

WEC CO-OP CURRENTS

'Up Close And Personal' With Wind Power

WEC Directors Share What They've Seen, Heard and Thought About Commercial Wind

Introduction by Avram Patt, WEC General Manager

There has been a lot of news about wind energy in Vermont recently. The Public Service Board denied the application of East Haven Wind, the first new wind project proposed in Vermont. The developer of that project has stated that he feels that wind energy is "dead" here because of Governor Douglas' and his administration's flat-out opposition to any commercial-scale project.

Ironically, on the same day the East Haven application was denied, the manager of the utility that was going to take all of the power from that

project, Lyndonville Electric Department, was before village trustees telling them that the company that is planning a massive expansion of the Burke Mountain ski resort (itself an "industrial" development of a whole mountain if there ever was one), had informed him that they are going to need to more than double that utility's electric load, a 115-percent increase!

Is anyone connecting the dots here?

UPC, the company proposing a wind project in Sheffield and Sutton that WEC would receive a portion of the output from, is going forward. A couple of weeks ago, I read the preliminary testimony of our state officials at the Department of Public



Linda Gahne Fox

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The Buffalo Mountain Wind Farm is a TVA project located near Oak Ridge, Tennessee. Less picturesque are the scars of coal extraction on other nearby mountains.

President's Report

Early A.M. Fire Temporarily Sidelines Coventry Facility, But Plans Move Forward

By Barry Bernstein

I am assuming most of our membership has heard about the unfortunate fire we had at the WEC Coventry plant early in the morning on Tuesday, August 8. The fire started as a result of an oil leak on the #1 engine, and caused significant damage to the engine room and the building's roof and structure.

When I received a call at 2 a.m. that morning from General Manager

Avram Patt informing me of the fire at the plant I was obviously distressed. Avram and WEC Operations Director Dan Weston were at the plant by 4 a.m. Here we were, 13 months along since start-up, running at close to full capacity and planning for the installation of the fourth engine in early fall, and this totally unexpected event stops us in our tracks.

However, we knew we had to move forward, and early that day the

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Inside

2006 Capital Credits program. The time for WEC to distribute annual equity payments to Co-op members is approaching. Details of this year's program, and a request to help us reach former members, are on page 4.

Co-op Coventry plant to expand. Washington Electric Cooperative has applied for a permit to install a fourth generating engine at the landfill gas-fired plant. It will mean more, affordable power for WEC members. Page 2.

What to do with defunct or broken fluorescent bulbs?

They've saved you a pretty penny by conserving electricity, but when they're done they must be disposed of properly. See 'Waste Not' for guidance. Page 5.

Credit Unions are Co-ops, too. For information on credit unions and their availability in central Vermont, see our Vermont Cooperatives feature on page 7.



The Co-op Store, a regular feature of Co-op Currents, was elbowed out of this issue by our Capital Credits list and our wind farm stories. For energy-product information and other Co-op opportunities, go to WEC's website. Co-op Store will return in our September issue.

Washington Electric Cooperative

East Montpelier, VT 05651

President's Report

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phones were ringing and everyone who had worked on the project during its construction, and were so proud of the project, was committed to help. By early afternoon we had assembled most of the key players on-site to assess what we needed to do to get the plant back on line as soon as possible – to minimize the added costs to WEC of purchasing power at volatile market prices, and the temporary loss of revenue from our sale of renewable energy credits (RECs) based on power production at the plant.

The team we assembled at the plant included the key players at Innovative Energy Systems (IES, the plant's designer and chief operator). These were Pete Zelif Sr. and Pete Zelif Jr. Both were coming from New York State. Pete Sr., a licensed pilot, flew to the small airport next to the NEWS landfill. Pete Jr. arrived by car at 7 a.m. Scott Wilson, IES' on-site manager at the plant, got the alarm call in the wee hours and had arrived hours earlier along with the Newport Volunteer Fire Department.

Others who shuffled their commitments to assemble hurriedly at the damaged plant site included Bernie Demag of Pizzagalli Construction and Dennis Plaster, senior engineer from Milton Cat. Josh Trombley, former electrical foreman with Bates & Murray,

and consultant and WEC member John Warshaw also arrived, and our technical staff members Bob Fair and Mark Maloney. Back at our office, Special Projects Administrator Denise Jacques coordinated the response. By the next day long-lead-time items were placed on order, our insurance adjuster had given the okay to go ahead, and Albie Borne, vice-president and project manager with Bates & Murray (which installed the wiring) had determined the electrical components that would be needed.

We hope to have the engines repaired and back in place by mid-September, and our goal is to be back on line sometime in October. As Avram Patt keeps reminding me, this is indeed a setback for us, but the plant will provide power for 30-plus years and this shutdown will be just a blip in a successful project's long history. It's important for our members to know that we remain on schedule for conducting a membership vote for approval of the fourth engine in late September (see "Co-op Plans Expansion", below), with the goal of stepping up our power in December.

I want to publicly express our appreciation to the City of Newport Volunteer Fire Department for its quick and effective response. By the time Avram and Dan arrived at the plant at 4 a.m., the fire had been extinguished and the crew had left. To quote from Avram's



WEC's methane-powered generating station in Coventry suffered a fire on August 8. The fire was quickly contained, with damage largely confined to the roof and some of the equipment in the engine room.

subsequent letter to Newport Fire Chief Eric Degre: "Our plant operator, Scott Wilson, told me he was very impressed with the professionalism and training of your people, especially in what was clearly a dangerous industrial situation. This is all the more commendable for a volunteer department. When it comes to fires, being able to say 'it could have been worse' means that we have the firefighters to thank."

While there is much news to discuss

with the membership concerning the sale of Green Mountain Power Corp., the doubling in cost of the VELCO transmission-line Lamoille upgrade, the UPC Sheffield/Sutton wind project, and Efficiency Vermont's increased energy efficiency budget, I will wait until the next *Co-op Currents* issue to go into detail on those subjects, given our current primary focus with bringing Coventry back on line.

We continue to appreciate our members' support as we move forward.

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.

Co-op Plans Expansion at Coventry

Application To Go Forward, Despite Fire

Months earlier than anticipated, Washington Electric Cooperative has requested permission to increase the production capacity of its electric generating plant in Coventry, Vermont. On August 4, 2006, the Co-op filed a petition with the Vermont Public Service Board (PSB) seeking regulatory approval to install a fourth generating engine at the plant, which is located at New England Waste Service of Vermont's (NEWSVT) solid waste landfill.

The generating capacity of the three engines originally installed in the plant totals 4.8 megawatts (MW), and actual output is expected to reach that level later this year. Adding a fourth engine will increase the total capacity to 6.4 MW, although it will take time for production to reach that level. WEC expects to add more engines in the future as the landfill continues to expand under NEWSVT's permits.

