New England Wind Forum

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Converging Factors Drive Flurry of Regional Wind Development

New England is currently experiencing a flurry of wind power development activity: more than 2,500 megawatts (MW) from nearly 100 installations, ranging from the drawing board to projects under construction. A convergence of local and global factors drives this increased interest in the Northeast and across the country. A variety of stresses on global energy markets were felt throughout the region in the form of higher and more volatile electricity and fuel prices. Policymakers throughout New England (which imports nearly all of its fuel) are focused on increased supply diversity and energy independence as a tool to reduce the region's exposure to further economic and potential supply disruption. Concerns about the local environmental consequences of the current fleet of fossil-fueled electricity generators are compounded by ever-growing concerns over the impacts of global climate change. As new businesses, including wind power, grow to meet our increasing energy needs, many see opportunities for local economic development.

New England government and community leaders have considered renewable energy resources to help address these issues. Policy tools include Renewable Portfolio Standards (RPSs), which set standards for a minimum fraction of electricity sales to come from eligible renewable resources, including wind energy. Each New England state participated in creating the Regional Greenhouse Gas Initiative (RGGI), a Kyoto-like effort to curb carbon dioxide emissons, the leading global warming pollutant. The RGGI was driven in part by the private sector's willingness to act in response to the global climate change threat. Although the governors of Massachusetts and Rhode Island opted out of the final RGGI commitment, these states may yet join their neighbors by implementing their own greenhouse gas policies or reconsidering RGGI participation if cost and impact concerns expressed by policymakers are addressed to their satisfaction.

Rhode Island's governor, seeking to capture price stabilization and economic development benefits of wind power, has established a target of satisfying 15% of the state's total electricity demand with wind energy. To this end, the state is funding an effort to systematically identify and screen viable, acceptable sites across the state for the development of commercial-scale wind turbines. If successful, the state will look to stimulate development with private and public investment.

In addition, private, public, and not-for-profit energy users are increasingly making voluntary purchases of, or investing in, renewable energy beyond state-mandated requirements. Cities, towns, and municipal utilities throughout New England states are exploring community wind: the potential for communities to develop and/or own small installations of commercial-scale wind turbines. In Massachusetts alone, more than 40 municipalities have expressed interest in the Massachusetts Renewable Energy Trust's Community Wind Collaborative. The Massachusetts Maritime Academy and Portsmouth Abbey School in Rhode Island installed commerical-scale wind turbines onsite during 2006. Varian Semiconductor Equipment Associates, Webb Research Corporation, and Jiminy Peak Ski Resort have completed feasibility studies and are moving toward similar installations.

Individuals and communities exploring wind power development must balance the need for alternatives to meet the region's voracious energy appetite with the friction resulting from tradeoffs inherent in siting any infrastructure project. Several community-scale wind projects are moving forward, and two New England wind farms are now under construction, one in Maine (Evergreen Wind) and another in Massachusetts (Berkshire Wind). Yet some developments are undergoing contentious permit approval proceedings (Maine Mountain Power) or appeals (Hoosac Wind), while others such as the East Haven Wind Farm in Vermont have failed to earn the necessary local or regulatory support to proceed.

In This Issue

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

The New England Wind Forum Is a Clearinghouse for New England Wind Power Information

In the midst of this increase in wind development activity throughout the region, including community-scale, offshore, and traditional wind farms, individuals and communities require independent and objective information to make educated decisions. Each development involves multiple stakeholders, each with a unique set of important questions and interests.

New England Wind Forum — funded by the U.S. Department of Energy's Wind Powering America Program — serves as a clearing-house for objective information on wind energy policy and development. Through its Web site and periodic newsletters, NEWF is designed to provide up-to-date information valuable to:

- Individuals and organizations with existing or pro¬posed wind projects in their communities, interested in putting a wind turbine on their property, or with a general interest in wind energy
- Federal, state, and local legislators, policymakers, and regulators
- Energy educators.

We invite you to explore the resources provided on the NEWF Web site at www.windpoweringamerica.gov/newengland.asp. Over the coming months, we will continually augment and update the Web site with a goal of making NEWF a comprehensive resource.

Perspectives: John MacLeod, Hull Municipal Light Plant

The shoreline town of Hull, Massachusetts, pioneered the modern community wind movement in New England with the installations of Hull 1, a 660-kW Vestas V-47 (in 2001) and Hull 2, a 1.8-MW Vestas V-80 (in 2006). Hull 2 is the largest wind turbine in New England and the first U.S. installation on a capped landfill. Now, communities throughout the region seek to replicate Hull's success. Not satisfied with only two wind turbines, the town looks to parlay its leadership into offshore wind. We spoke to lifelong Hull resident John MacLeod, who started his career in 1963 as a meter reader for the Hull Municipal Light Plant (HMLP) and "retired" earlier this year as its operations manager. John MacLeod and HMLP were recipients of Wind Powering America's 2006 Wind Power Pioneer Award. In the first days of his retirement, John eagerly accepted the assignment to develop the United States' first offshore wind turbines…just off the coast of his hometown.

Q. What was your role in the development, construction, and operation of the two Hull wind turbines?

As operations manager for HMLP, I was the project manager for each of our first two wind turbine installations. I oversaw the pre-development studies, ran the bidding process, and worked with the turbine vendor and construction contractors. In my current consulting role, I track the operations and maintenance of both Hull 1 and Hull 2.

Q. How did Hull 1 come about?

The process that led to both turbines really centered on the community. Wind power has a great history in Hull. There was a 40-kW Enertech turbine at the high school in the mid-1980s – this is why the site of Hull 1 is called Windmill Point. The demise of this small turbine in a storm was the impetus for a group of residents to approach HMLP and ask for a new wind power facility. That led to Hull 1.

