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Vermont

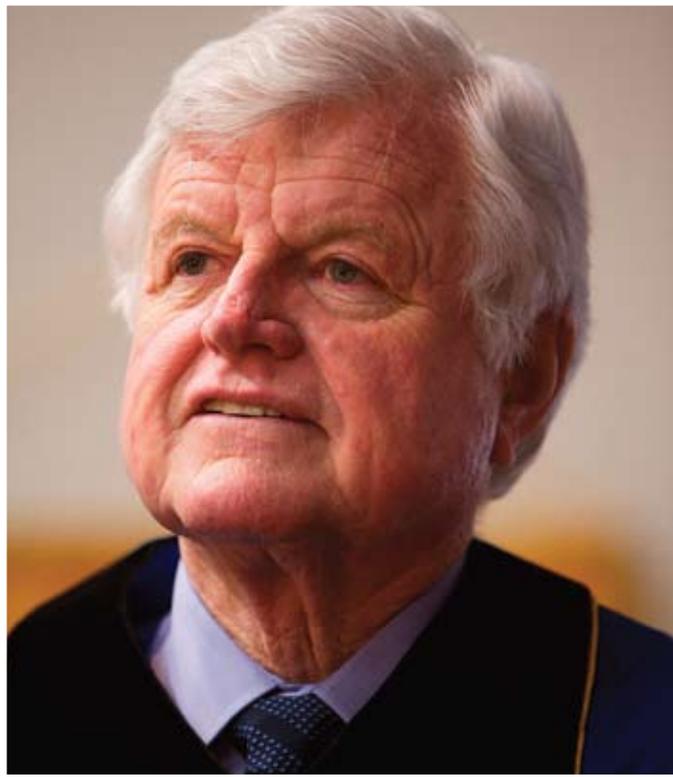
Environmental Report

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BIOMASS ENERGY IN VERMONT: HOW MUCH PROMISE DOES IT HOLD?

Summer
2007



Blake Gardner

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VNRC is the Vermont affiliate of the National Wildlife Federation.

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Vermont Environmental Report

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Summer 2007

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On the issue of climate change, we're on a long and challenging road. To reach our destination, we'll need more than just good intentions. We'll need leadership.

DRIVER WANTED

By ELIZABETH COURTNEY, EXECUTIVE DIRECTOR

It's good to see that the climate change challenge facing the world and Vermont has finally gained some traction.

Vermont lawmakers took the lead this year and devoted the first three weeks of the session to learning about the issue. Speakers including acclaimed author and environmentalist Bill McKibben, long-time energy expert Amory Lovins and many more, visited the Statehouse to deliver warnings and ideas for curbing the effects of climate change that threaten Vermont's sugaring, skiing, leaf peeping and tourism industries, for starters.

The Legislature ended the first half of the biennium with a significant energy bill designed to address building efficiency and renewable energy resources. And the governor launched his Climate Change Commission, which is due to deliver its recommendations for action by September.

It sounds like the global warming debate has shifted away from whether it's happening and who's to blame. It's now focused more on how to slow the trend. This is certainly progress. Good news, right?

Well, good intentions might be more accurate and the road to a hotter planet is paved with good intentions. If we are to take our good intentions and really move them forward into good climate policy, we need to pick up a couple of critical items for the trip.

We need a roadmap.

So far we don't have a clear, unified plan for the most resource-effective way to cut emissions of greenhouse gases, nor do we have a plan for abating or adapting to the climate changes that loom. Peter Bradford of the Regulatory Assistance Project (RAP) in his testimony to the House and Senate committees on natural resources and energy stated the issue succinctly:

"The necessary reductions in carbon emissions are likely to be very large. We have neither time nor money to waste. This will require changes from past energy policy debates, which have sometimes proceeded as though we had infinite amounts of both. Any individual, state or nation seeking to reduce its emissions (and to curtail its oil dependence) needs to begin with a clear

understanding of the sources of its emissions and its oil dependence. It can then develop the most cost effective ways to reducing them. Otherwise time and money will go into 'solutions' that in fact do little while other, more promising approaches are allowed to languish."

The Legislature missed a golden opportunity to create this roadmap (an Integrated Resource Planning, or "IRP," component) as part of the big energy bill. The provision would have required an analysis, taking into account a range of factors — including economic and environmental factors — of where Vermont can get the biggest bang for the buck to reduce carbon dioxide emissions. VNRC will strongly urge lawmakers again next year to pass such a provision into law.

We need a driver.

Gov. Douglas, our state's leader, was essentially silent on the issue this legislative session, providing little in the way of solutions. In fact, he proved to be a roadblock by vetoing the big energy bill and instead advancing a short-sighted alternative energy plan that would saddle Vermonters with more debt. Vermont simply cannot afford to have the governor not on board and in the driver's seat.

What about the governor's own Climate Change Commission, you say? As a member of that six-person commission, appointed by the governor, I can tell you that we and our 30-member plenary group and expert consultants are working hard to develop a strategy to cut Vermont's greenhouse gas emissions 25 percent from 1990 levels by 2012. However, the process relies heavily on the volunteer work of the commission and the plenary group and lacks a clear, integrated resource planning process like the one noted above.

But what is perhaps the most troubling concern for me, as a commission member, is the fear that the governor will reject any funding mechanism in our proposal, just as he has done with the big energy bill. And an unfunded mandate? Well, that's like a car without gas.

On the issue of climate change, we're on a long and challenging road. To reach our destination, we need more than just good intentions. We need leadership. 



OUR CHOICE IS CLEAR: RENEWABLES NOW

By JAN BLITTERSDORF

Just like many of you, I'm concerned about Vermont's energy future. But recently, I've read some things that are cause for even greater concern. It appears as if the urgency of climate change is diverting our conversation away from conservation and renewables and straight to nuclear power as a solution.

This "leapfrogging" over renewables is a scary prospect. Nuclear power is by no means carbon neutral, nor should it be

the backbone of Vermont's energy future. When we consider the emissions associated with the mining of uranium, refining and enriching the ore, the building and operating of reactors, and the transporting and storing of nuclear wastes, the costs of nuclear outweigh the benefits.

If we go down the nuclear path, the public will pay a price in the continued build-up of carbon dioxide and nuclear waste. The threat and memories of nuclear meltdown loom large in the public's consciousness – there's a reason the nuclear industry in the U.S. has stagnated over the past 30 years. So before we create new problems for future generations with nuclear power, let's take a harder look at the real power of renewables like wind, solar and biomass.

Wind is an essential part

of the solution. Wind energy is a proven technology that is powering our nation and the world. Denmark produces 25 percent of their electricity from the wind; Germany and Spain, 20 percent. In the U.S. wind provides less than one percent



of our electricity generation. But that's changing as the industry quickly gears up to reach the 20 percent level in response to federal and state initiatives and the will of the people. (For more facts and photos, visit www.awea.org.)

Wind farms are being proposed in Vermont because wind works – it's cost effective and can make a significant contribution to our power supply. A study conducted by Princeton Energy Resources International (PERI) showed that Vermont has the wind resource to generate all of its electricity with wind. Reaching the 20 percent level with wind is certainly possible and would require using less than one percent of our ridgelines.

Not only is wind feasible, but its benefits are many. First, it is a safe, non-polluting and renewable source of power. After accounting for the greenhouse-gas emissions over a wind turbine's life-cycle, including the one-time manufacturing and transport of that turbine to a remote site, wind offers the smallest carbon footprint available

It appears as if the urgency of climate change is diverting our conversation away from conservation and renewables and straight to nuclear power as a solution.

for commercial generation of electricity. Wind turbines have a 30-year lifespan of carbon-free power generation. And wind is a renewable energy resource, safe from the vagaries of global market prices based on demand for finite resources like oil and uranium.

Second, it presents an opportunity for sustainable, economic growth here in Vermont. The worldwide industry is growing at roughly 30 percent per year. States such as Pennsylvania are positioning themselves to be leaders in the industry. Not only has Gov. Rendell invested state resources in small wind energy systems, he has also changed over the state vehicle fleet to hybrids, and succeeded in attracting Gamesa, one of the world's largest wind turbine manufacturers. Gamesa is locating its U.S. headquarters and other manufacturing facilities in the state, one at an abandoned steel mill employing former workers. The total investment may create as many as 1,000 jobs. Vermont could use some of Pennsylvania's visionary thinking.