The plant uses methane, captured as a byproduct of decomposition within the landfill, to fuel the engines that generate power. When the plant commenced operation in July 2005, our technical advisors anticipated there would be enough production potential to add

a fourth engine sometime in 2007 or 2008. WEC is seeking approval earlier because gas recovery from the landfill has exceeded the original projections.

Within days of the PSB filing, an early-morning fire broke out in the generating facility. However, damage was limited, and did not involve the methane gas-collection system. The Co-op has undertaken repairs and is proceeding with its expansion application. If approved by the PSB, the process will then require a membership vote later in the fall.

"The fire is a setback for us, no doubt about it," said WEC General Manager Avram Patt. "But this does not affect the expansion proposal we submitted to the Public Service Board. We will get the plant restored, and then expect to install the new, fourth engine by the end of this year, as planned."

Prior to its temporary shutdown after the fire, the Coventry facility was producing approximately a third of the electricity used by WEC members; with the additional engine, the plant could eventually provide half or more of their power needs. The cost of the energy to WEC is approximately 4 cents per kilowatt hour.

Wind Power

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Service and the Agency of Natural Resources. Their testimony in this case essentially contradicts the “logic” of the arguments they had made in the East Haven case. WEC does have an interest in the outcome, but I have to say that I was embarrassed and disturbed by the flaws and inconsistencies in our state officials’ preliminary testimony. The Public Service Board, which will actually make the decision, has shown that it does not in every instance agree with these agencies regarding wind siting, so I have some hope that UPC’s project will be approved.

At the Co-op, we have been analyzing wind energy for a few years and discussing it in this newsletter and at member meetings. As I have listened to elected and appointed state officials make serious and often inflammatory misstatements about the characteristics of wind generation and the role it can play in Vermont’s energy future, I realized that at WEC we have a deeper understanding and are more informed about this than they are.

I visit power plants and wind farms as part of my job. But what struck me recently is that of our nine current board members, eight of them have on their own initiative visited wind farms, looked at them from up close and far away, listened to them, and talked to people in the communities where they are located. At least three former board members have also done so. Some of your elected board members have visited the wind farm in Searsburg, Vermont, and others, while traveling on vacations or to visit family, have gone out of their way to look at wind projects in other states and overseas.

We asked them to describe their experiences in this issue of *Co-op Currents*. This electric cooperative’s board members are elected community members, not professional utility people. You’ll see that they do not always agree with each other, which is as it should be in a democratic organization. Although the current board has strongly supported wind energy and the Sheffield project, as have members who have left the board but were involved in the process, one board member dissents from the majority on this issue.

We publish their thoughts because regardless of the range of opinion, they have considered this issue carefully, have listened to and met with wind supporters and opponents, have weighed alternatives, and have each come to their opinions in an informed and deliberative way. I personally believe they fairly represent the opinions of WEC’s members – and that, based on several statewide surveys, these opinions also reflect where Vermonters as a whole come out on this issue.

Wind a Part of Tennessee’s ‘Working Landscape’

By Don Douglas

I grew up in East Tennessee between the Smokey Mountains and the Cumberland Mountains. I had not been back in the area for nearly 20 years, until my parents retired and returned to Oak Ridge 15 years ago.

Oak Ridge was built by the army during World War II to help in the production of the atom bomb. The location was chosen because it was hard to detect from the air. The mountains all around the city are beautiful. People love these mountains, which have served many uses. East Tennessee is coal country and there have been mining operations on some of the mountains. Not everyone thinks that is a good idea and practically nobody thinks it is attractive, but it is part of a “working landscape.”

This past February I visited a wind farm that is located on the north ridge, between Oliver Springs and Oak Ridge. The local power company is the Tennessee Valley Authority. TVA was created by Congress in 1933 to control flooding and produce electricity for a very economically depressed region of the country. It has had much success. Today TVA produces electricity from the dams and from coal-fired boilers, as well as from nuclear plants. The tremendous economic growth in East Tennessee was encouraged by the availability of relatively low-cost electricity.

I called the TVA and asked about visiting Buffalo Mountain Wind Farm. After a telephone visit with someone in charge of the “green energy” program at TVA I called the engineer who is in charge of the wind farm. He agreed to take me up for a site visit.

On the way up the mountain he related some personal history. He was trained as a nuclear engineer and for 15 years he worked for TVA designing nuclear plants. He is now responsible for Buffalo Mountain Wind and has 16 very large 1.5-megawatt machines to keep on-line. The daily operations and maintenance provides local employment opportunities. He told me that TVA has plans to put more wind farms in other locations. He has visited Vermont and knows the Searsburg wind farm. I told him about the debate in Vermont over the issue of wind energy.

The turbines at Buffalo Mountain



A view, past trees and wildflowers, of two turbine at Tennessee’s Buffalo Mountain Wind Farm.

produce energy only when the wind blows. The day we visited the wind was not favorable, so the rotation of the blades was very slow and there was lightning nearby. It was not safe to get out of the car.

Still, they were majestic! Up close they are enormous, 300-foot-tall structures, but down in the town they seem so small. From the top of a hill in front of my parents’ house you can see Bull Run, a very large coal-fired energy plant, to the east. It burns 90 coal-car loads per day and produces 950 megawatts, which is almost equal to Vermont’s entire load. To the south you can see a lake that feeds Milton Hill Dam, which also makes electricity.

To the west you can just see the top of Buffalo Mountain, and on a clear day one can make out a few of the wind turbines.

Here in Vermont we talk about a “working landscape.” We talk about dairy farms and the need to try to preserve this sector of our economy. I agree with the concept of keeping our dairy farms, for all the reasons we hear about.

But for me the idea of a “working landscape” isn’t just about dairy farms. Vermont forests are also “working landscapes,” as are Vermont’s rivers (too bad we let a Canadian company buy that part of our energy future). Are we going to refuse to develop wind energy on a few ridges? Should we restore Burke Mountain and Jay Peak to their original condition? If the ski industry is part of the “working landscape” of Vermont, why can’t wind power be part of our landscape as well?

Mountain ‘Majesty’ in New Zealand

By Wendell Cilley

Approaching by road from the Northwest, the first glance of the Te Aroaro wind farm looks like an oversize pinwheel exhibit laid out above the low-lying profile of the New Zealand North Island city of Palmerston North. Softened by the relief that we had nearly made it to another – albeit temporary – landing spot in the middle of hours of driving, the turbines were big enough to command the attention of a travel-weary family.

My first reaction of “My God, they are huge,” was followed quickly by “Why aren’t they all turning?” By the time we had deciphered the cryptic abbreviations for street names and road numbers that I had scribbled on the back of a flyer in a phone booth, and wound our way through the suburbs to where our nephew, Jason, his wife Ange, and their children Quinn and Jetta live, the novelty of seeing the spinning sentinels above the city had started to fade with the anticipation of seeing them up close.

George, my father-in-law, lives near Taurangh, New Zealand. He knew that as a co-op we were trying to buy wind-generated power for our members, and he and others had encouraged me to visit the site where Meridian Energy Limited had built the largest wind farm in the Southern Hemisphere.

