based on residential usage, as our Co-op membership is about 97 percent residential).

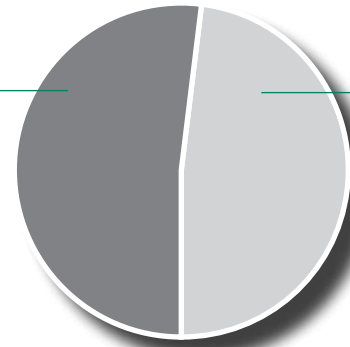
The second graph shows that the approximately one-half of the residential members consuming 15 kWh/day or more, use about 76 percent of all the energy the Co-op provides. The half whose usage is less than the median of about 15 kWh/day use only a fourth (25 percent) of all the energy the Co-op provides.

When it comes to looking for the households where there's clearly room for improvement, we look first at those using more than 15 kWh/day. (Remember what the bank robber Willie Sutton said: he robbed banks because "that's where the money is.")

If you've gone to look at your latest bill, you know where you stand. You're either "average," "above average," or "below average." Knowing is the first step.

Median Usage of Co-op Households

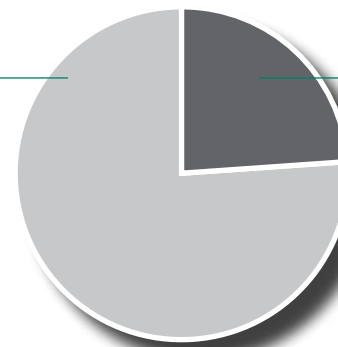
Percentage of all Co-op households with an average usage of less than 15 kWh/day (52%)



Percentage of all Co-op households with an average usage of more than 15 kWh/day (48%)

Distribution of 2005 Residential Energy Usage

Percentage (76%) of 2005 energy consumption by 52% of membership with an average usage of more than 15 kWh/day



Percentage (24%) of 2005 energy consumption by 48% of membership with an average usage of less than 15 kWh/day

At Washington Electric Co-op we encourage everyone to think about efficiency. Even if you're on the low end of power consumption you may still find places to reduce, and it can be fun to watch your usage decline on your WEC bill each month. Give us a call and we'll see what we can work out.

But if you're "average" or above, the Energy Coach would particularly love to

hear from you. You may qualify for the incentives included in WEC's Pledge program for energy-usage reductions. Whether you do or not, energy savings in today's world provide their own rewards.

Get in the game! Call the Energy Coach at 223-5245 (or 1-800-WEC-5245), extension 329.



A hearing panel of the Vermont Public Service Board convened a public hearing on WEC's proposed Rate Design and Integrated Resource Plan on Tuesday, July 15, at East Montpelier's Old Brick Church. Approximately a dozen people attended.

Tracking Down a Home's Energy Hog

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monthly usage was actually low. For year-round residential Co-op members, the monthly average is more like 570 kWh. But Tony and Teddy were long-practiced in the art of conserving power and wanted to be good at it.

It was during a stint living in Connecticut that they had gotten the conservation bug. They bought power strips with on/off switches for all the electric equipment that they used intermittently, like the entertainment system. (Here's a tip for the rest of us from Tony: "I used a testing device and found out it was drawing 60 watts in the entertainment system with everything turned 'off'" – the result of what's called phantom, or standby, power). Tony had even set up a couple of what he describes as "flaky" solar panels and a battery system, one of which was dedicated solely to his precious computer equipment and provided power even when there were electricity outages.

Since returning to Vermont and moving to Co-op territory in 2005 they had continued to be conscientious about their power consumption, changing all their light fixtures to modern fluorescents, and replacing the seals on their refrigerator. But they couldn't seem to beat that 400 kWh/month.

Then, one evening last October, they drove to Tunbridge to attend one of the Co-op's annual community meetings, held in the basement of the town hall. And when Products & Services Director Bill Powell spoke about the various forms of assistance WEC provides to help members conserve power, they listened with interest as he said that people could borrow test meters from the Co-op, which they could attach to their 110-volt appliances and devices for 24 hours, and which would tell them, in kilowatt-hours, how much power it was drawing. There was also literature that gave a range of desirable power usage for refrigerators, freezers, TVs, etc. The test meter is a great way for people to begin forming priorities as they set themselves on the

The Pledge

The WEC members featured in these stories – the Mason-Sherwoods and the Heidenreichs – made their moves to reduce power usage before WEC's Pledge program got underway. They saw the merits in conserving power, and they went for it. In both cases, Washington Electric helped out as it could. But now Pledge is up and running, and can provide further support and financial incentives to help members achieve their conservation goals. If you want to get into the act, call Products & Services Director Bill Powell at the Co-op, and ask about "The Pledge." It could be one of your better moves.

road to conservation and lower electric bills.