The desire among some to leapfrog renewables

also ignores the fact that our current lifestyle is not sustainable. The U.S. represents four percent of the world's population, but consumes 25 percent of the world's energy. Climate change demands that we make tough lifestyle choices to reduce consumption. It demands leadership from our public officials to mandate or incentivize change, such as banning incandescent bulbs or requiring solar hot water to be installed in every new home.

When it comes to addressing the urgency of climate change, let's take the long view and make intelligent choices. Let's leave a safer, cleaner world for future generations. And let's maximize the potential of conservation and embrace the power of renewables. They are available and ready for us today. We can't afford to wait. 

Jan Blittersdorf is CEO of NRG Systems, Inc., a Hinesburg-based manufacturer of wind measuring technology for the global wind energy industry, and a board member of Vermont Businesses for Social Responsibility.

VERMONT ENVIRONMENT I·N·D·E·X

- Percent of Vermont greenhouse gas emissions coming from electric power generation. **one percent**
- From transportation. **46 percent**
- From heating of buildings **28 percent**
(The remainder — approximately 25 percent — comes from combination of agriculture, industrial fuel use, industrial processes, etc).
- Estimated increase in carbon dioxide emitted by the transportation sector between 2005 and 2020 **25 percent**
- Number of tons per year of carbon dioxide emitted by all Vermont sources. . . **8.5 million metric tons**
(Source: Governor's Commission on Climate Change Transportation and Land Use Technical Working Group Meeting October 16, 2006)
- Approximate number of dams of all types in Vermont **1,200**
- Number of dams breached or substantially gone: **approximately 600**
- Number of hydro dams generating power in Vermont **86**
(Source: Agency of Natural Resources)
- Percent of Vermont's landmass covered by forest in 1900 **roughly 36 percent**
(Source: Wallin, J.A., "Vermont's Reintroduction of the Eastern Wild Turkey," 1977, Transcript of the Northeast Fish Wildlife Conference, 34:23-31.)
- Percent of Vermont's landmass covered by forest today. **73 percent**
(Vermont Department of Forests, Parks and Recreation)
- Tons of accessible wood generated each year by Vermont forests that could provide fuel for biomass energy generation **One million**
- Number of Vermont kids that attend schools that get their heat and electricity from biomass **One-in-five**
- Fuel cost savings for schools heading with biomass compared with oil. **40-60 percent**
(Biomass Energy Resource Center)
- Cost of making one million British Thermal Units (BTUs) of heat with oil **\$17.00**
- Cost of making one million BTUs of heat with wood **\$5.50**
(Jim Marsden, Director of Buildings and Grounds, Mount Anthony Union School District)
- Number of gallons of heating oil required to generate same heat as one cord of sugar maple. **116**
- One cord of paper birch. **99**
- One cord of aspen **67**
- One cord of hickory **134**
(Source: Governor's Commission on Climate Change)
- Number of Step It Up climate change events across the country this April. **1,460**
- Number of Vermont Step It Up Events **73**
- Number at Montpelier Step It Up (co-hosted by VNRC) **300**
- Number of ideas to address climate change that the Governor's Climate Change Commission began with. **400**
- Ideas the commission is now entertaining **approximately 38**

VERMONT PERSPECTIVE



VNRC's Groundwater Protection Efforts Advance

For the last few years, VNRC has pushed for a comprehensive program to protect the state's groundwater — the source of drinking water for more than two-thirds of Vermonters.

This legislative session, VNRC's efforts paid off when the Legislature allocated over \$300,000 to begin mapping the state's aquifers. Vermont has had a law on the books for nearly 20 years requiring the state to map its groundwater resources. Yet the state has failed to appropriate the funding necessary to do so — until now.

"This is a vital first step, and this year's budget appropriation to begin the mapping process is critical," said Jon Groveman, VNRC's water program director. "Maps will assist us as we develop a comprehensive groundwater protection program. The Legislature's action could also help leverage federal funds to undertake the mapping process," he said.

Meanwhile, the Groundwater Task Force, created by the Legislature last year, continues its work to determine, among other things, whether Vermont should declare its groundwater a public trust resource. Such a declaration means that the public owns and controls groundwater, and that there is no private right of ownership of the resource.

VNRC will use its seat on the task force to encourage the state to embrace a public trust declaration as one of several important components of a strong groundwater protection program. The task force is set to conclude in January 2008. At that time, task force members will deliver a report to the Legislature outlining a set of recommendations for a program to safeguard groundwater.

Most of Vermont's neighboring states have already taken steps to protect their groundwater from excessive withdrawals. Yet Vermont's groundwater remains at risk due to the fact that the state has no program in place to protect it.

These pieces of the puzzle come together simultaneously as debates intensify over

this issue. More and more corporations across the nation are seeking to bottle, sell, and commodify groundwater. A new proposal to do just that in East Montpelier has placed the capital city squarely in the middle of the state's discussion about how to manage large commercial water withdrawals. VNRC is working with concerned citizens to learn more about the Montpelier Springs proposal and to understand the implications such an operation could have on state-level efforts to create a strong, forward-looking policy to safeguard this invaluable resource.

Expanding Protections for Wetlands

On another front, this summer and fall VNRC will push for meaningful protections for the state's valuable wetlands — Mother Nature's water purifier. VNRC sits on a wetlands study group that operates under the auspices of the Douglas administration's Water Resources Panel,

which last year, showed a troubling reluctance to take an environmentally protective position on wetlands. The group is looking to update Vermont's wetland rules for the first time since they were adopted in 1987.

VNRC will encourage the panel to take advantage of this once-in-a-generation opportunity to adopt comprehensive and meaningful environmentally protective measures as it looks to develop new wetlands rules.

Stormwater and Basin Planning

VNRC continues its work to ensure that cleanup plans for Chittenden County's polluted waters are properly implemented. In collaboration with the Conservation Law Foundation and other partners, VNRC was successful in advancing legislation that will keep the Agency of Natural Resources on track in cleaning up Vermont's rivers, streams and Lake Champlain. VNRC will remain vigilant in our efforts to ensure the ANR complies with state and federal



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law as these vital cleanup efforts go forward.

VNRC is also working hard to ensure the state protects its high quality waters through the “basin planning” process. VNRC and a coalition of partners, including Trout Unlimited, Vermonters for a Clean Environment, Water 1st! and Two Rivers Ottaquechee Regional Planning Commission are working with ANR on enacting an “anti-degradation” procedure that will ensure that basin planning indeed protects Vermont’s waters.

Safeguarding Water Cleanup in Stratton

VNRC has been working with a local citizens group, known as the Stratton Area Citizens Committee, to ensure that water pollution

cleanup efforts at Stratton Mountain Resort restore water quality in the area. VNRC is collaborating with SACC to assure that Stratton follows the cleanup plan mandated by its permit to develop real estate at the resort and that the streams are cleaned up. At a hearing in June, Stratton sought to ease water quality cleanup requirements, but VNRC and SACC were vigilant in pressing for stronger clean up measures. While the end results of these issues are yet to be determined, the good news is that damage to the streams is being remediated. VNRC is also optimistic that the approach developed in this case can be a model for stream restoration and protection in other communities across Vermont.

ANR Water Enforcement Continues to Lag

Unfortunately, the state agency charged with safeguarding Vermont’s magnificent natural resources — the Agency of Natural Resources — has consistently failed to adequately enforce Vermont’s water pollution laws, resulting in dirtier rivers, streams and lakes. A recent enforcement case at Jay Peak is a good example.

In 2005, VNRC investigated stormwater runoff problems from construction sites at Jay Peak Ski Resort. The results of that investigation triggered an ANR enforcement action against the resort. Despite VNRC’s prodding, however, ANR failed to fine Jay Peak for polluting the waters of the state for years after discovering the violations. Shortly after VNRC and the Conservation Law Foundation tried to formally intervene in the case, ANR settled the case with Jay Peak, assessing the resort a penalty of about

\$100,000.

Given the severity of the offenses and general lack of cooperation from Jay Peak, VNRC and CLF both believe the penalty amount is just a slap on the wrist, and sends a message that ANR is soft on polluters.