Jason, the manager of a growing fitness club, had agreed to be our guide, and at the first mention of visiting the wind farm five-year-old Quinn abandoned the elaborate model train he had set up in his room and joined his dad, my son Ben, and me as we made our way to his Holden (New Zealand General Motors) King-Cab pickup. The wind farm has been around about as long as Quinn can remember and it ranks in the top three of his “current

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From the hill in front of my parents’ house you can see Bull Run, a large coal-fired plant that burns 90 coal-car loads per day. To the west you can just see the top of Buffalo Mountain, and on a clear day one can make out a few of the wind turbines. — Don Douglas

WEC 2006 Equity Distribution Plan

Co-op Seeks Former Members For Capital Credit Refunds

Washington Electric Cooperative is preparing to issue capital credit refund checks to current and former members, as authorized by WEC's Board of Directors. Under the 2006 Equity Distribution Plan, capital credits will be returned to eligible people who bought power from the consumer-owned electric utility during the years 1986, 1987 and 2005. The Board of Directors has targeted a total amount of \$275,000 for distributions in 2006.

Capital credits are returned to Co-op members (customers) for those years in which WEC's revenues exceed its operating expenses. Capital credits are a way of dividing those margins among the member-owners. The amount of a member's refund is based on the size of the Co-op's margins in the years in question, and how much electricity the member purchased. Each Co-op member has a capital credit account – which is a bookkeeping entry managed on an annual basis by the Cooperative – in his/her name.

Under the 2006 Equity Distribution Plan \$48,707 will go to members from the year 1986, when WEC's margins totaled \$243,535. This will complete retirements for 1986, which began with a \$195,000 allocation in last year's Equity Distribution Plan. The 2006 plan also targets 1987, when WEC's margins reached \$255,386; the \$126,293 allocated this year will retire roughly half of that year's capital credits (each eligible member is paid proportionally). The remaining \$100,000 will address capital credits for 2005. WEC's margins last year totaled \$400,565; the 2006 allocation amounts to approximately 25 percent of that total.

For former members, no longer with the Co-op, refunds of \$20 or more will

be paid by check; if an amount of less than \$20 remains in the former member's account, a check will be issued once the Co-op has received a properly executed authorization form (contact WEC for details).

Members and former members will have an opportunity to contribute their refunds to the Washington Electric Cooperative Community Fund. Current Co-op members who choose not to contribute to the Community Fund will receive their refunds in the form of a credit on their November electric bill. (For more information on the Community Fund contact WEC's office, or visit the Co-op online at www.washingtonelectric.coop; select the Member Info tab, then Community Fund Program.)

WEC may impose a \$10 annual service charge on all patronage (capital credit) accounts for years in which the credits have been retired and went unclaimed. This service charge can be applied to unclaimed accounts annually, until the balance in those accounts is \$0.

Earlier this summer WEC sent out Capital Credit Patronage Refund Authorizations to eligible former members, using the person's last-known address. Listed below are the names of people whose authorizations were returned as undeliverable. WEC is asking friends, acquaintances and relatives of the people listed here to contact those potential recipients or their rightful heirs, and have the former member or beneficiary contact Washington Electric Cooperative directly at 802-223-5245, or toll-free at 1-800-932-5245.

WEC will issue this year's capital credit refunds in November 2006.