In 1998, we first started exploring the turbine options that ultimately led to Hull 1. We tried to establish a process that revolved around sharing information with the community. We brought Jim Manwell of the UMASS Renewable Energy Research Laboratory (RERL) on board; it is important to have credible, independent analysis. We did site assessments, photo simulations, economic analyses, and surveys of residents' reactions, and we presented all of them to the community. Everyone got on board. We took the proposed project to a town meeting, and it passed. After that, we put the project out to bid. Vestas won and had our turbine online by December 2001.

Sally Wright/PIX14862

Hull 2 is the largest wind turbine in New England and the first U.S. installation on a capped landfill.

Q. What decision-making process led to Hull 2?

The people of Hull asked for more. It's almost as simple as that. After watching the first turbine provide economic benefits to the town, both HMLP and ratepayers began to ask if we could do more. The first project was such a success that RERL had already written a "how-to" book about it. The significant question was not "if" but "where."

For the second turbine, we tried to follow the Hull 1 process as closely as possible. Again, we worked with Jim Manwell and RERL and focused on keeping the community informed. We spent countless hours polling community interest in location and sharing the results of our site assessments, photo simulations, and economic analyses. We circulated a newsletter proposing five or six sites for public feedback. We even offered to move Hull 1 and put the new turbine in its place. The landfill, which is where Hull 2 stands, was the favored location. After passing a town meeting vote, the HMLP commissioners solicited bids for foundation design and construction. Our relationship with Vestas helped us secure the necessary turbine and equipment for 2006 installation. Even though we followed the same process as with Hull 1, it was easier the second time around. Our residents had practical experience living with a wind turbine. The people in Hull like wind turbines because we have one. They have practical experience with the noise and avian impacts, and it makes them want more.

We will follow this same process for our offshore project; honest information leads to credibility.

Q. How has community acceptance evolved from Hull 1 to Hull 2 and beyond?

Community support is strong. We would never have considered the second turbine if it were not. In 2003, after benefiting from the first turbine, the town decided to expand on its history with wind power. Hull citizens voted to install up to two turbines on land and up to four in the water. We would have done more, but we are a "land poor" town. Some towns have NIMBY (not in my backyard) issues. In Hull, we have the opposite problem. Since it has been 3 years since the town approved the offshore wind turbines, the citizens are concerned that the project has not materialized yet. They want to know why their wind turbines are not up yet. I tell them our goal is to have steel in the water within 2 years.

Q. Global supply has not kept up with demand for wind turbines in the past 2 years. How did you procure the Hull 1 and Hull 2 machines, and do you think you could do it again today given changes in the turbine market?

Reproducing our turbine purchases in today's market would be difficult. We procured the first two machines through a competitive bidding process. We were fortunate that Vestas offered compelling bids. After Hull 1, the town had a favorable track record, which made turbine vendors more interested in working with us. Now that we are actively discussing what could be the United States' first offshore wind energy project, turbine vendors are even more willing to work with us. There is a clear value in being first. We have been told that four turbines could be delivered in the first quarter of 2008 if we are ready for them.

Despite the turbine supply market, I think we would be able to do the first two projects again. With power price increases and high REC prices, I think Hull would make the same decision again to install the turbines. The economic benefits of Hull 1 are relatively small, but with the addition of Hull 2, the town now meets about 13% of its annual usage with the turbines.

Q. What are Hull's plans for further wind development?

For the past 3 years, the town has discussed the potential for up to four offshore turbines. The proposed offshore project will produce up to 100% of Hull's needs. We hope this will help us continue to maintain stable rates. The Town of Hull hasn't had a rate increase since 1996. At the moment, we are spending a lot of time on community outreach — the same process used for Hull 1 and Hull 2 — and providing information to ratepayers and political bodies to get feedback and build support. One of the most important items to involve the community in is site selection. This discussion is currently focused on Harding's Ledge, about 2 miles off Hull's main beach. Interestingly, Harding's Ledge is currently a hazard to navigation (shallow enough to be exposed at low tide), so the Coast Guard would value the turbines there as a navigational aid. We think this location, and Hull's limited capacity distribution system, could accommodate up to four turbines. They would each be either 3 or 3.6 MW, putting the project total in the 12- to 14.4-MW range. We are targeting a 2008 installation, and we met our targets for the first two projects.

Making this project happen will take a lot of effort from many sources. It will also provide many valuable learning opportunities. Quite a few state agencies are interested in working with us on the permitting process in order to be involved in this first-of-its-kind initiative. What this project will do most of all, however, is give people something to look at so they can arrive at their own conclusions.

Q. How do you expect the development challenges of an offshore project to differ from your land-based experience?

The offshore project will be more difficult, and it will definitely be more costly. Of course, we feel that the better winds will more than offset the higher upfront costs. Still, as a small community, Hull is not able to fund this project with cash, as it did for the other two turbines. The offshore project will need additional assistance and financing. As the first to do an offshore installation, we are optimistic that financial assistance will be available. For example, we are currently working with the Massachusetts Technology Collaborative to fund the pre-development activities. In addition, we have applied for federal CREBs (Clean Renewable Energy Bonds). If awarded, this would give the project 16-year, zero-interest financing. Private sources of funding, including venture capitalists, have also approached us with interest in financing the project. We'll consider all of our alternatives, but we need to make sure the economics make sense for the town. If our pre-development studies and economic analysis suggest the project is not worth doing, we won't present it to the town. Fortunately, we haven't identified any fatal flaws or siting barriers. The project

is within the territory of the Town of Hull, in state waters. This should simplify the permitting process a lot, relative to the Cape Cod projects. We understand the soil and wind conditions. We need to do wave and geotechnical studies to determine the type of foundation required. Other municipal utilities have already expressed interest in purchasing any excess power. Other entities are interested in buying the renewable energy credits. We have strong public support. Last, and maybe most important, we hope we are in the right place at the right time. When you are first, options open up to you.