“Jay Peak was nonchalant on stormwater pollution control, and contamination of Vermont’s waterways was the unfortunate result,” said Kim Greenwood, VNRC’s staff scientist. “Jay was warned multiple times that their sediment control measures were inadequate.”

VNRC will continue its efforts to ensure that violators like Jay Peak are met with swift and strict enforcement by putting pressure on ANR to enforce the law.

VNRC Wins Important National Victory for Wildlife, Forests

The nation’s national forest lands and wildlife are safer now, thanks in large part to a court decision in a lawsuit filed by VNRC and other leading environmental groups. In an exciting victory, a federal court judge on March 30, 2007, put the brakes on the Bush administration’s implementation of an environmentally harmful set of forest planning regulations.

The Forest Service implemented the new regulations shortly after President Bush was elected, abandoning environmentally protective planning regulations that represented many years of work and public input. The Service rewrote the regulations to accomplish, in its own words, a “paradigm shift in land management planning.” This “paradigm shift” stripped away many of the concrete standards for resource protection, including



The VNRC-sponsored report highlights the causes of parcelization and forest fragmentation and it explains the negative impacts that occur when larger parcels of forestland are broken into smaller and smaller blocks.

the requirement that the Forest Service maintain viable populations of wildlife and to do environmental impact statements when writing national forest management plans.

In the case, the judge ruled that the Forest Service's 2005 forest regulations violated three federal statutes: the Endangered Species Act, the National Environmental Policy Act, and the Administrative Procedures Act. The decision temporarily shuts down the Bush administration's attempt to sidestep important natural resource protections on

national forests, including the requirement to maintain viable populations of wildlife.

"While the implication of this decision is less profound in Vermont because the Green Mountain National Forest finished its forest plan under a previous set of regulations, this is still an important decision to protect the nation's wildlife and national forests," said VNRC's Forest Program Director Jamey Fidel. "VNRC hopes the Forest Service will go back to its policy of ensuring that wildlife populations remain viable on all of our national forests."

Roundtable Issues Report on Parcelization and Forest Fragmentation

In August 2006, VNRC convened a comprehensive roundtable of forestland stakeholders to discuss the problem of increasing land "parcelization" and to develop strategies to reduce the negative impacts of this trend in Vermont. Over 100 people representing diverse interests were invited to join the VNRC-facilitated discussion. Each participant

was asked to put forward ideas for tackling the issue and for protecting the ecological integrity and economic viability of Vermont's forestland. Recently, the Roundtable issued a final report that draws on the expertise of consulting foresters, professional planners, government officials, landowners, sportsmen, and representatives from the forest products industry, conservation groups, biomass energy, and public and private universities and colleges.

The report highlights the causes of parcelization and forest fragmentation and explains the negative impacts that occur when larger parcels of forestland are broken into smaller and smaller blocks. Most importantly, the report includes 27 recommendations to help address the implications of shrinking and fragmented forest lands. The recommendations are

Forest Roundtable Report Recommendations

The Forest Roundtable, convened last year by VNRC, developed a set of recommendations to address the troubling trends of land parcelization and forest fragmentation. Some of the Roundtable's key recommendations are:

- Endorse Vermont's Use Value Appraisal Program (UVA), including continued funding to sustain it.
- Conduct an independent legislative study of the UVA Program (also known as the Current Use Program) to examine the statutory goals of the program and assess the program's effectiveness with respect to the original goals.
- Assess property with perpetual conservation easements at a lower value.
- Educate landowners about programs for keeping forestland intact across multiple generations.
- Track and analyze rates and degree of forest fragmentation in Vermont.
- Identify and correct gaps in Act 250 and other land use regulations to attenuate the rate of parcelization and forest fragmentation in Vermont.
- Develop a system to consistently quantify, recognize, and compensate landowners for the value of ecosystem services provided by forestland in Vermont.
- Convene a forum on how to manage for ecosystem services at the regional scale, paying attention to property rights, alternative models of ownership and management, and required policies and distribution of costs and benefits.
- Support the establishment of landowner cooperatives that foster conservation, forest stewardship, ecosystem services and forest product marketing efficiencies.
- Bolster development of strong, effective, cooperative statewide organizations that bring together forest products industry representatives, landowners and manufacturers to promote a strong forest products economy.
- Increase the visibility of the contribution of a working forest to the state, including the economic, ecological and social benefits of forestland.

The entire Forest Roundtable report is on VNRC's web site. Click on the link to the Forest Roundtable. To receive a hardcopy, please contact Jamey Fidel, VNRC Forest and Biodiversity Program Director, at 802-223-2328 ext. 117.

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broken into four sections: tax policy; conservation planning; conservation and stewardship; and support for the forest products industry.

The Roundtable plans to continue meeting to discuss ways to implement the recommendations in the report.

VNRC Helping Communities With Forest Stewardship

VNRC will be helping towns address fragmentation of their forests and wildlife habitat by developing planning tools and offering technical assistance to landowners and municipalities. VNRC, Audubon Vermont, Vermont Coverts, and the Northern Forest Alliance will all work on the project, known as the Forests, Wildlife and Communities Project.

The goal of the project and its associated conservation activities is to support the implementation of several priority actions of Vermont's Wildlife Action Plan. The purpose of Vermont's Wildlife Action Plan, which was completed a little over a year ago, is to identify ways to prevent wildlife from becoming threatened or endangered. Many of the wildlife conservation strategies in the plan call for technical assistance and outreach to landowners as well as the conservation of wildlife habitat by town and regional governments.

Specifically, the new project will: provide direct technical assistance to private forest landowners; help towns

make decisions through local planning and zoning to conserve wildlife habitat; and utilize town-owned forests as demonstration sites for wildlife habitat education and improved stewardship.

Also as part of the project, VNRC will develop a planning guide for wildlife and forestland conservation. This guide will include templates for municipal planning. For example, several available templates may come from a project that VNRC and Vermont Forum on Sprawl are currently working on in the town of Reading. The goal of the Reading project is to develop planning strategies to reduce forest fragmentation and conserve important forestland resources.

VNRC and our partners were awarded a grant for the project by the Wildlife Conservation Society through its Wildlife Action Opportunities Fund. Support to establish the Wildlife Action Opportunities Fund was provided by the Doris Duke Charitable Foundation. The project was selected from a nationally competitive pool of over 500 grant submissions.

VNRC Persists in Smart Growth Efforts

VNRC is working hard on several fronts to protect our compact downtowns. Part of that has been opposing development of "big box" retail stores like Wal-Mart from building in valuable agricultural lands outside of downtowns.

In St. Albans there remains a proposal to build a 160,000 square-foot store two miles north of the city's downtown. VNRC, working with a group of local citizens, are parties under Act 250. Earlier this year, VNRC filed concerns about traffic as well as fiscal, economic, environmental and community impacts. VNRC is expecting a ruling any time from the Act 250 District Environmental Commission. On a parallel track but at the local level, the St. Albans Development Review Board reissued a conditional use permit for the Wal-Mart store. Last year, the town withdrew the original local permit when the Vermont Environmental Court – after hearing legal arguments from VNRC – ruled that two of the local board members had conflicts of interest, which had contaminated the local process. In this second round, VNRC again has challenged the permit on the basis of conflict of interest.

VNRC expects that both the Act 250 ruling and the local zoning ruling, whichever way the decisions go, will be appealed to the Environmental Court by one party or another.

In Bennington last year, VNRC – representing Citizens for a Greater Bennington (CFGB) – appealed the local DRB permit for a 112,000 square foot Wal-Mart to Environmental Court, citing concerns over fiscal and economic impacts, traffic and site planning. The judge has ordered the parties to try mediating their differences. VNRC has agreed with the developer on moving forward with an independent fiscal and economic analysis that will evaluate impacts of the proposed store on existing retail business, tax base, and downtown Bennington. The consultant has indicated that

they should have the analysis completed by summer. It is anticipated that Wal-Mart will file its Act 250 application after the study is done.

In the Northeast Kingdom town of Derby, a proposal to build a Wal-Mart store is in the early stages of permitting. J.L. Davis, the same developer seeking to build the St. Albans store, has received a local zoning permit, with several conditions, for a 150,000 square foot Wal-Mart. The Act 250 process has not begun.