Abakan, Frank	Bellemare, Susan A.	Buck, Arthur D.	Colson, Frank A	Driscoll, Peter	Gardner, Seth & Carol	Hammer, Kenneth & Gretchen
Abbiati, Stuart M.	Bello, Donna & Gary	Bunce, Harold S. & Patricia	Cornoli, Elio	Driscoll, Peter M.	Garfield, April	Hance, Jr., Borden L.
Adams, Dwayne B.	Bennett, Jr., Donald S. &	Burckes-Miller, Margaret &	Companion, Allen & Cynthia	Duggan, Rita C.	Garrow, Howard	Hannigan, James L. &
Adsit, Suzanne	David K. Sturges	Laurie B. Dunlap	McBryde	Dukette, Paul	Gehr, William G.	Barbara J.
Aicher, Mark A.	Bent, Gordon A. & Cheryl A.	Burdick, Louise S.	Comstock, Allen	Dunbar, Bessie B.	Geisler, Richard	Hansen, Hans
Alden, George P.	Bent, Robert & Jacqueline A.	Burke, Patrick J.	Condit, Gloria A.	Dunbar, Lucille B.	George, Christie	Hard, Christopher
Aldrich, Georgia	Hughes	Burnham, Ellen G.	Congdon, John H.	Duncklee, Norman	Gibbs, Robert A. & Debra J.	Harrington, John
Aldright, Louis J.	Bernard, James E. & Sharon	Bushey, Ralph L.	Connary, Robert L. & Karen F.	Dunham, Violet	Fair, Forrest G.	Harris, Mary K.
Alicen, Deborah	E.	Butler, Daniel E.	Converse, Joseph	Durgan, Guy O.	Pearce	Hartman, Jeffrey
Allen, Daniel R. & Roseann	Berry, Arnold	Byrd, Sr., Edgar C.	Cooper, Jon	Dutcher, Marguerite	Giguere, Jeanne	Hartwell, C. & Carmela
Amato, Gerard R.	Bessette, Michael	Cade, Linda	Cordaro, Nell	Dux, Thomas J.	Gile, David	Haskell, Catherine
Anamasi, Anthony & Grace M.	Bettis, Ronald	Cadorette, Dorothy	Cote, Patty & Yvan	Dwinell, Joanna R.	Gittelsohn, Paul & Carolyn	Hastings (Estate of), George
Anbrose, Janice Re: Bert	Bishop, Dolloff & Barbara	Calderwood, Wesley	Counter, Dorothy B.	Dwyer, Helen D.	Goodwin	Hayden, Edward V.
Brown	Euson	Cameron, Lester E.	Couture, Matthew & Cathrine	Eckstein, Edward	Glidden, Benjamin T. &	Haydon, Harold
Anderson, Julia	Bisson, Jr., Roland	Cameron, Sarah	A. Keenan	Fair, Forrest G.	Patricia K.	Hayes, Julia G.
Andrews, Daryll & Kim	Blackwell, Lee T. & Laura M.	Campbell, Judith E.	Crawford (Estate of), Stanley	Fairbanks, Jr., John & Connie	Glidden, Patricia K.	Hayes, Walter
Andrews, Kathleen	Schluek	Cano, Victor	& Ruth	T.	Gokey, Catherine & Robert	Hayward, Lillian
Atkinson, Elliott R.	Blair, Duane & Kelly	Cano, Victor & Virginia	Cross, Mary S.	Farland, Eugene W. &	Goibranson, John & Dorothy	Hazelton, Brian & Valerie A.
Ayers, Charles E.	Blair, Robert J.	Cantwell, Richard	Cross, Maurice W.	Katherine	Gonyaw, Myrtle	Heald, Lester R.
Badeau, Hector P. & Susan	Blais, Raymond A.	Carlson, Katherine M.	Croteau, Phillip	Farnham, Al	Gonyaw, Rodney & Karla	Healey, Robert
H.	Blake, Pauline A.	Caron, Charles F.	Cullen, Joan	Farnsworth, Randy	Goodine, Henry A.	Heath, Donald
Bair (Estate of), Samuel	Blanchard, Robert	Carrig, Blaise & Leslie	Cummings, Halleck & Pamela	Fassett, Ronald & Brenda	Goodrich, David S. & Ann W.	Heath, Roger W. & Lauria J.
Baird, Donald P.	Blanchette, Norman W.	Carrington, Arthur J. &	L.	Featherstone, Michell E.	Goodrich, Donna	Heath, Jr., Parker
Baker, Jr., Leonard J. & Ulla	Blay, Donna	Lynnetta L.	Curtis, Alan	Featherstone, Paul &	Goodrich III, George L.	Hebebrand, William E.
Britt	Bliss, Jeffrey M. & Janine A.	Carruth, Philip W.	Cuttler, David	Maryjane	Gorman, Mary M.	Heise, Bernard
Baldwin, Nelson	Blittersdorf, Jeffrey E.	Casey, George	Czok, Michael	Ferenc, Wendy & Neal D.	Goslant, Jr., Elmer L.	Hemenway, Robert Q. &
Balzanelli, Richard & Jeanne	Blow, Paul J.	Cathrew, Ralph S. & Priscilla	Dailey, Bessie	Ferguson, Floyd	Gould, A. Scott	Beth-Ann Nuissl
Barbieri, Nicholas J.	Boerner, Hannelore	C.	Dailey, Nanna	Ferno, Herbert W.	Gove, Robert	Henry, Tom
Barker, James	Bombardier, Timothy J. &	Cavalier, Marie	Dailey, Normand	Fifield, Mary	Grab, Eileen M.	Herman, Sylvia
Barker, Walter	Donna M.	Celley (Estate of), Celia M.	Daily, Rory & Sunny B.	Fink, Jr., William	Graves, Virginia H.	Hibbert, Robert & Sue
Barnaby, James B. &	Bond, Lillian	Ceplikas, Alison P.	Daniels, Steven A.	Fitch, Todd H.	Greaves, Pamela	Higgins, Andrew
Kimberly A.	Bond (Estate of), Lawrence	Ceppetelli, Ronald & Ellen	Darling, Charlene	Flanyak, Robert J. & Paula A.	Green, Raymond S.	Higgins, Jr., Robert J.
Barnett, Anna F.	Boulanger, Claude & Madeline	Chaffee, Robert W.	Darling, Scott W. & Kristy M.	Flood, Shirley	(Greenland Partnership)	Hill, Aaron L. & Sandra W.
Barnett, Dorothy K.	Bourdeau (Estate of), Joseph	Chamberlin, David P.	Davis, Diane	Flye, James	Greenberg, Leo F.	Hill, Charlotte
Barnett, Frances	Bowell, Erlene M.	Champany, Irene	Davis, Ernest E. & Theresa	Fontaine, Fernand O. &	Greene, Roland C.	Hill, William G. & Mildred L.
Barnett, Jr., Warren L.	Bowen, Jacqueline L.	Champany, Sydney & Mary	Davis, Lorena	Marguerite	Greenhouse, Rebecca	Hilliker, Leonard
Barnhart, Katherine L.	Bower, Ronald F.	Chapin, Gary J. & Sonia	Davis, Roy	Fontaine, Marc	Grey, Morgan	Hilton, Susan W. & James C.
Barnocky, Stephen W.	Bradford, Susan J.	Chapin, Winston L. & Janice	Davis, William D. & Judy B.	Forrend, Jon	Griffen, Lawrence RE: Rose	Hodgeman, Irma T.
Barrows, Michael	Brechling, Florence	S.	Deangelis, Joseph & Deborah	Fortney, Scott G. & Patricia	Senecal	Hoffman, Marion
Bartlett, Patricia	Bresett, Claire L.	Chaples, William J.	Decola, Barry & M. Kelley	E. Hickey	Griffin, Dennis R.	Hoffmann, Alfred R.
Bassett, II, Paula P. & Harold	Bresett, Timothy L.	Chaplin, Carl & Marion	Deforge, Steven	Foster, Richard & Deborah	Griffin, Robert & Cheryl	Hoffmann, Judith
W.	Bresler, Ellen G.	Chipman, Stanley J & Beverly	Demingware, Cora	Fowler, Bruce N.	Griffith, Darcy & Sherry	Holliday, James & Linda
Bayley, Anna R.	Brett, John	A.	Desilets, Thomas	Fowler-Funk, Vikki	Grossman, Sallie E.	Holliday, Joseph P. & Joan
Beadle, Rubie A.	Bridges, Lucy L.	Chisholm, Pamela A.	Deutsch, Irving & Wendy	Franks, Jr., Robert	Grout, Katharine	Sheryl Green
Beane, Marion	Brochu, James K.	Christenson, Norman	Dexter, Robert R.	Fredrickson, Dorothy H.	GTE Vermont/Contel of Vt.,	Holmes, June E.
Beauchene, Mary A.	Broe, Joan M.	Cianciola, David P. & Kerry	Dexter (Estate of), Bernita M.	Freeman, Ronnie	Guare, Helen	Holmes, J.E.
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Becker, Kenneth M.	Brooks, Karen	Clark, Jr., Neal R. & Marie L.	Diggins, Martin J.	French, Colleen	Guyette, David & Janice	Horst, John & Kathleen
Beckler, Minnie W.	Brown, Dale & Judith H.	Clark, Jr., Susan	Dindo, Robert & Charlene	French, William J.	Haakenson, Philip J. & Linda	Houghton, Elliot C.
Beckley, Edwin	Brown, Daniel G. & Joan S.	Clarke (Estate of), Doris M.	Mureta	Gahagen, Jacqueline	Haggett, Clifton E.	Howard, Gregory W.
Bedard, Todd & Julie	Brown, David	Coburn, Jr., Donald A. &	Doherty, Eugene	Gaines, Jeffrey	Haggett, Dana L. & Lisa A.	Howland (Estate of), Susan
Thompson	Brown, Fleda	Constance	Domencich, Thomas A.	Gajewski, Erban J. & Viola A.	Haggett, Jonathan Jay &	Hoyt, Howard