Q. Many communities in New England are exploring wind development. How can community leaders learn from your experience?

Representatives from just about every Massachusetts community have visited the Hull 1 turbine. Now, more and more out-of-state communities are coming to look. We give them a good "show and tell" of the area, and people in town are always willing to talk about their wind turbines. This has been great for the community in terms of tourism and its economic benefits. We offer an example to follow, and we suggest that other communities contact RERL for assistance, as we did. Also, if you do move forward with a project, get a service agreement from the vendor, so whether or not you operate a municipal light plant, you don't have to worry about keeping it running. Everything is covered and it keeps the blades spinning, which makes everyone happy. Also, the process can be daunting. Get your local politicians engaged. For example, Congressman Delahunt is enthusiastic about renewable energy and actively trying to help communities understand and pursue wind energy projects. Inspired by Hull's efforts, his office is working with communities from Provincetown to Quincy to help them gain the benefits of our experience and collaborate to find creative solutions. My most important recommendation is for each town project to make sure it has a dedicated champion, committed to maintaining forward momentum. It is easy to say that you want a wind turbine, but another thing entirely to follow through.

For more information, please see www.hullwind.org

Regional Wind Policy Update

MMS Takes the Reins on Offshore Wind Activity

The passage of the Energy Policy Act (EPAct) of 2005 gave the Department of the Interior's Minerals Management Service (MMS) authority and primary responsibility for the analysis and regulatory oversight of renewable energy projects on the Outer Continental Shelf. As a result, MMS is now the lead federal agency for regulatory oversight of both the Cape Wind Project and the Long Island Offshore Wind Park. For each project, MMS will prepare an Environmental Impact Statement (EIS). This summer, MMS extended the Cape Wind project public comment period for two weeks to allow all citizens ample time to submit comments. The comment period closed on July 28, 2006. According to an MMS press release issued on July 13, 2006, "the next phase in the Cape Wind review process is the preparation of the draft EIS, which is expected to be published in the winter of 2006 and will be followed by public hearings. MMS plans to issue a final EIS in the fall of 2007. A record of decision on the Cape Wind Project is expected in winter 2007." The press release is located on the MMS Web site at: www.mms.gov/ooc/press/2006/press0713.htm.

Federal Wind Energy Incentives Update

The 2005 EPAct also created Clean Renewable Energy Bonds (CREBs). Available to government entities, cooperatives, and Indian tribes, CREBs are tax credit bonds that provide zero-interest financing to the project owner. The federal government provides a tax credit to the CREBs bondholder in lieu of receiving interest payments from the issuer. Each project interested in CREBs financing was required to submit its own application, due in April 2006. Reportedly, more than 700 applications – with cumulative financial requests in excess of $1.2 billion – were received from applicants nationwide, far exceeding the $800 million face value allocated by the federal government. Several community wind projects, including Lynn and Ipswich (Massachusetts) and Portsmouth (Rhode Island) submitted applications. Award announcements were being made as this newsletter went to press.

Renewable Energy Portfolio Standards Update

Rhode Island is the latest addition. As of January 2007, Rhode Island's Renewable Energy Standard (RES) will join Renewable Portfolio Standards (RPSs) in Massachusetts and Connecticut as the major drivers of the extensive regional wind development activities underway (a similar policy in Maine is currently ineffective at simulating demand for new wind generation). The Rhode Island RES will require all load-serving entities in the state to supply 1% of their total electricity obligation from new renewable energy resources in 2007, increasing over time to 14% by 2019, in addition to 2% of their supply that may be met from existing renewable energy resources. Like other New England states, Rhode Island will utilize the New England Generation Information System (GIS) to verify compliance and prevent double-counting. Once the Public Utilities Commission certifies a generator as RES-eligible, its post-certification 2006 renewable energy certificates may be sold to Rhode Island-obligated entities for early compliance purposes.

Changes to RPS eligibility need not address wind generation directly to significantly impact its prospects. Amendments, or even proposed changes, to RPS eligibility in the New England states can shift the renewable energy supply-demand balance, in turn driving regional Renewable Energy Certificate (REC) prices up or down, which directly impacts the revenues available to operating and prospective wind energy projects. Several such changes or proposals during recent months have destabilized REC prices or injected enough uncertainty into future REC prices to slow development efforts, including:

Connecticut: Legislation passed in May modified Connecticut RPS eligibility and compliance in several ways. First, the law tightens the definition of eligible biomass. Most notably, the new policy excludes all construction and demolition (C&D) materials from eligible fuel supply, with the exception of use at certain gasification plants. Projects currently certified for CT Class 1

that burn C&D materials will continue to be eligible through July 1, 2007. Second, the law alters the geographic eligibility of renewable energy generators, conforming Connecticut's policy to the rest of New England, which relies solely on NEPOOL GIS certificates for RPS compliance. This second step will require renewable energy generators (including wind) in the portion of Northern Maine not served by the New England Power Pool, as well as New York and Canadian provinces abutting New England, to match REC imports with physical energy imports on an hourly basis to sell RECs to any New England RPS market. Previously, Northern Maine generators were eligible without requiring physical energy imports. Generators in New Jersey, Pennsylvania, Delaware, and Maryland are no longer eligible, while previously ineligible New York, Quebec, Ontario, and Canadian Maritimes generators can now access the Connecticut RPS market. In general, these changes are likely to increase Connecticut's Class 1 REC prices available to most New England wind generators, although the prospects for wind plants under development outside of the New England Power Pool are diminished due to import restrictions.