VNRC continues to monitor the process and has been talking and meeting with local residents concerned about the project's impacts to local businesses and the community.

"It's just common sense," said Steve Holmes, VNRC's sustainable communities program director. "We all know that locally-owned, downtown businesses are the heart of healthy and vibrant Vermont communities. Big box stores like Wal-Mart, when they are built in cornfields outside of town, erode the underpinnings of these deeply held Vermont community values."

Growth Centers

In addition to working on Wal-Mart cases, VNRC has been involved in several initiatives related to the new Growth Center law passed last year, including:

- Offering comments on the Growth Center Implementation Manual, which communities will be able to use to get designated as Growth Centers. Many of VNRC's suggestions were integrated in the manual.
- Submitting recommendations to the newly established state Growth Center Planning

After hearing legal arguments from VNRC on the St. Albans Wal-Mart case the Vermont Environmental Court ruled that two of the local board members had conflicts of interest...

and Coordination Committee in developing an interim procedure for reducing impacts on agricultural lands related to growth centers.

- Participating extensively in the rulemaking proceeding of the Natural Resources Board's Land Use Panel, which is in the process of writing rules that will affect the way that agricultural lands are protected under Act 250 and the Growth Center Law.

Another aspect of the law began to take shape last fall when the Secretary of Agriculture convened the Growth Center Study Group, on which VNRC has a seat. In January 2007, the secretary presented the Legislature with a work plan and budget. This included options and recommendations for future agricultural and other land conservation policies to be developed by the six-member working group. The focus of this work – protecting the countryside – will complement the ongoing work of channeling new development into growth centers.

VNRC also worked hard

this past legislative session to defeat the Douglas administration's short-sighted "New Neighborhoods" initiative. While housing remains an issue in Vermont, the ill-conceived "New Neighborhoods" plan would have undermined the Growth Center Law, caused more sprawl, and weakened Act 250. VNRC has been working with a task force that is looking to create more opportunities for affordable housing in smart growth locations.

VNRC and its partners in the Vermont Smart Growth Collaborative have also begun working with communities seeking growth center designation. Williston's proposal is under review at this time.

VNRC Climate Work Focuses in Local Communities

VNRC continues its work with our partners in the

Vermont Energy and Climate Action Network to support and start local energy and climate action committees across Vermont.

With oil and gas prices soaring, the reality of climate change looming large, and a war waging on in Iraq, there is gathering momentum and urgency across Vermont to advance community-driven strategies to the energy and climate crisis. More than two dozen Vermont communities have now created town energy committees to move forward on plans to reduce consumption and increase opportunities for clean, green, renewable energy generation.

Recently, community leaders in Middlesex and Marshfield have launched energy committees. VNRC has been coordinating with these fledgling groups to support their efforts by lending organizing, outreach, and technical expertise. VNRC and its VECAN partners are working closely with communities to advance plans to tackle — from the grassroots up — town-wide strategies to save energy and increase local renewable generation opportunities.

The role of VECAN as a networking, organizing and technical resource is crystallizing as the conversations around energy and climate change turn into action. VECAN's focus on creating opportunities for communities to learn from each other, share successes, and replicate and collaborate on programs will help to build the institutional capacity committed, volunteer

Vermonters can use to make the most of community-based energy initiatives.

VNRC and its VECAN partners are in the process of creating a web site for town energy committees. The web site will host useful information on tools, resources and strategies to help conserve energy, improve the efficiency of buildings and operations, reduce waste and switch to renewable power.

Town energy committee members will also be able to get up-to-date information about what other Vermont committees are doing through an interactive map. 

For further information about any of VNRC's initiatives or to get involved, please don't hesitate to call us at 802-223-2328. Staff contact information is below:

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Biomass Roads Diverging In The Woods

*Facing Market Forces, Will
Vermont Choose Sustainability?*

BY WILL LINDNER

Global Market paces the floor, brow furrowed with concentration, energy – and the world’s thirst for it – weighing on his mind. He leans over the map spread upon his desk.

“Oil,” he says aloud, and scans the outlines of the Middle East, of Russia, Venezuela, Nigeria, Canada, and Mexico. Plenty of it remains, but a new phrase has entered the energy lexicon: Peak Oil. He loathes the term, but concedes that its logic is undeniable, with world consumption approaching 80 million barrels a day. He recalls the Hirsch Report, “Peaking of World Oil Production: Impacts, Mitigation and Risk Management,” published in 2005 for the Science Applications International Corp. “The earth’s endowment of oil is finite,” it said. Of 12 studies cited, six projected Peak Oil would occur by 2010; four others allowed an additional 15 years. “(N)o one knows with certainty when world oil production will reach a peak,” the report concluded, “but geologists have no doubt it will happen.”

Privately, Global Market has no doubt either, so his thoughts move on to coal. No one ever

talks about “peak coal.” Consider Kentucky, where commercial extraction began in 1820; 187 years later 87 percent of the original lode remains in the ground. China has twice as much coal as the U.S., and India, Australia, South Africa and Russia, are significant producers.

“But smokestack pollution is catching up with coal,” he murmurs. The resource is there for the taking, but with mandates for emission-reduction technology piling on, coal-generated power won’t remain cheap.

“Well, there’s always nuclear power,” Global Market assures himself. Concern over carbon emissions from fossil fuels has emboldened the nuclear industry to advertise itself as the “clean” alternative, which would be laughable if humor could be found in radioactive waste that will remain lethal perhaps longer than people will inhabit the planet.



Biomass offers us a carbon-free, renewable, and local energy source. That's right in step with VNRC's traditional values, but we need to consider (the impacts) carefully."

— Elizabeth Courtney, VNRC Executive Director

"Problematical, all these fuels," he grumbles.

Then his eye catches a tiny swath on the map that extends over the northeastern United States. He has heard of this – the 26-million-acre "Northern Forest" in Maine, New Hampshire, Vermont and New York. It produces wood, plentifully – or at least plentifully enough for Global Market and his shareholders to grab profits while they last. Wood chips are cheaply harvested, he reasons, especially in these backwoods states with their low labor costs. The fuel is essentially carbon-neutral – a cog in the existing carbon cycle, in contrast to fossil fuels whose carbon is added to the atmospheric load when it is unearthed.

Global Market is amused. "Wood," he says,

chuckling as he draws a circle around the small, defenseless states. "Wood chips for electric power plants. How quaint."

'Look at all the trees!'

All of which is to say that if Vermont wants to manage its forest-biomass resources regionally, and employ them sustainably in the service of Vermonters, it had better wake up.

"In Western Europe, the wood resource is pretty much exhausted," says Tim Maker, senior program director of the Biomass Energy Resource Center (BERC), a six-year-old organization based in Montpelier but active nationally. "So they're here, looking and buying. We think the answer is to empower local users of the resource to compete and hold onto it."

The Vermont Natural Resources Council has, for 44 years, worked to "hold on," as Maker says, to Vermont's natural resources. VNRC has helped protect ridgelines, streams and rivers, Lake Champlain, key bear habitat, and our world-renowned, historic, compact village centers. At the same time, VNRC has seen the looming climate and energy crises that are bearing down on us, and we wonder: should biomass, from our homegrown forests, be part of our energy mix in the future?

