

VREEM is a monthly electronic newsletter published by Renewable Energy Vermont.

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1. Windfarm Demonstration Project Launched

Montpelier - Montpelier wind energy entrepreneur Mathew Rubin announced plans on September 16 to construct four wind turbines at the summit of East Mountain in the Northeast Kingdom.

Rubin's company - East Haven Windfarm - notified the Northeastern Vermont Development Association of the plan to ask the state Public Service Board for a permit to build the project in the fall of 2004. Such advance notification is required under Vermont law. The project will be the first utility scale windfarm built in the state since the Searsburg windfarm in 1997. The two projects would produce approximately the same amount of power.

Rubin called the turbines a "demonstration project" intended to show Vermonters, and especially residents of the Northeast Kingdom, that the project will deliver clean, reliable and affordable power to the region with minimal adverse impact.

"After consulting with people throughout the region and the state, we decided a demonstration project could go a long way toward showing Vermonters the benefits of wind energy," Rubin said. "And keeping this low-priced power in the Northeast Kingdom for use by its homeowners and businesses increases its benefit locally."

The four turbines are planned for East Mountain in the town of East Haven, the site of a former Air Force radar base, which had been off limits to the public for years until Rubin purchased the property in 2001.

The six-megawatt capacity project will generate approximately 19,000,000 kilowatt hours of electricity per year, enough to power about 3,000 Vermont homes.

For more information:  
[www.easthavenwindfarm.com](http://www.easthavenwindfarm.com)

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## 2. Sugarbush Pioneers Energy Efficient Chairlift

Warren - With the help of Efficiency Vermont, Sugarbush Resort installed a new energy efficient chairlift this past summer, one of only two such lifts in the country - and the only one in the eastern U.S.

The detachable quad lift, dubbed the "Green Mountain Express," covers 6,250 feet and utilizes an alternating current (AC) drive as opposed to the more conventional direct current (DC) drive. According to Gabe Arnold, Project Manager for Efficiency Vermont, the efficiency utility provided an incentive grant to encourage Sugarbush to pioneer this new technology. "We expect the lift to operate at around 95 percent efficiency as opposed to DC systems, where we expect around 91 percent," Arnold said.

AC drives cost substantially more than DC systems but because of their greater efficiency, they cost less to run over the long term. The specially designed AC system uses far less power than conventional systems, and is expected to save the resort an estimated 26,000-kilowatt-hours of electricity each year.

For more information:  
[www.sugarbush.com](http://www.sugarbush.com)

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## 3. Brattleboro Commits to Reducing Greenhouse Gas Emissions

Brattleboro - The town of Brattleboro has committed to reducing its greenhouse gas emissions by 10 percent in residential and commercial areas and by 20 percent in town-owned buildings over the next seven years, according to a newly completed draft of the town's Climate Action Plan.

The plan was put together by Paul Cameron of the Cities for Climate Protection Campaign. "This is really a long-term plan that will improve air quality in the town, increase citizen involvement in local government and create an overall better quality of life in the town," Cameron said. "This is instrumental to our future."

As part of the program, the town commissioned a greenhouse gas emissions inventory last year and found that nearly 200,000 tons of carbon dioxide was released by the town in the year 2000. Carbon dioxide is believed to contribute to the warming of the earth's climate.

"In Vermont, the effects of climate change over the next century are likely to be significant," the action plan states. "They may include the migration of our northern hardwood forests northward to cooler areas, effectively ending the \$13.4 million maple sugaring industry and curtailing the fall foliage season, which contributes \$1.1 billion to Vermont's economy."

The town is also looking into auditing its buildings and operations' energy use in the near future, said Town Manager Jerry Remillard. The town has acted upon smaller energy efficiency efforts in the past, said Remillard, but the action plan outlines a method for town officials to see the big picture as opposed to acting in a piecemeal fashion.