Massachusetts: The Massachusetts legislature considered several proposed amendments to its RPS during the 2006 session. The first proposal would have allowed incremental hydropower generating capacity added to existing FERC-licensed facilities since 1997 (so long as the facility became low-impact certified) and existing Massachusetts hydro facilities under 5 MW to qualify. The second proposal would make both new and existing biomass energy generators using stoker combustion technology eligible for the RPS. Existing facilities would need to be 20 MW or less. The Governor vetoed the hydro proposal, instead recommending that incremental hydro generating capacity added since 2005 should qualify, but that generation from small, old hydro facilities should not qualify for Massachusetts RECs. The biomass proposal was sent back to the legislature with the Governor's proposed amendment to allow only new low-emissions stoker biomass plants to qualify. The Governor's stated rationale was that allowing existing supply would flood the REC market, reduce prices, and not provide the incentive for new generation envisioned in the initial RPS legislation.

In addition, other policy changes influence the quantity of non-wind, RPS-eligible supply likely to be developed, in turn altering the revenue outlook for RPS-eligible wind generators. Limitations on burning construction and demolition debris adopted in Maine and New Hampshire will increase the cost of fuel for biomass generators, and in some cases make proposed plants uneconomic. In Maine, LD 141 was amended in Spring 2006 to limit the use of wood from construction and demolition debris, as an alternative to conventional fuels, in a boiler to 50% of total fuel by weight combusted on an average annual basis. In May 2006, Governor Lynch extended New Hampshire's current moratorium on burning of construction and demolition materials through December 31, 2007. These changes are likely to reduce supply competing with wind to meet RPS demands, thereby increasing REC prices available to wind generators.

Other State Policy Updates

In **Massachusetts**, the Executive Office of Environmental Affairs (EOEA) is currently developing two policy instruments that will impact the siting and feasibility of wind energy projects in the state. First, EOEA is drafting an avian and bat guideline, which is expected to provide principles for the study and mitigation of avian impacts of wind generation. Second, EOEA is also creating a model municipal bylaw, which will be offered as a framework for communities to consider when evaluating and siting wind energy generators.

This summer, the **Connecticut** Clean Energy Fund (CCEF) requested a second round of proposals under its Project 100 initiative. Round II proposals are due December 20, 2006. All relevant documentation is posted on the CCEF Web site at www.ctcleanenergy.com/investment/Project100.html : the revised, final Round II Request for Proposal; the revised, final Standard Electricity Purchase Agreement; and the firm proposal due date. As developed by the Connecticut legislature, Project 100 requires the state's utilities to enter into long-term contracts (minimum 10 years) with not less than 100 MW of Class 1 renewable energy generating facilities receiving CCEF support. These utility contracts will include a price premium of up to $55/MWh. To qualify, projects must have entered service after July 1, 2003 and have a nameplate capacity of at least 1 MW. Last summer, the Connecticut legislature limited Project 100 contract eligibility to in-state projects. This reduces the program's potential to encourage regional wind development, but it may create new incentive for community-scale projects in Connecticut. Through Round 2, CCEF has the potential to contract with up to 85 MW of renewable generation.

On January 12, 2006, **Rhode Island** Governor Carcieri announced a plan to provide 15% of the state's total electricity demand with in-state wind power. The first stage of this program, RIWINDS, is already under way and includes a feasibility study of potential wind power sites statewide. Rhode Island hopes to match viable sites with wind developers and local businesses that may benefit from the opportunity to purchase long-term power at a fixed price. To administer the program and other strategic energy initiatives, the Governor created a Chief Energy Advisor position and appointed former Rhode Island Economic Development Corporation senior project manager Andrew Dzykewicz to fill it. In September, the Governor announced his interest in increasing and accelerating both the RIWINDS goal and the state's Renewable Energy Standard. In addition, the Rhode Island legislature passed the Energy Efficiency Management Act, which envisions a potentially significant role for renewable energy. Notably, the Act requires the Rhode Island utility to incorporate renewable energy into its system reliability and least-cost procurement planning.

On June 1, 2006, **Maine** Governor John Baldacci signed legislation setting a "goal" (as opposed to the "requirement" established by other New England states) of 10% new renewable energy by 2017. The law suggests that Maine utilities enter long-term contracts with new renewable capacity generating capacity to fulfill the goal. The law authorizes the PUC to direct the utilities

to enter long-term contracts of up to 10 years. The law does not, however, require the utilities to purchase or retain the renewable energy certificates associated with this renewable energy generation. Therefore, energy obtained by Maine utilities under long-term contracts could satisfy the new legislation, while the RECs are nonetheless sold to meet RPS requirements in other New England states. As a result, this legislation appears unlikely to increase the amount of wind generation in the region, although it may aid in financing wind generation under development to meet other purposes.

In addition, the state's Land Use Regulation Commission (LURC), which is the primary permitting authority for many Maine wind projects, is in the process of updating its Comprehensive Land Use Plan. The last update to the plan in 1997 included few references to renewable energy. At the time, LURC had experience with only one proposed wind energy project. During this comprehensive planning process, LURC is trying to prepare for a dramatic increase in wind-related requests. Revisions to the comprehensive plan, which includes a dedicated energy chapter, will guide LURC's decisions on wind development for the next decade.