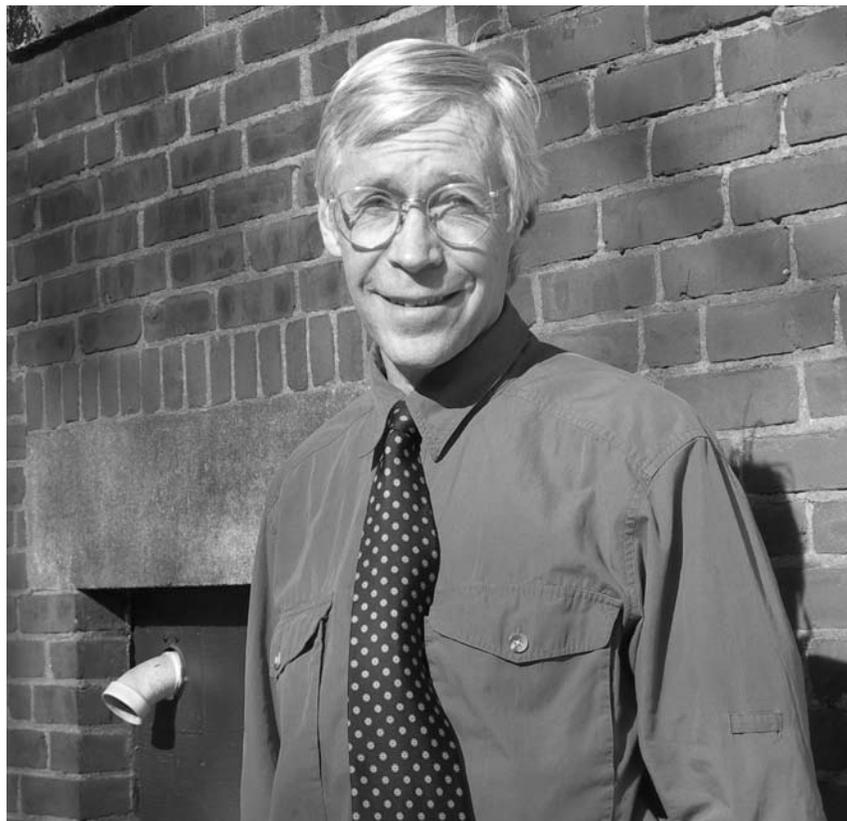
"Biomass offers us a carbon-free, renewable, and local energy source. That's right in step with VNRC's traditional values," says Elizabeth Courtney, VNRC's executive director. "But increasing the rate at which we harvest our forests comes with potential impacts. We need to consider those carefully."

Holding onto our wood resource means not only husbanding the resource for local uses – predominantly space heating and electric generation – but also preserving it even while we consume it. Forest advocates worry that we may repeat the sins of our ancestors, who deforested Vermont over a 100-year period following statehood in 1791. It wasn't just for homesteading and shepherding: they were responding to the market forces of their day.

"The market for charcoal came along and they were all over it," says Robert Turner of Bristol, a professional forester participating in a fledgling bio-energy subcommittee of the Forest Stewards Guild. "Boom-and-bust is the nature of this commodity. When markets are good, everyone tries to take advantage of it."

It seems to be a universal condition – one Turner observed when he attended a biofuels conference in Norway. "I thought, 'Here's a forward-looking country,' but I didn't leave there thinking that the environment and sustainability

Tim Maker, senior program director of the Biomass Energy Resource Center.





were high on their list.”

Yet, for Vermont, Turner is cautiously optimistic. His town is in the forefront of a new, holistic movement in which communities would employ local biomass resources for local uses – in Bristol’s case, for heating Mt. Abraham High School, which recently installed a woodchip boiler. In this micro-application of harvesting-and-consumption, impacts on the health and viability of the local forest theoretically would be so obvious that it would encourage sustainable practices.

“We have a real opportunity here to do it right,” he says.

But others worry that the temptation of Vermont’s plentiful, renewable forest will be too great, especially with the end of our major power contracts looming within a decade.

“On one hand, you know, people are seeing all this biomass and they’re saying, ‘Great, let’s do power plants!’” says BERC’s Tim Maker. “We’ve got this need to replace Vermont Yankee and Hydro Quebec. Look at all the trees! Let’s go!”

The supply certainly seems impressive, especially considering that woodchip fuel most often is a secondary harvest product, the limbs, bark and stumps left behind by a primary forest or wood-products operation. John Irving, who operates the McNeil electric-generating plant in Burlington – the state’s largest biomass consumer – says 70 percent of his fuel supply is a byproduct of timber or pulp harvesting, culling, or similar projects. Thirty-five contractors keep the chips flowing to the plant.

“We also get 20 percent from mill residue, from sawmills, furniture factories, veneer manufacturing facilities,” Irving adds. “This is mostly sawdust, bark and shavings.”

The remainder comes from a drop-off center where local residents and businesses can bring clean, untreated wood, like discarded shipping pallets of the refuse from yard maintenance.

These diverse sources provide a startling volume of fuel. In order to limit truck traffic, the city requires McNeil to receive 75 percent of its fuel by train, shipped from a depot in Swanton. Each car holds 70 tons of wood, “which is about enough to run the plant for an hour,” says Irving. (McNeil is not a baseload plant – i.e., one contracted by ISO-New England to generate power around the clock – although it has trended that way in recent years, operating at a “capacity factor” of 70 percent.)

Vermont’s other major consumers of woodchip fuel include an independently owned power plant in Ryegate – rated at 20.3 megawatts (MW), as opposed to McNeil’s 50 MW – and 31 public schools that have converted to woodchip heating

“Our forests are accumulating wood.”

— Adam Sherman, BERC Project Manager

plants. The state building complexes in Montpelier and Waterbury heat partially with wood, as do a small number of low-income housing complexes, hospitals and industries. And, of course, thousands of Vermont homeowners burn wood in their Defiant and Hearthstone stoves.

Notwithstanding this vigorous consumption, our forests produce significantly more wood than we’re taking. Professionals have observed this phenomenon for years, and BERC has undertaken a comprehensive study to attempt to quantify what





Plainly, an increase in generating capacity via biomass is on the horizon.

portion of Vermont’s unrelenting forest growth is appropriate and attainable for biomass.

The “inputs” were many and complex. Vermont is 78 percent wooded, but given topography and other variables, only a portion of its 4.5 million acres of timberland are accessible. Parcelization – the subdivision of Vermont’s woodlands into small holdings, as discussed by VNRC in its Summer 2006 Vermont Environmental Report – also reduces the available resource, because even if small landholders want their forests trimmed, the difficulty and cost of operating in these little patches discourages most commercial cutters from bothering.

In the end, BEREC Project Manager Adam Sherman and his team determined that Vermont’s net annual growth rate (natural growth minus natural mortality) amounts to roughly 13 million green tons per year.

Usage is significantly less. BEREC tapped Vermont Department of Forests, Parks & Recreation surveys, made adjustments to account for “under-the-radar” consumption, and estimated that we are using between two and three million tons of low-grade biomass per year. Applying the factors of parcelization and accessibility, BEREC concluded that net annual growth has exceeded annual harvesting by a two-to-one ratio.

“Our forests are accumulating wood,” says Sherman.

That apparent abundance contributes to the interest, in many quarters, in expanding in-state electric

generation through wood biomass. Vermont faces major, immediate decisions about its electric supply, and the world is facing a climate-change crisis; in that light, throwing more wood onto the fire for power production seems like the responsible thing to do.

“Whenever you replace a fossil fuel, in which carbon that has been locked away for millions of years is extracted and added to the atmospheric carbon stock, it represents an improvement,” says Maker. “If you burn wood as opposed to carbon fuels you come out way ahead regarding climate change.”

Big deal

But here’s the question. The power-production technology for wood biomass captures only about 27 percent of the BTU potential of the fuel. (BTUs – British Thermal Units – are a measure of heat production that can be applied to all fuels.) If a technology is 70 percent inefficient, is it an environmentally defensible use of the fuel, even a fuel that is renewable and abundant?

And here’s the second question: Is our wood

CLIMATE AND ENERGY: WE MUST RESIST MYOPIA

In this fast-paced world, planning can seem onerous, even a waste of time, because conditions change so fast. But energy planning is different. And if Vermont is to assure itself a clean, renewable, and reasonably priced energy future, planning is fundamental. Planning is the only way we are going to efficiently shrink our carbon footprint and ensure our energy future.

As we look forward, and see the cloud of climate change on the horizon, it’s easy to fall into a pattern of trying to do a little bit of everything. Tax breaks for renewable power. A study on electricity rates. Even taking a hard look at small-scale hydro. Some efficiency measures.

But it’s also important to step back, and take the big picture view. What moves will get us the most bang for our buck in reducing our fossil fuel use and our carbon footprint? Where is the low-hanging fruit? What approaches will not take us as far? And what is the environmental and monetary cost of some of these alternatives?

Such an approach, known by the name Integrated Resource Planning, would allow policy makers to understand how the innumerable measures and solutions to tackle climate change available stack up, based on Vermont values.