(This article was excerpted from the September 16, 2003 issue of the Brattleboro Reformer as reported by Daniel Barlow)

For more information:  
[www.brattleboro.org](http://www.brattleboro.org)

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#### 4. CVPS Survey Reveals Widespread Support for Renewables in Vermont

Rutland - Nine in 10 Vermonters support development of new in-state renewable electricity generation, citing economic advantages, environmental benefits, reduced dependence on fossil fuels and increased sustainability as key factors in their support.

That was among the key findings of a survey of 525 Vermonters conducted for Central Vermont Public Service (CVPS), an independent, investor-owned company providing energy and energy-related services to customers throughout Vermont.

According to CVPS, the survey revealed that 91 percent of respondents felt it was important for the state to increase renewable energy generation, with 41 percent citing economic advantages, 37 percent citing environmental benefits, 17 percent citing "shrinking fossil fuel supplies" and 7 percent citing energy security as key factors in their support.

CVPS said only 18 out of the 525 commercial and residential customers participating in the survey said it was unimportant for Vermont to add renewable power, with 22 percent of those respondents citing "detraction of natural surroundings" as a reason, 17 percent citing costs, 11 percent saying Vermont "already has enough resources" and 6 percent citing environmental problems and "lack of interest in renewables generally."

Additionally, CVPS revealed that 86 percent of the respondents said it was important for Vermont to become more self-reliant, while 92 percent said was important for the U.S. as a whole to reduce dependence on fossil fuels on fossil fuels.

"Although there is some opposition to [specific] projects, the vast majority of Vermonters want new renewable generation to be developed, and that desire appears very strong," said CVPS spokesman Steve Costello.

The survey included commercial and residential customers and has a margin of error of 5 percent.

For more information:  
[www.cvps.com](http://www.cvps.com)

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#### 5. Renewable Energy Vermont to Host Renewable Energy Conference

Montpelier - Renewable Energy Vermont (REV), Vermont's trade association of renewable energy businesses, will hold its second annual conference on October 8th in Burlington.

Entitled "Power for a New Economy," the conference is geared toward "those interested in Vermont's energy future and the development of renewable energy," according to a conference brochure.

"Last year's conference revealed the tremendous interest Vermonters have in renewable energy," said Andrew Perchlik, Executive Director of Renewable Energy Vermont. "This year, we'll be focusing on the direct link between renewable energy development and a strong Vermont economy."

The conference will feature several workshop sessions, a keynote address by Dr. Robert Costanza, Director of the Gund Institute for Ecological Economics, and a luncheon presentation by environmental author Bill McKibben. In addition, local and national renewable energy businesses will be presenting display exhibits.

For more information:  
[www.revermont.org](http://www.revermont.org)

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## 6. Light Bulb Swap Scheduled in Poultney

Poultney - Efficiency Vermont, Williams Hardware, and students at Green Mountain College will be joining forces starting Saturday, October 4 to give every Poultney household a free energy-saving light bulb in a community effort to change one light in each home.

The "Change A Light" program will encourage every resident of the village of Poultney to swap at least one incandescent light bulb in their home for a new energy-efficient light bulb.

The campaign hopes Poultney will be the first town in the country to have 100 percent participation in switching to efficient light bulbs. The Green Mountain College students are involved with the project as part of their "Special Topics on Energy and the Environment" with Professor Steven Letendre. Students will provide support and logistical services to promote the campaign; track and monitor progress toward the goal of 100 percent participation; develop, administer, and tabulate a survey to gather information on program participants' attitudes and prior knowledge about lighting efficiency options; and help out with the logistics of handing out bulbs.

According to the Efficiency Vermont Website, if every household in Vermont changed one light bulb, Vermonters would save enough electricity to light 14,500 homes for a year.

For more information:  
[www.greenmtn.edu](http://www.greenmtn.edu)  
[www.encyvermont.com](http://www.encyvermont.com)

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## 7. State Partnership to Promote Energy Issues on Vermont Campuses

Montpelier - A coalition of Vermont energy partners was recently awarded a \$96,000 grant from the U.S. Department of Energy's ReBuild America program grant to help promote energy efficiency and renewable energy on Vermont's college and university campuses.