During its 2006 session, the **Vermont** legislature created a renewable portfolio standard (RPS) framework and simultaneously fashioned a "sustainably priced energy enterprise development" (SPEED) program to help achieve it. The Vermont statute would require that the Public Service Board (PSB) implement an RPS in 2013 if each retail electricity provider in the state were unable to supply its total incremental energy growth between 2005 and 2012, up to a cap of 10% of load, from qualifying renewable resources. The PSB would review the program's progress in 2012. Until then, the program would neither require the purchase of RECs nor track year-by-year progress toward the 2012 goal. Vermont has one of the most aggressive energy efficiency programs and budgets (per capita) in the nation. As a result, Vermont may experience little or no load growth – and therefore little demand for new renewable resources – during the 2005 to 2013 period. Nonetheless, the SPEED program is designed to "encourage retail electricity provider sponsorship and partnerships in the development of renewable energy projects." Further, the legislation encourages Vermont utilities to "secure long-term contracts for renewable energy that are anticipated to be below the long-term market price, over the lives of the projects."

Regional Wind Development Update

For more information and a map showing regional development activity and operating projects, see the *Projects in New England* (www.windpoweringamerica.gov/ne_projects.asp) page of the New England Wind Forum Web site.

Vermont

On July 17, 2006, the **East Mountain Project**, a 6-MW project proposed for an abandoned U.S. Air Force radar base, was denied its Section 248 Certificate of Public Good by the Vermont Public Service Board (PSB). In its decision, the PSB said that insufficient evidence had been presented to prove that the turbines would not harm local populations of bats and migratory birds. Specifically, the PSB cited the failure to conduct pre-construction radar studies. Notably, the PSB disagreed with a hearing examiner's earlier recommendation that the project should be denied based on its aesthetic impact on the region. The project developer, East Haven Wind Farm, filed a motion to reconsider with the PSB on July 26. This motion was denied by the PSB on August 31.

Following the East Mountain Project decision, Catamount Energy Corporation abandoned further development of the 45- to 50-MW **Glebe Mountain Wind Energy Project** in Londonderry. In addition to the East Mountain decision and failure of the project to garner sufficient local support, Catamount also cited the cost and complexity of complying with rules recommended by a Governor's Commission on Wind Regulatory Policy.

After reviewing the Section 248 permit application of UPC Wind Management's 52-MW **Sheffield Wind Farm**, the Department of Public Service (DPS) submitted testimony opposing the project. The DPS commented that the initial proposal was inconsistent with the Northeast Kingdom's regional development plan, the scale of the project would be out of character with the surrounding area, and the project (as proposed) would have an undue adverse aesthetic impact on a nearby private school and state park. In response to this feedback and to issues raised by other interested parties, UPC recently announced several project revisions. First, the proposed project was reduced from 52 MW to 40 MW, comprised of 16 2.5-MW turbines instead of 26 2-MW turbines, allowing for a separation greater than half a mile between every turbine and the nearest neighboring building and intended to reduce noise and visual impacts. In addition, UPC offered a plan to reduce necessary road construction and wetland impacts. The PSB, which holds permitting authority, has yet to rule on the project's application for Certificate of Public Good.

In Searsburg, PPM Energy has purchased the **Deerfield Wind Energy Project** development rights from enXco. This proosed expansion of the existing **Searsburg Wind Energy Facility**, uniquely located in the Green Mountain National Forest, is expected to add between 30 and 45 MW of generating capacity. PPM aims to complete permitting by the end of 2007 and if successful hopes to have the project online in 2008.

New Hampshire

At the urging of local residents, the New Hampshire Site Evaluation Committee has agreed to conduct a formal review of the 24-MW CEI **New Hampshire Wind Energy Project** in Lempster. The Site Evaluation Committee typically reviews projects of 30 MW and larger; this is the committee's first renewable energy project review. The review process began in September 2006 (following CEI's August 29 filing) and could take up to 9 months.

In February 2006, Loranger Power Generation Corp. commenced operation of three out of the four used 350-kW wind turbines from California. In early July, however, the project suffered a major setback when vandals severed the cables used to raise and lower the turbines, toppling and destroying one and severely damaging the other two. Loranger Power Generation indicated its intent to repair these damaged turbines and install the fourth turbine in the near future.

Maine

UPC Wind Management's **Evergreen Wind Farm** is under construction in Mars Hill. The 42-MW project, consisting of 28 GE 1.5-MW turbines, is expected to be operational by the end of the year.

Maine Mountain Power, a joint development effort between Endless Energy and Edison Mission Energy, submitted its permit application to Maine's Land Use Regulation Commission (LURC) in December 2005 for the 90-MW project on **Redington and Black Nubble Mountains**. LURC held public hearings in early August and is expected to issue a decision later this year. Topics raised at the hearings included the project's energy and environmental benefits, potential aesthetic impacts, and proximity to the Appalachian Trail.

As this issue went to press, TransCanada filed permit applications with LURC for the 130-MW **Kibby Wind Power Project** in the Boundary Mountains. This project is the successor to the Kenetech project, proposed and approved in the early 1990s but abandoned after Kenetech's bankruptcy. If successful, construction would begin in Fall 2007. In late 2005, LURC granted a permit to install eight meteorological towers in Kibby and Skinner townships.

In Aroostook County, Horizon Wind Energy and Linekin Bay Energy have erected met towers and are collecting wind data for the proposed 500-MW **Aroostook County Wind Project**. The company has also commenced the study of a new transmission line that would connect the project, which is in the Northern Maine ISA territory, to the New England ISO. With the new transmission line, the project could sell its power and renewable energy certificates to the New England market.

Community-scale wind development is also being pursued in Maine. Competitive Energy Services and the town of Freedom are investigating the feasibility of a roughly 4.5-MW **Freedom Wind Project**. In June 2006, town residents voted in favor of erecting three turbines on Beaver Ridge.

Massachusetts

During 2006, Massachusetts has seen the completion of two single-turbine projects, while construction has commenced on the state's first wind farm. In late April, Jay Cashman Inc. erected the **Massachusetts Maritime Academy's** (MMA's) 660-kW Vestas V-47 on its Buzzards Bay campus. This is the first state-owned wind energy project in Massachusetts, funded by the Commonwealth's Renewable Energy Trust and the Department of Capital Asset Management. The project is expected to provide more than 25% of MMA's electricity purchases.