VNRC believes the state should be doing an analysis to quantify the environmental, social, and economic attributes of all fuels – heating oil, propane, coal, wind, and hydro power, to name a few. That would allow policy makers to zero in like a laser beam on the very best and cost-effective solutions and avoid falling into the trap — well-intentioned as they may be — of a diffuse, politically driven energy policy.



biomass supply in fact as plentiful as the numbers imply?

These questions are critical as Vermont power planners look into our near future, and as market forces shape the terrain upon which they will make their decisions. Fossil fuel prices are rising, and Peak Oil, environmental regulations, and the many factors affecting the cost and supply of natural gas, ensure the long-term consistency of that trend.

When fossil fuel prices are high, wood becomes more attractive as a power source (which is why ISO-New England, the regional power grid, has been calling upon the McNeil plant more regularly in recent years). This dynamic is now inviting industry planners to contemplate additional biomass generating plants in Vermont. The leading proposal – although its prospects seem to rise and fall cyclically – is a 25-MW plant proposed by Access Energy of Rutland, to be sited in Ludlow. McNeil operator John Irving also mentions a 50-MW plant contemplated in western Massachusetts. (Remember that all commercial power in New England goes into the regional grid; and remember, too, that woodchips cross state lines.)

Plainly, an increase in generating capacity via biomass is on the horizon. Forest advocates worry, not only because of the inefficiency of wood-to-electricity technology, but because market pressures could lead to woodchip harvesting

becoming a primary, not a secondary, forest vocation. Whereas now woodchips come from the residue of more profitable enterprises, workers could begin harvesting entire trees and feeding them into the chipper.

Suddenly the resource would not seem so boundless.

“It would take three McNeils before you go into unsustainable use,” says Maker. “The availability and the sustainability of the resource are less than people assume and believe.”

What’s more, forest advocates contend that we don’t even know what “sustainable” means for our wood biomass resource.

“What’s the big deal, if we’re growing twice as much wood as we’re cutting? Isn’t that



Wood chip conveyor at Champlain Valley Union High School.

EXAMINING THE FUTURE OF BIOMASS

Looking into Vermont’s energy future, there is both uncertainty and opportunity. The fate of Vermont Yankee nuclear power plant, and the cost of imported power coming from places like Hydro-Quebec create uncertainty. Yet there is an opportunity to take innovative steps to ensure an efficiency and conservation-oriented, clean and independent energy future.

The burning of biomass (waste lumber, wood chips, slabwood from sawmills, and other sources) already supplies Vermont some electrical and heat energy, both at schools around the state and through two generating plants, one in Burlington and one in Ryegate. Could we take more wood from our expanding forests to generate local, renewable power and heat? Probably. To do it right, however, we should first examine the responsible way to do it in Vermont.

Stakeholders should convene a “biomass summit” to examine biomass development in Vermont. Some of the policies that stakeholders should examine include the following:

- Wood procurement standards for large and small-scale biomass facilities;
- Harvesting standards and guidelines that address cutting

intensity, the amount of coarse woody debris left in the forest, etc.;

- Model forest management plans for biomass energy development;
- Selection criteria for areas or types of lands where biomass harvesting is appropriate, or should be limited;
- The ecological and economic costs and benefits of increasing biomass production; and
- Incentives to encourage biomass to be used for heat and electricity close to where it is harvested, so as to reduce transportation pollution and cost.

The results of the summit would boost Vermont policy makers’ and the general public’s understanding of the issue and contribute valuable information to various energy-related initiatives around the state. VNRC is already working on this issue through our seat on the governor’s climate change commission. A broad-based, comprehensive discussion on biomass would help us all determine the viability of using renewable energy development through biomass while at the same time maintaining the ecological health of the state’s valuable forests.



Depending on the fuel source it replaces, biomass systems save schools 30 percent to 75 percent on their heating costs.

sustainable?” Robert Turner asks rhetorically. “If you’re talking about sustaining biomass, perhaps it is. But if you’re talking about sustaining forests, it’s a more complex answer.”

For the forest has much on its plate besides producing woodchips. Forests clean our air and filter our water. They consume carbon as well as producing it. They provide habitat, recreation, sanctuary.

But inevitably, we’re going to turn to our forests for more of our energy. David Brynn, founder of Vermont Family Forests, is comfortable with that, provided we do it right.

“Doing it right,” says Brynn, “includes four elements.

“One, we want the [biomass] to be sustainably harvested; we need to take it in ways that maintain the quality and productivity of the soil and protect biological diversity.

“Two, the wood should be efficiently used. Don’t throw it into furnaces that aren’t burning it efficiently; don’t use it to heat buildings that aren’t well-insulated.

“Three, get it from local sources.” Transporting chips by truck over long distances can waste more energy than we save by converting from fossil fuel to biomass facilities.

“Fourth,” Brynn concludes, “biomass should be fairly and equitably accessed. We need to have good loggers in the woods who are properly compensated. Logging is a dangerous profession. Many loggers are operating without proper insurance and health insurance.”

Brynn believes that these goals require redesigning our whole harvesting-and-consuming regime, particularly because of the context in which we’ll be doing it.

“This comes at the same time that we’re talking about Peak Oil and climate change,” he says. “We’re seeing more forest erosion, and more storms. We’re going to be asking our forests to deliver more ecosystem services, under stressful conditions.”

Mixed signals

Compared to power production, with its 27 percent energy efficiency, space heating with woodchip boilers looks great. The numbers are virtually reversed.

“When you’re directly heating a school or industrial building, you’re getting 70 percent of that heat,” says Barry Bernstein, president and co-founder of Better World Energy, the Northeast representative of Michigan-based Messersmith Manufacturing, a prominent manufacturer of woodchip heating systems. Bernstein, who is well-known as an advocate of renewable-energy and conservation projects throughout the state, is also the president of the Board of Directors of Washington Electric Cooperative. Under his leadership, the customer-owned utility developed an electric-generating plant that uses methane from a solid-waste landfill in Coventry to produce 50 percent of its members’ power.

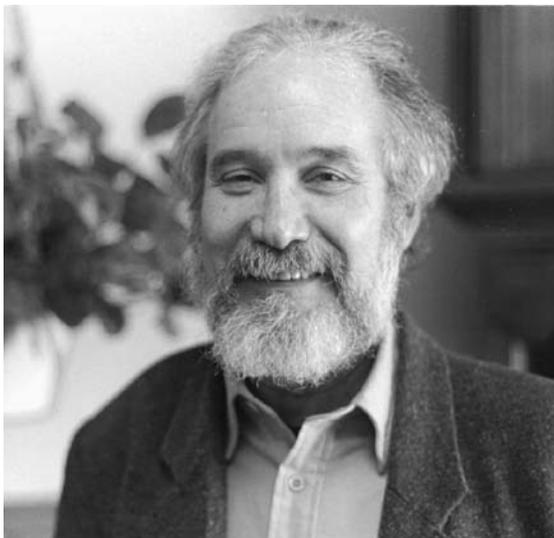
Better World Energy got its start in 1985 when Calais resident Bernstein lobbied the local school board to consider alternatives to its costly electric heating system. The board appointed a citizens committee, on which Bernstein, Maker, and inventor and technology devotee Carl Bielenberg all served. After a preliminary look at fossil fuels, the committee began exploring biomass, and at its recommendation Calais Elementary became the first school in Vermont to install a woodchip system.

Bielenberg and Bernstein then formed Better World Energy and went on to install 30 more Messersmith systems in Vermont schools. (Recently, two competitors have entered the Vermont market.) They also made Barre’s Green Acres the nation’s first low-income housing development to employ woodchips for heat.

Public school conversions to woodchip heating accelerated after State Sen. Vincent Illuzzi, R-Essex/Orleans, became chair of the Senate Institutions Committee in 1991 and persuaded the state to include such projects in its aid-to-school-construction program. Initially the subsidy level for qualifying projects was 30 percent, but with Illuzzi’s encouragement the Legislature increased assistance to 50 percent in 2001, then to 90 percent in 2003.

“At 50 percent, schools really weren’t jumping

Barry Bernstein, president and co-founder of Better World Energy





forward,” Bernstein explains. Installing a woodchip boiler and conduits can cost between \$1 million and \$2 million, and schools rarely have such capital at their disposal.