At the end of the meeting, Tony asked Powell how he could go about borrowing one of the Co-op's meters. Powell said "Here," and gave him the meter he'd been displaying.

Homeward they went, Tony and Teddy, and began testing everything they could – the refrigerator, the little chest-type freezer in the basement.

"Everything came out within reasonable levels," says Tony, "pretty much where they should have been."

So now they had information, but not a conclusion.

When the Mason-Sherwoods left for weekends or brief trips away, they read their electric meter before leaving and after coming back, and it seemed that even when no one was home they were eating up around 10 kWh/day. All signs were pointing to the one appliance they hadn't been able to test, because it's on a 220-volt circuit: the water heater (commonly known as the "hot water heater" – which isn't as redundant as it

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Tracking Down a Home's Energy Hog

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sounds because the thermostat does force it constantly to reheat water that could still be considered hot). Tony had read conservation literature that recommended insulating hot water pipes, and he had noticed that even pipes pretty far from the electric tank were quite warm to the touch, whether anyone had been using those lines or not. Clearly, energy (costly energy) was being expended.

Proof of the pudding came when the couple went away for a week last Thanksgiving.

"I threw the circuit breaker for the hot water heater, and our power dropped

down to almost nothing while we were gone," Tony reports. "The hot water heater was the culprit!"

And that's not just because it was old. In fact, Tony didn't think it was very old – "Maybe five or six years, I'm guessing. It came with the house when we bought it in 2005."

"Electric water heaters are one of the things we tell people about when they call to ask about their electric bills," says Powell. "We don't want them to assume that that's the only problem they have, so we encourage people like Tony and Teddy Mason-Sherwood to use the test meter and really find out what's going on in electricity usage in their homes. But if people have an electric hot water heater, there's a good chance that it's playing a role in driving up their usage."

A 'tankless' task

Well, now what were the Mason-Sherwoods to do?

They looked into alternatives for hot water, including talking to their LP gas provider (they have a propane furnace to back up their wood stove for heat). In the end they settled on a tankless LP heater that turns on upon demand. Tony, who describes himself as a "do-it-yourself maniac," did the switching from the old water heater to the new. It took him about three-weeks to get it done, working mostly on weekends.

"This thing doesn't have any tank," says Tony. "It heats the water on demand. It sits on a wall in the basement. We were able to put it close to the sinks and hot water outlets, so it comes through the lines faster."

They toyed with the thermostat until they had it the way they liked it for their showers. As a matter of fact, the thermostat is one of the new system's best features, because it isn't hidden away, inaccessible, in the basement; it's on an upstairs wall, and since it's digital Tony and Teddy can change the setting easily, and time they want to.

"If our son is visiting and he's taking one of his long showers, this is an easy way to get him out, just by changing the temperature," Tony says with a laugh.

It's said that you have to spend money to make money. Likewise, you also (often) have to spend money to save money. Tony admits that the tankless LP heater wasn't cheap.

"It was a substantial investment, \$1,300 for the unit," he says. "But the federal government gave us a \$300 tax credit against the cost, and that made it comparable to buying a conventional, tank-type gas hot water heater. We bought it locally, from our gas supplier, and the price included all the parts needed to install it."

The other financial reward, besides the tax credit, came with their first WEC power bill. The couple looked again at the monthly usage line.

"It just plummeted," Tony says. "The electric tank was burning about 200 to 250 kilowatt-hours a month – just that one appliance. Knocking that off brought us down to where most of our electric usage is at the Co-op's lower rate now, so the Co-op's pricing structure made it a huge advantage for

us to drop our usage."

Tony reports that their bills went from around \$100 a month to \$32-\$35 a month.

Washington Electric's Bill Powell adamantly supports the choices they made.

"When you go from a storage vessel to a tankless system, it's a quantum leap in terms of thermal efficiency," says Powell. "With a tankless system there's no standby loss of heat, which is essentially two-thirds of the cost of running a tank-type water heater."