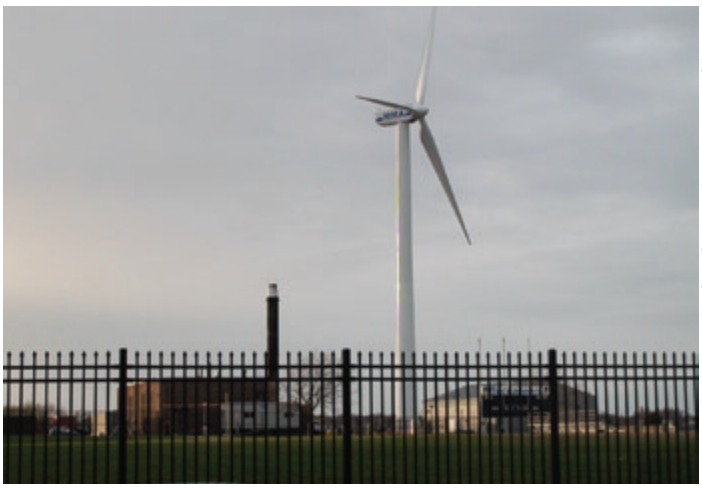
In May, the Town of Hull commissioned its second commercial-scale wind turbine. **Hull Wind 2**, the first wind turbine in the nation to be erected on a closed landfill, has a nameplate capacity of 1.8 MW and is the town's second turbine purchase from Vestas. A conversation with John MacLeod, the driving force behind Hull's wind energy success, is featured in this issue's *Perspectives* segment. MacLeod's next plans involve an offshore project.

Eight years after commencing the development effort, site preparation and foundation construction has finally begun at the **Berkshire Wind Project** on Brodie Mountain in Hancock. Project developer Distributed Generation Systems expects the ten-turbine, 15-MW project to be operational in mid-2007. However, late this fall, the project was sued in U.S. District Court by Silverleaf Resorts, Inc., the developer of condominiums on an adjacent Brodie Mountain Ski Area property. The suit claims that Berkshire Wind's contractors trespassed and cleared trees from the property and that the turbines constitute an "aesthetic nuisance" to the property Silverleaf purchased in July 2004, after the wind project had received its building permits. The suit, which seeks to relocate five of the turbines, introduces a further delay.

Also in the Berkshires, in the towns of Florida and Monroe, the planned 30-MW **Hoosac Wind Energy Project** awaits the resolution of an appeal to the Superseding Order of Conditions, the primary permit granted in 2005 by the state's Department of Environmental Protection. The appeal, targeting a number of technical and procedural points, was filed by a small group of local citizens and may be ruled on by the end of 2006. Early in 2006, project developer enXco sold the project development rights to PPM Energy, the second largest wind power asset owner in the United States. If the appeal is rejected, PPM expects the project to be operational in late 2007 or the first half of 2008. In nearby Savoy, Massachusetts developer Minuteman Wind is collecting wind data and conducting an environmental impact assessment for its proposed 12.5-MW **Minuteman Wind Farm**. Project developers have filed with the FAA and plan to submit an Environmental Notification Form this fall. Public meetings are being held in Savoy to discuss zoning issues. The project targets operation in the first half of 2008.

Earlier this summer, the planned repowering of the **Princeton Municipal Light Department** (PMLD) wind energy project received its final legislative and regulatory approvals and resolved the last of its outstanding land use permit appeals. PMLD and project developer Community Energy Inc. must now acquire turbines for the proposed 3-MW project.

The saga of the **Cape Wind Project**, a 130-turbine, 450-MW project proposed by Energy Management Inc. for Nantucket Sound, continues. In June, legislators agreed to remove a provision from the Coast Guard funding bill that would have



Bob Grace, Sustainable Energy Advantage, LLC/PIX14863

Massachusetts Maritime Academy's Vestas V-47 overlooks the school's football and baseball fields.

given veto power to the Governor of Massachusetts. Instead, authority to dictate the terms and conditions of the wind farm vis-à-vis navigational safety reside solely with the commandant of the Coast Guard. As discussed in greater depth under this issue's Regional Wind Policy Update, the Minerals Management Service (MMS) has taken over as lead agency for Cape Wind's Environmental Impact Statement. MMS plans to issue a final EIS in Fall 2007.

Offshore wind development activity in Massachusetts is no longer limited to Cape Wind. In May, Boston construction company Jay Cashman Inc. announced plans to begin development of a 120-turbine, 300-MW **South Coast Offshore Wind Farm** across three sites in Buzzards Bay. Cashman has created a new wind development company, Patriot Renewables LLC, to lead the effort. The project filed an Environmental Notification Form with the Executive Office of Environmental Affairs (EOEA), and public hearings were held in late July. EOEA has indicated its position that the project may not be permittable under current law. Cashman intends to seek clarification from the legislature on the allowable uses of the Cape and Islands Ocean Sanctuary, the enabling legislation for which appears to allow power generation.

In addition, a number of customer-sited, commercial-scale installations are moving forward throughout the state. The Gloucester corporate headquarters of **Varian Semiconductor Equipment Associates** has completed a feasibility study and is ready to secure engineering, procurement and construction services for the installation of 3 to 4 megawatts at its facility. **Jiminy Peak Ski Resort** has also completed a feasibility study and plans to install a 1.5-MW turbine in 2007. **Cape Cod Community College** has completed an MTC-funded feasibility study, which appeared to reveal technical and economic viability. However, a Federal Aviation Administration determination of presumed hazard will require the college to relocate the project and use a turbine smaller than the planned 1.5-MW machine. The college is reviewing its options with assistance from MTC. In early 2006, the MTC Renewable Energy Trust made **Round 1 Awards** for the design and construction of renewable energy projects under its **Large On-Site Renewables Initiative** (LORI). Award recipients planning to use the funds for wind energy projects include **Varian Semiconductor** of Gloucester, Massachusetts, with a $575,000 award for the installation of two commercial-scale wind turbines, and **Webb Research Associates** of Falmouth, Massachusetts, with a $575,000 award for the installation of one commercial-scale wind turbine.