However, in 2005 the Legislature reduced state aid to 75 percent, effective January 1, 2007. School districts jumped to get into the 90-percent pipeline before it closed, and a handful may yet complete the process. But they could be the last for a while, because in the 2007 session the Legislature imposed a moratorium on such assistance, effective July 1. A spokesperson for the Department of Education said the moratorium should not be construed as an end to the program, but Bernstein is concerned about the effect that such stop-and-go signals could have on the infrastructure that has developed to supply industrial-quantity woodchips. An appropriately sized chipper can cost \$300,000. Contractors must also use special trucks to unload the chips into storage bins.

“If the Legislature closes the tap, guys who have been investing in these special trailers at \$50,000 to \$75,000 a crack are going to back off,” says Bernstein. “They won’t take the risk because their market is too unstable.”

Bernstein then makes another point. Depending on the fuel source it replaces, biomass systems save schools 30 percent to 75 percent on their heating costs.

“The state increased support for biomass in schools so that a long-term capital expenditure with a high upfront cost could be manageable,” he says. “Helping schools to reduce their operating costs allows school boards to put their money toward education, and is a good way to lower property taxes.”

District heating

That woodchip-supply infrastructure Bernstein worries about may survive if a new, potentially significant market for biomass develops quickly enough. Citizens in Montpelier and Brattleboro are contemplating woodchip-fired “district heating” systems.

District heating simply means heating multiple buildings with a single facility. Some small villages in Europe have been doing this since the 14th century. But although hundreds of cities employ district heating for some portion of the municipality (the list includes St. Petersburg, Russia; Seoul, South Korea; Paris, France; and Indianapolis, Indiana), no Vermont community provides this service.

That could change, if citizens who recently formed several energy and climate-change committees in Montpelier are successful. The

District heating simply means heating multiple buildings with a single facility. Some small villages in Europe have been doing this since the 14th century.

capital city has been interested in creating downtown district heating for decades, but always assumed that the way to do it would be to tap into the boiler system that has heated the state’s buildings since 1946. After all, the facility was local, and Vermont’s Buildings and General Services Division (BGS) has consistently expressed a willingness to accommodate Montpelier.

However, the state has had a hard time keeping up with its own demand.

“During the ‘80s we added onto the Pavilion [Office Building] and the State House, and added the Chittenden building, but we never added onto our [heating] capacity,” says BGS Director of Engineering Dave Burley. The division recently replaced one of its three boilers (two burn fuel oil, one burns wood chips), which brought it to 800 boiler-horsepower (BHP) capacity, but the goal is to achieve 1,600 BHP, which would provide a secure heating system for the state buildings.

“Our concept has been to not do anything that would preclude the development of a district heating capability for the city,” says Burley, “but we have to take care of the state’s needs irrespective of what happens with Montpelier.”

Surprisingly, that seems to be okay with Montpelier, where the citizens committees, formed after a special “Energy Town Meeting” in March, are turning the old concept on its head.

“I think we need to look at the city setting up the system and picking up the state,” says Gwen Hallsmith, chair of the new “Local Energy Committee.” (She is also Montpelier’s Planning Director.) She contends that the state is using “old technology” – steam heat, as opposed to hot-water heat, which reaches a functional heating temperature without using as much wood fuel as the steam system.

For now, district heat is literally a pipe dream for Montpelier: several blocks of service and return pipes would need to be installed, and leading businesses recruited to sign on as charter customers. And there’s the question of who would build and own the system: The city? A cooperative? A partnership of public and private interests?



These seem not to be daunting questions for Hallsmith, but exciting, wide-open alternatives. Her enthusiasm was further stoked by a \$100,000 grant received from the Mazer Foundation in May, to make Montpelier the first “sustainable” state capital in the United States.

“It’s not an incredible amount of money,” she says, “but I believe it will help get our efforts off the ground.”

The “resource curse”

Brattleboro could use a cash influx like that, because activists there have an even more ambitious goal in mind: co-generation – burning biomass to generate electric power and diverting the heat byproduct to serve local work and living spaces. The electrons themselves would flow into ISO-New England’s regional grid, but proponents envision Brattleboro being able to “island” itself in the event of a region-wide blackout, and transmit the locally generated power directly to the city.

“It’s a grassroots, volunteer effort to bring together local expertise and reach out to consultants and vendors,” says Hervey Scudder, a longtime energy activist who worked on the failed effort to persuade the state to buy the hydroelectric dams on the Connecticut and Deerfield rivers. “Our belief is that we could achieve a major improvement in energy efficiency, reduce our carbon footprint, and provide a degree of energy security that we don’t have now. We have no indigenous fossil fuels, so to create district heating

we must go to renewables. What you achieve is a multiplier effect, with your energy dollars going to nearby landowners rather than corporations thousands of miles away.”

The Brattleboro Sustainable Energy group claims that residents and businesses currently spend \$30 million annually on oil, propane and electricity to heat their homes. Most of the profits leave the state – a pattern that has only accelerated. TransCanada purchased the Connecticut River dams when the state balked, and Gaz Metro’s purchase of Green Mountain Power Corporation was recently approved by the Vermont Public Service Board. Vermont Yankee is owned by Louisiana-based Entergy Nuclear.

The same fate could befall our biomass, which is why the Brattleboro group wants to develop a network of wood producers and consumers intimately tied to Vermont and Vermonters.

“Biomass is fine,” says Scudder, “but do we want it controlled by out-of-state companies who, if they got their money back in five or 10 years but they had stripped all the trees from Rutland County, wouldn’t care?”

There’s a term for that: “the resource curse.” We think of it befalling Third World countries relieved of their diamonds and oil by global corporations and left with useless residue or toxic waste.

But David Brynn of Vermont Family Forests warns that we don’t need the outside world to squander our biomass endowment. It’s a fate we could bring upon ourselves.

“The forest is back from the brink largely because of benign neglect,” Brynn says, “not through some great Vermont ethic. Thomas Berry [an author and self-described ‘geologist’] has said we’re in a period of the most rapid ecological change in 65 million years – that we’re coming to the end of the Cenozoic period and we need to introduce an ‘ecozoic’ period, a very different way of operating in the world. We have to optimize production and consumption of our resources, not maximize their production and consumption.”

In Vermont, biomass is virtually the only fuel over which we have that power. The time for exercising it might be upon us – and past us – sooner than we think.



TAKE ACTION!



VNRC Member Carl Etnier: A Partner and Model in Sustainability



Carl Etnier with his bicycle.

Many Central Vermont residents have no doubt seen Carl Etnier. Even in the thick of winter, you can find Carl pedaling his equipped-for-commuting mountain bike from community group meetings, to public forums, to legislative hearings and, finally, home up a long, steep hill.

Carl and his wife Diana live in a beautiful farmhouse outside the Capital City. Four years ago, they completely renovated their early 20th century home, retrofitting it with advanced energy-saving measures including, ultra-efficient insulation and solar hot water. Photovoltaic panels supply about two-thirds of their electricity. And each year they grow much of their own

food, storing vegetables they eat through the winter in their root cellar and enjoying farm-fresh chicken, pork, and beef.

Carl is a great example of the kind of person that makes VNRC's work possible, powerful, and pleasurable. VNRC has thousands of members and activists who take action by partnering with us to protect Vermont's environment and strengthen its homegrown economy. Our members are the cornerstone of our work, dedicating their time, energy and dollars to our shared mission. They are also our inspiration, modeling the kind of civic engagement, light-on-the-earth lifestyles, and social integrity that make great places.

Each of us who cares about

environmental protection has our own story about what catalyzed our concern. Carl was inspired by his mother, who early on instilled in him a strong conservation ethic. In elementary school, Carl turned off lights and shut off unused water faucets. Today, that ethic is embodied in everything Carl does.

The ethic of stewardship and local self-reliance is deeply embedded in many Vermonters. Greening homes, conservation planning, eating locally, supporting Vermont-owned businesses, among others, are solutions capturing more hearts, minds, and markets in Vermont.

Carl has been at the center of a growing movement in Vermont, which focuses on creating more opportunities for local fuel, food, and skills. 'Peak oil' organizers like Carl point to dwindling and increasingly expensive oil supplies as a key reason to create communities that are self-sustaining and interconnected.