It's true that while the Mason-Sherwoods are using less electricity, they're using more LP gas. On that score, Powell reiterates the message WEC has been giving to anyone thinking about switching to electric power for hot water, space heating, or other major uses: that the relationship between the cost of electricity and the cost of oil or propane is constantly fluctuating, wildly; and people should not make long-term decision based on short-term prices of the day. WEC expects electric costs to follow their decades-long trend and go nowhere but up. Despite WEC's investment in landfill-methane power, which has brought stability to the Co-op's rates, using electricity sparingly is still the wisest course.

"That dinner last fall in Tunbridge was phenomenal for the information it made available to us," says Tony, "and one of the things they stressed was that Vermont is going to have to renegotiate rates with the Canadian power supplier [Hydro Quebec] – if that contract is renewed at all." Since Washington Electric has to purchase power to supplement the electricity it produces itself, Tony adds, "As Co-op members, we're really helping ourselves if we cut down on what we use."

And as for Tony and Teddy's gas bill? Certainly that went up with the switch to an LP water-heating unit.

"I'm still calculating that," Tony acknowledges. "We use our propane furnace as little as possible. But I know this: We had one fill-up this winter, and we're still running on that. We haven't had to buy gas in six months."

Meanwhile, in each of those months, they've been paying some \$65 less for electricity. Not a bad deal. 🐭

The Little Things

Seeing is believing, and when Jim Heidenreich of Topsham sees information displayed in graphic form he finds it convincing. He credits this analytical approach to his father, a chemical engineer who was appointed the town's energy coordinator back in the 1970s, the first time Americans were jolted into concern over their energy consumption.

Jim keeps a running chart of his family's residential electric usage, which is easy to do because the Co-op provides a monthly total with every electric bill. What he likes most is to see it drop.

Jim emphasizes that he and his family haven't gone to heroic lengths to cut their home energy usage, but his charts show that even little things can help. One of the first little things the Heidenreichs did was to switch their light bulbs to CFLs (compact fluorescent lights) – and they did it years before CFLs became popular.

"This was a long time ago, when CFLs were more expensive," says Jim. "There was an offering through Washington Electric, where Co-op members could order them from a company that supplied them. We got into it and ordered a bunch of those. That's been our light source in the house for eight or 10 years or more."

Another investment the Heidenreichs made came during the winter holidays last year, when they bought LED Christmas lights. Jim was in the right place at the right time – present when Tony Mason-Sherwood (see "The Culprit" page 1) returned Washington Electric's test meter to WEC board member Wendell Cilley. Jim expressed interest in using it, so Wendell just handed it to him. (It eventually made its way back to the Co-op.) When he got home Jim used the testing meter to compare the energy draw of a string of conventional Christmas lights with a string of the new LED lights. He discovered a dramatic difference.

"With the LEDs on, it [the power draw] was absolutely minimal. So we used only LED Christmas lights."

While he had the meter he tested a few other things, too. After all, seeing is believing, right?

"I put the meter on the television, and I was surprised how much less [electricity] it used than I thought it was going to," says Jim. "Also, I tested the refrigerator, and found out that it was using less than I expected."

"But I also used it on the desktop computer, which used a whole lot more power than I expected."

The 'fridge and the computer, in fact, were roughly comparable – the computer using 1.8 kWh/day and the refrigerator 1.25. "When you combined those two things, it was almost half our kWh usage," he observes.

And this information led to a simple solution for reducing their power usage and cutting their Co-op bill: Unplug the computer when it's not in use.

"You can't unplug the refrigerator," he says, "but you can unplug the computer, and it's made a huge difference."

Other things contribute to Jim and Gloria Heidenreich's low power consumption. They have a gas water heater, for one thing, and it hasn't hurt – at least in terms of their electric use – that their household of six is now a household of two, with children grown and moved away. But their usage got markedly lower after Jim made a habit of unplugging the computer – and he has the charts to prove it.

"Our high, in recent years, was 12 kilowatt-hours a day back in July 2006," he says, "and again in March 2007. It's been steadily dropping from there. It was about 10 kilowatt-hours a day at Christmas time, and in the bill for February/March 2008 it went to 6 [kWh] a day. In May/June it was down to five a day."

Keeping track worked for him. "Maybe more Co-op members should make their own charts [of their monthly power usage]," he suggests, "because the number is right there on the bill." 🐭



Teddy (left) and Tony Mason-Sherwood, who borrowed WEC's test meter and located their home's energy culprit – their electric water heater.