Connecticut

In late August, Exeter Energy installed a meteorological tower to gather wind data at a 73-acre site it leases from the Town of Sterling. The company currently operates a tire-burning energy facility in the industrial park and hopes to use the remaining space to develop an approximately 50-MW wind energy generating facility.

Rhode Island

Portsmouth Abbey School completed installation of its 660-kW Vestas V-47 in March 2006. The project, supported by a $450,000 grant from the Rhode Island Renewable Energy Fund, is expected to reduce the school's electricity purchase needs by 1.2 million kWhs per year. Portsmouth Abbey is the first school on the East Coast and one of only a handful in the nation to generate its own electricity with a commercial-scale on-site wind turbine.

After conducting more than 2 years of research and presenting results to the school's administration, the **University of Rhode Island** Renewable Energy Club has realized the first physical manifestation of its efforts. A meteorological tower was installed in December 2005 and has been collecting data on wind speed and direction ever since. The project, initiated and fueled by strong student support, is anticipated to result in a 1.5-MW turbine that will power approximately 5% of the University's load. The University is working with NORESCO to analyze the data and, if the data are promising, finance the construction of the turbine. In addition, the Narragansett Bay Commission recently initiated a feasibility study for an approximately 1-MW wind energy installation. The Town of Portsmouth successfully sought assistance in conducting a wind feasibility study and has applied for a CREBs loan to support an installation on one or two sites in the town. A flurry of recent community-based wind development activity is gaining momentum. More on these activities and the RI Wind Alliance in the next newsletter.

Created by Wind Power RI Project, School of Architecture, Roger Williams University, courtesy of Portsmouth Abbey Archives

Brother Joseph Byron/PIX14864

Before and after: a photo-simulation of the Vestas V-47 at Portsmouth Abbey School in Portsmouth, Rhode Island (left) and the completed installation (right).

Small Wind Corner

Several New England states have programs supporting installation of small (<50 kW) wind turbines. For more information on each state's program, see the New England Wind Forum Web site at www.windpoweringamerica.gov/newengland.asp

In May 2006, Upper Cape Regional Tech in Massachusetts became the first North American location to host an AIRCon 10. Manufactured in Germany, the AIRCon 10 is a direct-drive machine with a 10-kW nameplate capacity. The turbine, visible to those driving eastbound across the Bourne Bridge, is mounted on an 80-foot, tilt-up tower. Since the turbine is intended to serve as a teaching tool, the tilt-up design was critical due to the school's requirement that students climb no higher than 6 feet off the ground.

The installation at Upper Cape Tech was completed as part of a week-long installer's workshop co-taught by Ian Woofenden of HomePower Magazine, Tom Wineman of Clean Energy Design, and Richard Lawrence and Megan Amsler of Cape Cod Self-Reliance. The installation was paid for by the MTC Renewable Energy Trust's Small Renewable Initiative and from the Cape Cod Community College's National Science Foundation's grant that supports workforce training at the technical schools and in the region.

Vermont encourages small wind installations. The primary incentive for small wind is the Vermont Solar and Small Wind Incentive (http://www.rerc-vt.org/incentives/index.htm), which is accepting applications and has funding available. Vermont Technical College offers an anemometer loan program (http://web.vtc.edu/users/jnk06190/VTALP/index.htm) to allow those considering installations to evaluate the winds on their property. In 2005, 10-kW turbines were installed at the Alburg Welcome Center and the University of Vermont's Burlington campus. Small wind is also a valuable teaching tool. Over the past several years, the Department of Public Service has worked cooperatively with the following school districts, resulting in the installation of four 10-kW turbines: Danville School District, West Addison School District, Mount Holly School District, and Dover School District. These turbines provide net metering benefit and serve a range of educational purposes. For more information on this program, see www.vtwindprogram.org/

Hot Topics

Demand Pressure Attracts New Entrants to U.S. Market

In mid-2006, the United States broke the 10,000-MW mark for installed wind energy generating capacity. Installations in 2006 alone are expected to top 2,000 MW. U.S.-based GE Wind Energy and Danish manufacturer Vestas have dominated installations over the past 2 years. A national and global development backlog has led to a wind turbine shortage, driving up equipment prices for delivery in the 2006 to 2008 timeframe. Global wind turbine manufacturers have taken notice. In the past 12 months, international wind energy companies such as Gamesa, Suzlon, Siemens, and deWind have each announced their entry into the U.S. wind turbine supply market via new business relationships and planned or operational manufacturing facilities. At the same time, new U.S.-based wind turbine manufacturer Clipper Windpower has made its first commercial turbine product available to the market. Clipper recently announced a strategic alliance with BP Alternative Energy, including a long-term turbine supply agreement and the joint development of five U.S. wind energy projects.

Institutional Consumers Demand Renewable Energy, Look to Wind to Satisfy Long-Term Purchase Strategies

Increasingly, institutional consumers in New England — led by local colleges and universities — are purchasing renewable energy. Driven by student and faculty interests, many schools are making commitments that far exceed (in quantity or duration) the state-mandated Renewable Portfolio Standard. On June 13, 2006, Harvard University announced its intent to enter a 10-year agreement with the Town of Hull for the renewable energy credits (RECs) generated by the town's new 1.8-MW wind turbine. By purchasing Hull's RECs, Harvard is supporting renewable energy generation and meeting the Massachusetts RPS requirement.