Beebe, Jr., Charles C.	Brown, Kenneth	Cochran, Barbara	Donahue, Russ W. & Linda	Gajewski, Joseph & Helen	Martha K. McGinnis	Hubbard, Eugene C.
Beecher, George	Brown, Margaret	Cofski, Harvey J. & Natalie C.	Donald, Carol & Harold	Galbreath, Maurice S. &	Haggett, Stacia	Hugg, Robert & Pamela
Beier, Deborah J.	Brown, Philip F.	Colburn, Judith P.	Donovan, William L.	Beverly L.	Hale, Robert A. & Marjorie	Hughlett, R. E. & Denise A.
Beiley, Janice	Brown, Raymond & Donna L.	Cole, Arthur	Doubleday, Elsa	Gallison, Sr., Jim	Hall, Katherine & Andrew	Hull, John K. & Kimberly M.
Belcher, Jonathan N. & Kate	Brownell, Lauren L.	Coleman, Wilgar	Dowd, Blance M.	Gandin, Dan L. & Lerinda P.	Hall, Velma	Hunka, Ronald G. & Sylvia
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- Hurwitch, David & Terry
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Hutchinson, Ann
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Johnson, R. E.
Johnson, Scott
Johnson, Scott R. & Melinda
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Jones, Stephen H.
Jones, Stephen H. & Judith C.
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Keene, Helen E. & Harold P.
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Kelly, Maureen & Duane Dunbar
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Kilian, Jon
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Lamb, Sr., Jonathan A.
Lamson, Roger F.
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Larow, Gary
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Lawliss, Harold
Lawton, Mary B.
Leach, Robert W.
LeClair, Harriett
LeClerc, Alain & Donna
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Lemay, George E.
Lemieux, Jr., Lloyd E.
Lemnah, Leora
Lennehan, William
Lenz, Lillie & Michael McQuilken
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Lever, Roger L.
Lewicki, Lillian G.
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Lewis, Joyce A.
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Lord, Marian B.
Lorden, Michael
Lorentzen, Doreen
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Lucia, John J. & Marguerite M.
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Lunt, Dudley C. & Anna
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Mack, George L.
Mackenzie, James D.
MacLaurin, Richard N.
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Magoon, Stanton R. & Marjorie E.
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Mangino, Joseph D.
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Mardin, Donna B.
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Marsh, Marylou
Marshall, Michael L. & Shirley C.
Martell, Emeline
Martell, Joseph
Martin, Curtis C.
Masland, Chad
Masse, Edward & Norma
Matte, George F.
Mattern, Cristine
Mattote, Mark
Matz, Joseph D. & Carol A.
Mayhew, Wanda
Mazzuchelli, Joseph A.
McAllister, Elwin
McAuliffe, Paul C.
McBridge, Christine
McCabe, Arthur J.
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McDanolds, Doris
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McLaughlin, Anna
McLaughlin, Harold & Dona T.
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Menard, Robert W.
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Montpelier Woodworks Inc.,
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Morris (Estate of), Richard
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Mullen, Carolyn & Mary Jane Daly
Mullen (Estate of), Jeremiah
Munro, Sarah
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Murphy, Dennis
Murphy, Harold A.
Murphy, James P.
Murphy, Mark W.
Murray, Maidene
Myers, Charles L.
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Ostrum, John P.
Overstrom, Brenda
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Russell, Michael L. & Melodie A.
Rutledge, Shirley A.
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Saltimbocca, N. V.
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Sicely, Grace M.
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Simpson, Steven & Gloria
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Smith, Eric
Smith, Michael A. & Kathleen A.
Smith, Peter
Smith, Richard M. & Tammy
Smith, Sharon
Smith, Trent & Heidi
Smith, Wayne G. & Norma H.
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Taylor, Theophilos
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Thompson, Priscilla
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Thurston, Jason & Florence K.
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Tillotson, Evelyn
Tillotson (Estate of), Shirley
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Trepanier, Paul & Eldira
Tripp, Yvonne L.
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Turner, Elizabeth M.
Turner, Emma M.
Tuz, Charles L.
Uhouse, Martha & Joseph
Ulrich, Charles
Urcan, James
Utt, Timothy & Sally
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Vance, Linda
Vanorman, Philip G. & Sandra F.
Verdon, Mario & Patricia
Vigeant, Michael & Claudette
Viger, Christopher
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Wade, James M. & Leanna
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Waits River Genl Store, Thomas & Cheryl Whalen
Walden General Store, Richard M. & Michelle Leighton
Waldie, Kevin L.
Waldo, Elaine B.
Wallace, Scott & Sue Ellen
Ward, Clayton
Ward, David & Barbara F.
Ward, Diane
Ward, Marion
Washer, Robert H. & Cynthia J.
Wassell, Eleanor P.
Watkin, T. S. William
Watkins, Timothy P.
Watson, Christopher A.
Watson, Ethel L.
Watson, Harold
Weil, Florence
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Welch, John & Carolyn
Welch, Randy & Allison
Welch, Raymond R.
Welch, Stanley H. & Glendine F.
Welker, Glenn E.
Wells, Jan P.
Wernicke, Joanne
Whalen, Tom
Wheeler, Helen
Wheeler, James
Wheeler, Mark A.
Wheeler, Vicky
White, Edward
White, J. Edgar
White, Lloyd
White, Velma
White, Velma
White, William J.
Whittemore, Charles L.
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Wild, Hazel B.
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Williams, Jr., William J.
Wilkinson, Dean
Willey, Douglas & Diane Laferriere
Willey, Marilyn & Kevin
Willey, Nelson
Williams, Brenda
Williams, Douglas & Mary Jane
Williams, Harold H.
Willis, Ann
Wills, Craig E.
Willson, Bruce L. & Beryl M.
Wilson, Edward J. & Ilona P.
Wilson, Robert J.
Winner, Felicita M.
Winters, Gloria R.
Winters, Linda
Wiseman, Warren
Witham, Nina A.
Witham, Robert E.
Witham, Wendell
Wojcik, Walter P. & Barbara B.
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Woodard, Charles A.
Woodcock, Dwight
Woods, Diane
Woods, Howard
Woodward, Joanne M.
Workspace, Inc.,
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Wright, Andrew
Wright, David P.
Wright, Jeffrey F. & Susan
Wright, Virginia
Wright, Virginia
Yarian, Stanley O. & Lucy
Yerly, Jan M.
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Young, J. Peter
Young, Roland A.
Young, Jr., Edward