The Vermont College and University Energy Partnership - composed of the Vermont Department of Public Service, Renewable Energy Vermont, Efficiency Vermont, Vermont Sustainable Jobs Fund, and several state and private colleges - proposes to promote energy efficiency and renewable energy projects on campuses throughout the state.

Beginning in October of this year, the partnership will organize a network of campus-based student/faculty/administration energy teams and involve those teams in specific retrofit and renewable energy projects. The group will also build a network of campus groups that will provide support, education, and outreach regarding energy efficiency and renewable energy issues within each institution.

Andrew Perchlik, Executive Director of Renewable Energy Vermont, said that college and university campuses stand to benefit significantly from this grant. "We'll be able to come in and start saving them money almost immediately. At the same time we'll develop internal groups that will work within the schools to manage their efficiency and renewables far into the future."

Work under the grant is expected to last until the fall of 2005.

For more information:  
[www.rebuild.org](http://www.rebuild.org)

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## Features

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Company in the Sun: Sunnyside Solar, Inc.

Founded in 1979, Sunnyside Solar is committed to the principle of using renewable energy to provide for local energy needs. Founder Richard Gottlieb, who studied the principles of solar energy at Goddard College in Plainfield, Vermont, initially focused the company on energy conservation projects, solar hot water systems and solar greenhouses. Gottlieb later expanded the company to include photovoltaics (PV) after attending a PV conference sponsored by Northeast Sustainable Energy Association.

After a year of research and exploration in the field of PV, Sunnyside Solar sold its first PV panel in 1983 - an Arco 16-2000 30-watt module. Since then, the company has sold and installed over 120 kilowatts of PV Equipment and now focuses primarily on PV systems.

Besides Gottlieb, who serves as company president and Chief Engineer, the company employs Carol Levin, who manages the office, and several part-time employees.

In keeping with its focus on PV equipment, the business provides design and engineering of PV systems, system and component sales, complete turnkey installations, and service and education in the PV field. Gottlieb has presented many introductory PV courses, primarily for homeowners and the general public. For the past several years, Gottlieb also taught a one-week course entitled "PV Design and Installation" for solar installers.

Sunnyside Solar works with PV systems ranging from 5-watt panels to 10-kilowatt residential and commercial systems. Working mainly in the northeastern U.S., the company designs and installs both stand-alone and grid-connected systems for powering lighting, refrigeration, heating, ventilation, and electronics systems.

Firmly believing that owner education is the key to customer satisfaction, Sunnyside Solar ensures that all clients understand the basics of their installed PV systems, no matter the system size, configuration, or application.

For more information:  
Richard Gottlieb  
Sunnyside Solar, Inc.  
1014 Green River Road  
Guilford, VT 05301-8117  
Phone: 802-257-1482  
Fax: 802-254-4670

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Ask the Energy Expert: Tom Gray, American Wind Energy Association

Question: I've heard that utility-grade wind turbines only make power about 30 percent of the time. Is that true? And if it is, how could they make a meaningful contribution to Vermont's energy needs?

Tom Gray answers: No, it's not true that utility-grade wind turbines only generate electricity about 30% of the time. At a typical New England ridgeline site, a wind turbine will be generating some electricity 60% to 80% of the time.

The 30% number is a very common misunderstanding, caused by the fact that a wind turbine's "capacity factor" in this region typically is between 25% and 35%. What does that mean? It means that during a given period of time (a month or a year), a wind turbine will generate 25% to 35% of the electricity that it could generate if it ran at full power for the entire time.

For example, let's take a one-megawatt (MW) wind turbine. If it ran at full power for 100 hours, it would generate 1 MW x 100 hours = 100 megawatt-hours (MWh). Instead, on average, it can be expected to generate 25 MWh to 35 MWh. But it doesn't run at full output for 25 to 35 hours, and generate nothing the rest of the time - instead, it runs 60% to 80% of the time, mostly at less than full power.