As a result of elevated and volatile wholesale electricity prices, many large (and credit-worthy) institutional consumers in New England are also beginning to study whether their long-term purchasing ability can be converted into long-term price stability. By entering long-term, fixed price contracts, these consumers may be able to support the financing of new wind energy facilities and successfully create a hedge for a portion of their load for up to 20 years.

Events

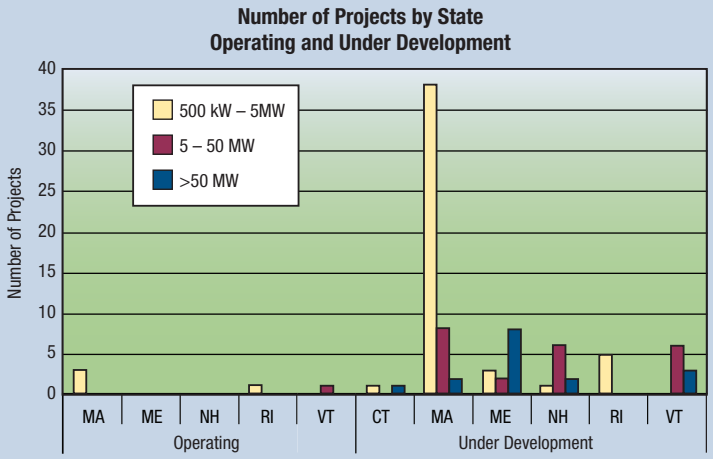
- Massachusetts Wind Working Group meeting dates are posted at: www.ceere.org/rerl/mwwg.html
- Schedules and details of the Mineral Management Service's review of the Cape Wind project can be found at: www.mms.gov/offshore/RenewableEnergy/CapeWind.htm

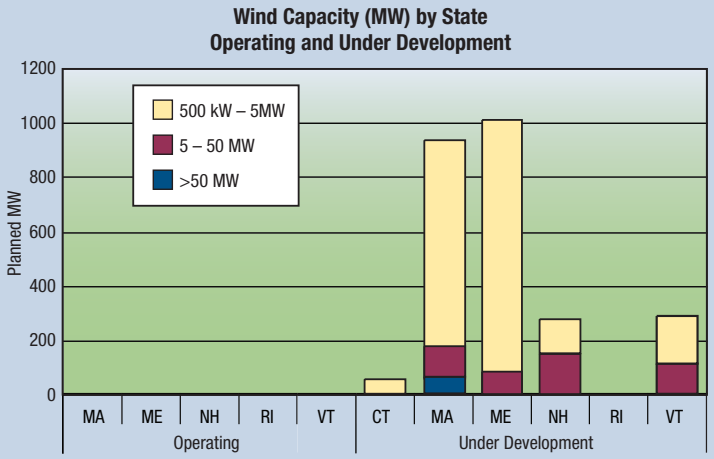
Cool Links

In each issue, we'll feature links to a few cool Web sites. Additional links will be added to the New England Wind Forum Web Site.

- The New England Wind Forum: www.windpoweringamerica.gov/newengland.asp
- Environmental Protection Agency Green Power Partnership (EPA GPP): www.epa.gov/greenpower/
- See how the Environmental Protection Agency is challenging colleges and universities and their collegiate athletic conferences to achieve the highest green power commitments in the nation. In Summer 2007, EPA will recognize a Champion Green Power Conference, as well as the largest single purchasers, within each participating conference as 2006 Green Power Challenge conference champions. EPA GPP Collegiate Challenge: www.epa.gov/greenpower/partners/hi_ed_challenge.htm

Wind Stats





Source: Sustainable Energy Advantage, LLC Proprietary Database

- The Hull 2 turbine was the first to be installed atop a closed landfill, which presents some interesting engineering challenges. See a presentation on the installation of Hull 2 from James Manwell of the University of Massachusetts Renewable Energy Research Laboratory: www.ceere.org/rerl/projects/support/mwwg/minutes/MWWG_Hull_II__Manwell_May06.pdf

Next Issue:

More project and policy updates, plus...

- The interaction of wind turbines and navigational radar
- Transmission and wind energy
- State and local zoning issues
- Federal incentives update: Production Tax Credit and Renewable Energy Production Incentive
- Clean Renewable Energy Bond award status
- Status of New England net metering rules.

New England Wind Forum – The Newsletter

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Subscribe at www.windpoweringamerica.gov/ne_signup.asp

Send news ideas, events, notices, and updates to Jason Gifford at jgifford@seadvantage.com

We Need Your Help

We hope you find this newsletter, detailing the status of nearly 100 wind projects and tracking policy changes and proposals as they occur throughout New England, to be the most thorough and current resource available. It is our goal to develop the New England Wind Forum Web site, established in 2005, into a comprehensive source of objective, up-to-date, information on a broad array of wind-energy-related issues pertaining to New England, including those of particular concern to communities in which wind projects are proposed.

If you would find future issues of this newsletter useful and find value in furthering the Web site's development as an independent one-stop resource for information on issues related to wind power and its impacts, we need your feedback. The New England Wind Forum Web site and newsletter are dependent on co-funding from New England states, and your personal comments can make a difference. In an informal sentence or two, please tell me why the New England Wind Forum is valuable to you, how the New England Wind Forum Web site or newsletter has helped you, and your suggestions for additions or improvements to make it more valuable. I would like to add your comments to a portfolio to present to state agencies when seeking funding. Your help is greatly appreciated.

Regards,
Bob Grace (newf@seadvantage.com) and Jason Gifford on behalf of the New England Wind Forum

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