WASTE NOT



Reducing solid waste is a goal most WEC members can agree on. The Co-op reduces the wastestream's harmful impact by collecting methane at the NEWS landfill in Coventry and using it generate electricity, which avoids flaming this greenhouse gas into the atmosphere.

In this space, we help Co-op members lessen the wastestream, with tips about recycling, composting, disposal of hazardous materials, and how to avoid generating some kinds of waste in the first place. Our information comes from the Central Vermont Solid Waste Management District (CVSWMD.org) and other sources. Readers can submit ideas or questions for *Waste Not* by contacting Washington Electric Cooperative.

Compact fluorescent bulbs (CFLs) are an energy-saving alternative to standard incandescent light bulbs. They provide good-quality lighting while consuming only about a third as much electricity as incandescent bulbs. Because they last up to 10 times as long, they also reduce waste.

However, CFLs contain mercury and must therefore be treated as hazardous waste. Broken and spent fluorescent bulbs should be taken to a scheduled hazardous waste collection. Call your solid waste management district, or find its website, for collection schedules. Many area retailers also accept broken and discarded CFLs. For free CFL recycling inquire at these True Value Hardware stores: Sticks and Stuff (Middlesex), Waterbury True Value, Kenyon's (Waitsfield), Harry's Hardware (Cabot), and St. J Hardware (St. Johnsbury). Additionally, Twin State Electric Supply and Barre Electric Lighting & Supply may accept CFLs for a fee. Call these stores for details.



Wind Power

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favorites” list, elephants and trains rounding it out. There has hardly been a time when the turbines weren’t spinning in his background.

Jason whizzed us through the back streets with the speed and abandon that only locals attempt, and we were soon crossing the Manawatu River and climbing the ridge to the turbines.

The road to the top of the gorge reminded me of an uncle who had remarked, about a similar winding road in Vermont, that the corners were so sharp he could see his own taillights in his mirror. I felt certain that between searching for the turbines that went in and out of sight as we climbed, I could see glimpses of a taillight lens. I was also pretty certain that the turbines hadn’t arrived here over the road we were on.

One turbine that appeared on first one side then the other was turned “out of the wind,” stationary in spite of the wind that blew harder as we climbed. Jason remarked that it must have still been waiting for repairs because it had been “out of the wind” when he and Quinn had been there the day before. Quinn and Jason make the trip to the wind farm, most often at Quinn’s request, at least once a week.

The graveled parking lot at the top of the ridge has become a picnic/play area for Quinn, who will occasionally opt just to sit and watch the blades revolving. The Meridian website estimates that the wind farm draws an average of 400 visitors a day, and over the hour we

spent there an irregular stream of cars climbed to the top from both sides of the ridge, turned at the signpost, parked, and spilled out drivers with cameras often ill-equipped to capture any perspective of a person standing at the base of a tower-and-propeller combination that is 345 feet tall.

Located on a ridge above the Manawatu Gorge about six miles from the city of 78,000 people, the 55 V72 Vestas turbines are scattered over 4.5 square miles of pastures and fields and placed where the predominantly westerly winds are channeled past them by two mountain ranges and lower hills. The wind was blowing hard (“It blows harder some days,” according to Quinn), and directly under the turbine was the only place where you could even hear any noise as the propeller approached the bottom of its rotation. Conversation was difficult, not because of the turbines but because of the wind howling across the ridge; moving to look in another direction changed your hairstyle from one severe windswept look to another.

The top of the ridge was majestic on its own, and the string of turbines visible up and down the ridge matched that serene majesty. The excavations



perspective of a person standing at the base of a tower-and-propeller combination 345 feet tall.

— Wendell Cilley

Over the hour we spent there a stream of cars climbed to the top of the ridge, and spilled out drivers with cameras often ill-equipped to capture any

for the tower bases had been graded over and reseeded, and the pastures and fields had been fenced. Sheep and cattle grazed under the towers, seemingly unconcerned that electricity was being generated over their heads. I understood the appeal that the place had for Jason and Quinn, and I envied them the ability to visit it

whenever they wanted.

When asked if there had been opposition to developing the site, Jason said that it had had its detractors.

“But we’d like to double the size of it and generate more power than Palmerston uses,” Jason said, sounding more and more like a potential co-op member.

Sounding Out Wind in Fenner, New York

By Roger Fox

During 2003 and 2004 I’d been hearing and reading various accusations about negative impacts of large-scale wind power development, but I had no first-hand ability to assess their validity. The closest sites with turbines comparable to those proposed for the UPC Sheffield project were at least a several-hour trek from WEC’s service area. However, early last year I realized that the route my wife and I would be traveling to a summer family gathering went near one of those sites, off the New York Thruway southeast of Syracuse. We took advantage of that opportunity to visit the Fenner Wind Farm.

The town of Fenner is located on top of a high, long and steeply sloped east/west-oriented plateau off the Mohawk River plain. Its terrain and development pattern are somewhat similar to some towns in this part of Vermont – rolling hills, thinly settled with a mix of houses and mobile homes of varying quality and condition and fairly few commercial structures, interspersed with farms, fields and woods. The two dozen wind turbines occupy only a small part of this geological formation; when the air is clear enough most of them can be seen from the Thruway several miles away, but it’s easy to miss them when you’re not specifically looking for them.

I wasn’t expecting to have a problem with the turbines’ appearance, but I wanted to experience them “up-close and personal.” I was interested in how they sounded, and the shadows they cast when the sun was low in the sky.

It was hot and hazy when we got

to Fenner, with only enough sporadic wind to turn a few of the turbines at any one time. The turbines were certainly large, but they were visually elegant, and we found the sight of the slow blade rotation (about once every 4-5 seconds) to promote a sensation of peacefulness – so much so that we spent more time there than we expected and were reluctant to leave. At close range, the only noise we could hear from the turbines was a muffled mechanical sound. I would compare it to the noise you’d hear from a piece of farming equipment a couple of fields away. After a while, I realized it was coming from the motor-and-gear apparatus that moves each turbine assembly to keep it facing into the wind. It was frequently overpowered by the intermittent sounds of car tires on pavement, flocks of chirping birds, crickets, and passing airplanes approaching the Syracuse airport.

However, we didn’t feel that the light winds that prevailed during our visit allowed for a fair evaluation, so we stopped there again on our way back several days later when the wind was stronger. This time most of the turbines were working consistently, but we didn’t notice any difference in the sound level.

We had opportunities to chat with two Fenner residents – one fellow in a Cadillac on his way to play golf, and a construction worker in the front yard of his small home. Neither of them expressed concern about the environmental effects of the turbines; in fact, both commented completely independently that they were “better than a nuke plant,” and they indicated that only a small fraction of residents opposed them.

I did briefly get to see some shadows cast by a turbine’s blades late in the afternoon, and it seemed to me that someone unfamiliar with the sight might momentarily mistake them for an indistinguishable object moving quickly along the ground. On the other hand, the construction worker observed that he enjoyed watching the setting sun behind the turbine blades. Given the weather and solar mechanics, it’s likely neither of these visual effects would be observed very frequently unless one went out looking for them.

Our exposure was limited, so I can’t



I wasn’t expecting to have a problem with the turbines’ appearance, but I wanted to experience them “up-close and personal.”

I was more interested in how they sounded, and the shadows they cast when the sun was low in the sky. — Roger Fox



Wendell Cilley

The Te Aiti wind farm, on the North Island of New Zealand, is the largest wind electric-generating facility in the Southern Hemisphere.