As for wind "making a meaningful contribution to Vermont's energy needs," that's just a matter of installing enough turbines. Half a dozen wind farms, each with 25 1.5-MW turbines, are enough to generate 10% of our state's electricity, without producing any air pollution, greenhouse gases, fuel transportation problems, or waste. That would be a great start toward building a sustainable energy system in Vermont.

Tom Gray

Tom Gray is Deputy Executive Director and Director of Communications at the American Wind Energy Association (AWEA). For more information about AWEA, please visit <http://www.awea.org>.

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## Events

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Saturday, October 4, 10:00 a.m. - 4:00 p.m., throughout Vermont  
American Solar Energy Society's National Solar Tour: 2003 Green Buildings Open House. Learn how to incorporate green building practices and alternative energy into your home, school or building. Homeowners and building managers will be on site to describe their green building features and answer questions. Members of the public can learn basic principles of green building, such as designing for solar heating ("passive solar"), energy-efficient building techniques such as superinsulation and air sealing, safe indoor air quality, and resource-efficient and healthy building materials. Many of the buildings will demonstrate how solar hot water is collected and stored, how photovoltaics can be placed on or integrated into the shell of a building to produce electricity, and how wind can be used to generate power. For building listings and information about the event please visit [www.nesea.org](http://www.nesea.org) or call 413-774-6051 ext. 22.

Wednesday, October 8, 8:00 a.m. - 3:30 p.m., Burlington  
Renewable Energy Vermont's 2nd Annual Power for a New Economy Conference.  
This will be a full-day event designed to meet the growing demand for  
renewable energy information and spur development of renewables in Vermont.  
The event is intended for the interested public, the renewable energy  
industry, state government, and other interested organizations. Conference  
speakers include Robert Costanza, Director of the Gund Institute of  
Ecological Economics, author Bill McKibben, and Burlington Mayor Peter  
Clavelle. The  
event will also feature display tables, networking opportunities, and  
workshops. Contact: [www.REVermont.org/conference.htm](http://www.REVermont.org/conference.htm)

Friday October 24, 2003 7 p.m. to 8:30 p.m. — UVM  
LECTURE: "Hybrid, Fuel Cell, Electric Vehicles and You!," Gary Flomenhoft,  
UVM Adjunct Faculty. This free, introductory lecture will provide you with  
an overview of the alternative fuel technologies now available on the  
market, and enable you to evaluate the technology that is appropriate for  
you. An in-depth, hands-on workshop will take place October 25, 2003. (There  
is a fee for the Oct. 25th workshop.) FREE. Memorial Lounge, Waterman  
Building. Information: Continuing Education, <http://learn.uvm.edu/SNR/ev> ,  
802.656.2085

Saturday October 25, 2003 9 a.m. to 3 p.m., UVM  
WORKSHOP: "Hybrid, Fuel Cell, Electric Vehicles and You!," Gary Flomenhoft,  
UVM Adjunct Faculty. This hands-on, detailed technical session will  
introduce you to the component parts and their functions of hybrid/EV  
vehicles, including motor and battery types. In the afternoon, we'll go over  
the process of building an electric and/or hybrid vehicle. Register online  
at <http://learn.uvm.edu/SNR/ev>. Fee: \$125. Automotive Shop, Center for  
Technology, Essex. Information: Continuing Education at 802.656.2085 or  
visit the above website.

Saturday, November 1, 9:00 a.m. - 4:00 p.m., Warren  
Residential passive solar design workshop. The workshop will include the  
basic design, theory, and methods required to maximize the solar potential  
of your present or future home. Also included will be lectures, slide shows,  
and hands-on demonstrations that offer looks at how to best use passive  
design for home heating, cooling, and daylighting. Contact:  
[www.yestermorrow.org](http://www.yestermorrow.org).

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#### About VREEM

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