"There's a good chance we're at or near the peak in world oil production," noted Carl. "When that happens, the whole basis of our economy is going to have to be re-examined. I don't have all the answers. But a lot of the answers lie in what VNRC is doing by pressing for energy efficiency, renewable energy, and better land use planning to preserve our rural agricultural lands and create communities where people can walk or bike where they need to go."

A former wastewater professional, Carl now dedicates his time to raising awareness about 'peak oil' and creating the kinds of communities and policies that will help Vermont withstand it. Whether delivering testimony on an issue, writing a letter to the editor, or calling in to radio talk show programs, Carl finds avenues to help create the change he sees as essential to a self-reliant, prosperous, sustainable Vermont.

"To tackle the environmental, energy and social challenges of our time we need to make changes in our personal lives and we must have the political will to match," Carl says. "VNRC helps to bring these things together, working on environmental issues key to Vermont's future at both the grassroots level and legislative policy level. And they do so by not only fighting what we don't want but also proposing alternatives that are better for our natural resources and communities."

There is great power in partnerships between concerned citizens like Carl and organizations like VNRC. By taking action and joining VNRC, our members keep us connected to the grassroots, focused on the most pressing issues, committed to solutions, and funded to carry forward.

Together, VNRC and our members will help ensure that Vermont remains a vibrant, beautiful and truly unique place. 

NEWS & NOTES



Welcome Interns

VNRC welcomes our two summer interns, both pursuing their law degrees at Vermont Law School.

Zach Manganello and **Andrew Gilberston** will help VNRC legal staff with a variety of legal and policy issues during their stints with us.

Zach, a third year student, has worked for Democracy for America and Dean for America, both founded by former Vermont Governor Howard Dean. Zach holds a bachelor's degree in physics from Middlebury College.

Andrew recently completed his second year at VLS. Before law school, Andrew worked as Outreach Assistant for then-Congressman Bernie Sanders in his Burlington District Office. He holds a bachelor's degree in Business Administration and a minor in Computer Science from St. Michael's College in Colchester.

Andrew organizes Vermont Law School's Alternative Spring Break, in which several students volunteer during their spring break at a Habitat for Humanity site in the southern



Andrew Gilberston

United States. He recently completed a semester-long externship at the Vermont Supreme Court. Andrew is a native Vermonter, born and raised in Montpelier.

Welcome gentlemen. We are grateful for your help!

Step It Up: A Vital Call and a Hopeful Day

This past April 14 it became abundantly clear that people want action on climate change, and they want it now. It was the most powerful grassroots demonstration to date in the United States on this global challenge. More than 1,400 rallies took place in every state across the nation. At each, participants called out in one unified voice: "Step It Up, Congress. Cut carbon emissions 80 percent by 2050."

Across Vermont, over 70 events took place. VNRC, in collaboration with our national affiliate the National Wildlife Federation, the Association of Vermont Recyclers and Vermont Public Interest Research Group, hosted an event in Montpelier. About

200 people turned out for the Montpelier Step It Up launch at the iconic Morse Farm where they heard four powerful stories from area leaders on the threats global warming poses to the maple sugaring, ski, and fishing industries and the next generation's future. Led by the Junk Man to a Junk Jam, attendees marched two miles down to the steps of the Vermont State House. There, another 100 people joined the event to watch U.S. Senator Bernie Sanders and Vermont Senate President Pro Tem Peter Shumlin make a commitment to 80 percent carbon reductions.

Perhaps most importantly, what folks who participated in Step It Up will say about April 14 is that it was one of the most hopeful demonstrations the environmental movement has galvanized in a long time. With VNRC's long-time friend Bill McKibben and talented Middlebury grads as the catalyst of Step It Up, there will no doubt be other powerful events to follow. Having helped organize the successful five-day walk for climate action last Labor Day and tap the spirit of concerned Vermonters who want bold action on climate change, VNRC looks forward to continuing to build the momentum to ensure that national, state and local leaders take the call to Step It Up seriously. Read more about this exciting initiative at www.stepitup2007.org and stay tuned....

The Benefits of 'Way to Go!'

How we get to the places we need to go has a big impact on the environment. Depending on your mode of transportation, it also has a big carbon footprint and, hence, a bigger contribution to the greenhouse gases that

lead to global warming. Each year, one of VNRC's partners in the Vermont Energy and Climate Action Network – the Alliance for Climate Action – helps to organize 'Way to Go!' – a weeklong individual and organizational commuter challenge. The goal of W2G is to raise awareness about the cost- and carbon-savings of getting to work on foot or by bicycle, public transit or a carpool. It is also to inspire people to modify their habits by demonstrating the financial, environmental and community benefits of alternative transportation modes. The results of this year's event are impressive. Almost 1,900 Vermonters participated – a 60 percent increase over 2006. Getting people out of their cars and into the alternative transportation groove for this one week curbed commuting travel 283,000 miles and kept a staggering 243,000 pounds of CO2 from being pumped into the air. All in all, these good deeds are estimated to have saved \$44,060.

Just ask VNRC's Outreach Director Johanna Miller about the other benefits of participating in W2G if these powerful numbers haven't inspired you. W2G participants are automatically enrolled in a raffle to win many great prizes. By walking and biking to work in early May, Johanna won an iPod Nano. Next year during W2G week, you'll find her walking and biking to the office listening to great tunes all the way! For more information about this great effort, visit www.waytogovt.org.

SolarFest: At the Heart of Renewable Energy in the Northeast

For the past several years, VNRC has participated in the Northeast's successful



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renewable energy festival — SolarFest. This year, the event promises to be even more interesting, informative and fun. Organizers are hoping more than 4,000 people will turn out on the weekend of July 14 and 15 at the Forget-Me-Not Farm in Tinmouth. There will be great music on solar-powered stages, over 30 workshops on renewable energy development and systems, green building, biodiesel, community empowerment and organizing, sustainable living, organic agriculture, medicinal herbs, and more. Among the myriad of interesting offerings, VNRC will co-lead a workshop on how and why communities can create town energy or climate action committees as a way to reduce energy consumption and tackle global warming. We hope you'll join VNRC for another year at this inspiring and fun event. To purchase a ticket or to learn more, visit www.solarfest.org.

The Second Annual Vermont Ecofest will take place on September 9th from 12 – 5 in Battery Park in Burlington. Presented by The Outdoor Gear Exchange, the Ecofest is a not-for-profit, free, family friendly event with food vendors, games, live music, and presentations by speakers yet to be selected. It serves to celebrate the environment and to raise awareness for the many conservation and stewardship going on statewide.

This event is solar-powered by The Solar Bus, carbon-neutral thanks to the Carbon Zero Project, and will include an everybody-wins raffle and a silent auction. Last year they raised \$1,350 and gave it away to local environmental organizations. Questions can be directed to Marc Sherman at The Outdoor Gear Exchange, 802-860-0190. 



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VNRC'S ANNUAL MEETING: CHOCK FULL OF FUN

(American Flatbread, Zydeco Music, Silent Auction and Fabulous Speakers)

Don't miss VNRC's 44th annual meeting, Sunday July 29, from 4 to 10 pm at one of Vermont's most renowned and iconic restaurants — American Flatbread in Waitsfield.

Learn the latest about VNRC's efforts and evolution, including an introduction of incoming board members. After the formal VNRC meeting, around 5 p.m., enjoy scrumptious local pizza and mingle with your family, friends and neighbors near the banks of the Mad River. Hear from local heroes. Author and activist extraordinaire Bill McKibben, along with conservation leader Peter Forbes (Executive Director of the Center for Whole Communities), will speak.

Afterward, stick around to boogie down! One of Vermont's most hidden talents — Goat Broke Loose — will be sure to get you up and

dancing to their fabulous mix of roots, blues, bluegrass and Cajun sound.

Meanwhile, check out our silent auction, which has begun on our website and will end at the annual meeting. It offers all sorts of neat items and values, including an original, Vermont-based Doonsbury comic strip, an airplane ride around Central Vermont, ski passes, stays at local inns and much more. Bid often! Bid high! Help support VNRC's efforts to protect the Vermont we love.

We look forward to seeing you at Flatbread!