Linda Gahne Fox



Co-existence with wind turbines in Fenner, New York. The Fenner wind site was developed on a plateau, near houses and farms. Vermont's proposed sites are on mountain ridges.

vouch for the turbines' impact under different terrain and weather conditions. However, based on our observations and conversations with these Fenner residents, I'd expect that while some people will be predisposed to judge wind turbines offensive and some will find them attractive, the majority will be relatively indifferent, will just get used to them, or will tolerate – or even embrace – them for their environmental and economic benefits, understanding that the available alternatives are less appealing.

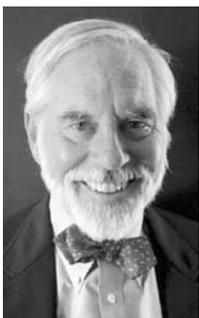
Wind in a Bucolic Setting

By Kimberly B. Cheney

I visited the Fenner wind farm outside of Syracuse, New York. The site has about 11 large turbines set among farms and open ridges in a rural area. I first saw them as specks glinting in the sun on a hilltop from the New York Thruway, which was about 10 miles from the site.

The road to the site goes up a steep hill and winds around farms and houses. I expected some security perimeter with chain link fences and the like, but there were none. Anyone could have walked to the base of a tower. There was a five- to 10-mile-an-hour wind.

The first sight of a turbine was exhilarating. Above me on a hill about a mile away was a majestic silver, slowly turning windmill. As I got closer, rather than the ugly, noisy monstrosity that opponents complain of, I experienced what I regarded as a technological



It was spring time. A local farmer was operating his tractor near the tower. The landscape was peaceful. There was no noise.

— Kim Cheney

marvel of real beauty. It was spring time. A local farmer was operating his tractor near the tower. The landscape was really peaceful. There was no noise. The wind was gentle and the turning blades almost hypnotizing, as they slowly turned to catch changes in the wind. They were really fun to watch.

The rows of towers reminded me of pictures of the great stone statues on Easter Island looking out sea. Those were monuments created for a mysterious social purpose. The windmills, looking out over the hills toward Lake Ontario and its nuclear plant, are monuments dedicated to reducing reliance on fossil fuels and slowing global warming.

I drove around the site talking with neighbors. They enjoyed the machines, finding their technological gracefulness comforting. I came away convinced that harnessing the wind is useful, peaceful, and has a beauty of its own.

Farming Nature's Bounties

By Roy Folsom

In December 2004 my wife Jackie and I took a few days off to visit the Finger Lakes area of New York with a group of friends. We left Sunday morning, and since we were in no hurry to get home decided to drive east on Route 20 instead of the New York Thruway. It was a very scenic and relaxing drive.

We had driven a couple hours through mostly hilly farm country when, upon rounding a hill to the south, I noticed something on the distant hilltop. It had begun to lightly snow, so the view was a bit obscured, but I realized it was a wind turbine.

We continued along and noticed more of them. As we got closer there was a secondary road that headed in that direction, so I turned and headed up hill toward the towers. We passed several houses close to the tower area, which was basically a cow pasture. We drove until we came to a gate in the road. There also was a very nice interpretive center there that described the wind farm.

We had come upon the Madison



I have often looked out the glass doors of my milking parlor at the ridge line of Mack Mountain, east of my barn, with thoughts of how wonderful it would be to have my power being produced by the power of the wind.

— Roy Folsom

Wind Farm, which is owned by Horizon Wind. The farm contains seven 1.65 Vestas V-166 turbines, yielding a total project capacity of 11.5 megawatts. The turbine blades are 66 meters in diameter, and the towers are 225 feet high; the overall height (turbine and blade) is 323 feet.

The wind was blowing about 10 mph during our visit, and the blades were turning slowly. The closest turbine was less than 100 yards away. The other six were all in close sight. It was rather quiet there and the sound seemed to be no greater than what we experience at home sitting on our deck in the summer evenings, when the wind blows through the ten 60-foot tall spruce trees that surround our home.

Since that time I have, on several occasions, looked out the sliding glass doors of my milking parlor at the ridge line of Mack Mountain to the east of my barn, with thoughts of a half dozen of those 300-foot-tall turbines turning slowly in the breeze. My thoughts have been ones of how wonderful it would be

to have my power being produced by the power of the wind. I spend most of my work day in sight of that ridge line while I take advantage of so many of the treasures nature has to offer. I use the soil, the sun, the rainfall, the day and the night. Why not the wind, too?

Gathering Informed Opinions

By Barry Bernstein

As a board, your elected WEC directors made a commitment on behalf of our Co-op in the year 2000 to include renewable energy as a significant part of our power mix. Our criteria for considering possible sources would be their affordability and reliability. We also we wanted to purchase power that was generated as close to our home area as possible; transporting power over long distances is both inefficient and costly, plus we wanted to support well-managed renewable energy projects that would contribute to Vermont's local economy.

From the start, we believed wind-generated power would prove to be a viable option for Vermont and for WEC, and we had access to \$940,000 of federal grant money which Rep. Bernie Sanders, helped secure for the Co-op in 2001. We discussed a number of ways we might leverage that money, such as: buying into a wind project somewhere in or near our service area; assisting a wind developer whose project met our goals and criteria; or even installing and operating a limited number of turbines ourselves. As most members know, we

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Financial Co-ops at a Glance

Credit unions as financial co-ops are succeeding today with 85 million members in over 9,000 credit unions nationwide, 35 of which are right here in Vermont. Credit unions and their member-owned cooperative initiatives were established in the 1800s by utilizing the mentality of "people helping people" to succeed financially. That premise hasn't changed!

Credit unions are not-for-profit, which means they are in business to focus solely on the needs of their member-owners. So what does that mean to you? If you want lower loan rates, higher savings rates, or low to no fees, a financial cooperative – a credit union – can be a better alternative to traditional banking models.

A Financial Cooperative: The Vermont State Employees Credit Union

Don't let the name make you turn away! The VSECU is a member-owned and member-driven business with the ultimate goal of promoting individual financial stability and growth for its members and other Vermonters. The name would imply that only state employees can join. But that's no longer true. Credit unions can now serve community members. If you work or live in one of these six counties you can choose to conduct your business with the Vermont State Employees Credit Union and become a member-owner: Addison, Caledonia, Chittenden, Lamoille, Orange or Washington.

If you would like to learn more about the benefits of doing business with the VSECU in person or online, visit a branch in Montpelier, Berlin, Rutland, Waterbury, Williston or Burlington, or visit www.vsecu.com. You can call the VSECU at 802/800 371-5162 during business hours.



Wind Power

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eventually chose the middle alternative, providing support for (but not taking an ownership position in) the Sheffield/Sutton project being proposed by UPC Vermont Wind.

However, many of us on the board had not actually visited commercial wind projects. To do our homework, and to be able to honestly evaluate the contrasting claims of wind opponents and proponents about the impacts of such projects, we needed first-hand experience.

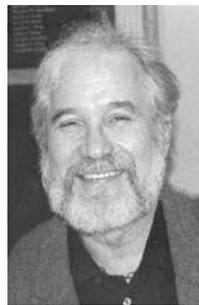
For me, that came in a trip in the spring of 2005 with fellow board members Don Douglas and Tim Guiles to the Searsburg, Vermont, wind farm owned by Green Mountain Power. The project consists of 11 turbines, and began operation in 1997. It remains the only commercial wind-electric project in the state.

Traveling west on Route 9 from Brattleboro, we stopped at a restaurant which happened to be about halfway between Searsburg and the Vermont Yankee nuclear power plant in Vernon. We took the opportunity to ask the owner what he thought.

The turbines weren't visible from his restaurant, but like most people in the area he had seen them, and he said he had no problem with their appearance on the landscape. He mentioned that they had improved his business, with visitors to the wind project often stopping at his restaurant to eat. Significantly, he also added, "And if something goes wrong with them I'm not going to have to evacuate" – an allusion to the nuclear plant approximately an equal distance to the east, and the widespread devastation that an accident there could cause.

When we got to the Searsburg site, one of the things that impressed me the most was how quiet the windmills were. Searsburg doesn't offer a direct comparison with the more-modern projects being proposed today; its turbines are considerably smaller, and are rated at 660 kilowatts, with a total rated capacity for the project of 6 megawatts. If approved, the 26 turbines at Sheffield, with a total rated capacity of 52 MW, will likely produce 16-18 MW of power. But the noise factor, already negligible, would not be increased because the newer turbines turn at 15 rpm – a much slower speed than those at Searsburg. We asked a woman who lived about half mile from the site if noise from the wind farm disturbed her, and she said, "If it bothered me I wouldn't be here." She said she occasionally hears a swooshing sound.

A GMP employee at the site told us they had done surveys before and after the windmills went up, and compared the results. She said there had been some local opposition to the project in its planning stage, but in the post-installation survey almost everyone around was supportive of it. She said there was no indication of any sustained disturbance of wildlife and that bears



"If something goes wrong [at Searsburg] I'm not going to have to evacuate," said the restaurant owner, an allusion to the nuclear plant

approximately an equal distance to the east. — Barry Bernstein

continued to pass through the area.

We hear objections and doomsday scenarios from some people in Vermont who have never lived near, operated a business near, nor perhaps even seen a wind turbine project. Your WEC directors continue to support wind as an important component of the state's and the co-op's energy future, and our visits to these sites and conversations with people who actually have had the experience of coexisting with them only confirms our stance.

Small-Scale Wind and Distributed Generation

(Another Opinion)

By Tim Guiles

I produce most of the electricity I use at my home with solar power, and I intend to install a small wind turbine to supplement my electricity supply someday. I have visited Searsburg, a large-scale wind facility, twice, and have thought about many aspects of wind power generation. Even though I enjoyed my visits, and was fascinated with the technology, in this essay I will explain three reasons why I oppose large-scale wind power generation on ridgelines in Vermont.

Externalities

An externality is an effect of a purchase or use decision by one set of parties on others who did not have a choice and whose interests were not taken into account. Externalities often occur in our lives when the consumer of a product is separated from its producer. It is easy for a distant consumer to feel little or no responsibility for trivialized, local, negative effects of producing a product.

In the case of wind power, externalities crop up when the people who experience the benefits of buying clean electricity live far away from the people who experience the dis-benefits of generating that electricity. Most of the people who use the electricity generated from a large-scale industrial wind turbine will never see or hear them.

Large-scale wind power advocates would like to address externalities by economically compensating those who are harmed by the presence of

wind turbines. However, we quickly run into the question of how to value the priceless notions of the sounds and sights of the natural world (which I will address later in my paper).

Another way to solve problems of externalities is to move the benefits and dis-benefits closer together, so that to experience one you must experience the other. With wind power this means small-scale wind generation: if you like the idea of wind power then go buy a wind generator and install it on your property so that you use the bulk of its power generation and you also see and hear your wind turbine working. Some people have chosen this option and our society is developing guidelines for how to site small-scale wind generators in residential settings. An added benefit of small-scale wind generation is that it is a distributed power source, which means that electricity is made by many small producers rather than a few large ones.

There are many reasons why distributed power generation (DPG) is desirable. Most people do not know that it takes a significant amount of electricity to move electricity long distances. DPG allows the electricity to be produced very close to where it is consumed. This is how my solar power works; when I am not using the full amount of the electricity that my solar panels are producing, the excess automatically and safely goes out on the power lines to my neighbors, to reduce the amount of electricity being demanded from the large power producers.

Another benefit of DPG is that the system of electricity generation becomes more secure and reliable when there are many small producers rather than a few large producers. Clearly, nuclear power generating facilities present huge national security problems – the first of which is the potential for deadly radiation releases, but the second is that so many people mistakenly rely on a single electricity source.

Scarcity

The second issue that drives the issue of large-scale wind power generation is the concern that there is not enough electricity to go around. That scarcity creates many environmental and social problems. The potential for environmental degradation rises, and economic disparity determines who gets what they want (need?!?) and who doesn't. However, rather than increase production, another way to



One way to solve problems of externalities is to move the benefits and dis-benefits closer together: If you like the idea of wind power then go buy a wind generator and install it on your property. — Tim Guiles

address scarcity is to decrease consumption.

There are two ways to decrease consumption. Increased efficiency allows the consumer to do more with less. Conservation is simply choosing to use less power. Both avenues are reasonable options for our society today. If large consumers

could be encouraged and ultimately convinced to lower their consumption to the average consumption levels, we could greatly reduce our need for electricity.

As a society we should not build new electric power plants to meet scarcity caused by over-consumption.

Fundamental Human Rights

Ultimately, if we solved externalities by having local power generation and we reduced consumption significantly, we might reach the real question of how much power can be produced before exceeding the threshold where basic human rights (to clean air, clean water, and access to the sights and sounds of the natural world) are lost. To me, this is the most convincing reason to oppose large-scale wind turbines: they degrade the natural environment to the extent that they violate individual rights to the natural environment.

My final statements on large-scale wind power are that: 1) Production and consumption of wind power should be as close to each other as possible, which would be easier with smaller wind turbines; 2) Scarcity of electricity should be addressed through efficiency and conservation, rather than more production; 3) Personally, I like the way the large turbines look, though I don't like the almost perpetual sound generated within a half mile of the turbines, but I refuse to impose my views of wind power on others who do not want large-scale wind turbines near where they live.



Linda Gahne Fox

Marketplace

FOR SALE: 1986 Yamaha Radian YX600 motorcycle; 9,000 miles, newly inspected, runs great. No time to ride. \$1,000 firm. **ALSO,** fresh water fish tank and all associated accessories, including fish. Twenty-gallon high tank with hood, light and stand. Tank does not have any leaks. Enjoyed for many years, but interest is waning. No reasonable offer refused. Could be yours free with a good story. Leave a message at 433-6170 (Williamstown) at any reasonable hour and we'll get back to you.