Recommendations of the Subcommittee on Small and Community-Scale Wind
Governor's Taskforce on Windpower
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Introduction

Currently, approximately 1% of Maine's electrical generation is from wind power, and a tinier percentage than that comes from small and community-owned wind generators. Yet the state has enough potential windpower resources to provide a far higher percentage. The benefits of wind power are not just available in the large-scale setting of wind farms where the generated power is sold to electrical utilities. Economically and socially beneficial applications using appliance-sized up to commercial-sized wind turbines on a smaller scale are also possible. The purpose of this report is to present at a high level the potential benefits of and barriers to small and community scale wind power in Maine. We conclude with recommendations to remove barriers and promote additional small and community wind in Maine

Generator Sizes

Our recommendations cover three sizes of wind generators:

1. Small, so-called "appliance" sized turbines for individual residences or small businesses (up to about 20-25 kW);
2. Medium sized turbines that are above appliance-sized up to 250 kW, may be at roughly the state's net metering limit (100 kW) that might be useful for groups of homes, schools, or larger electricity users;
3. Larger projects comprised of turbines exceeding the medium-sized class, ranging from the typical 660 kW machines to 2 Mw turbines. Ownership in these projects has a primary community component, though there may be a developer involved due to financing and technical resources needed to complete a project.

Differentiating among the three scales of community wind becomes important for some of the particular recommendations below.

Ownership Patterns

Small and community wind is defined not only by its size, but also by its ownership pattern. By definition the category excludes windpower development by commercial windpower developers as primary owners. Community wind is defined as generation capability owned by individuals or groups of local investors forming LLCs, or by local institutions such as hospitals or businesses, or by wind projects developed and installed on public property by a municipal entity, such as a municipal utility, school district, county jail, or other small jurisdiction. These owners may partner with commercial developers for technical or financial reasons.

LLC Ownership Flip Model

One ownership model of particular interest is based on the so-called Minnesota "Flip Model", which allows outside investors to become a partner by underwriting

up to 45% of the cost of the project in return for the Federal income tax benefits. Ownership of the project is flipped back to the local entity when the Federal tax benefits cease after 10 years.

Small and Community Wind Potential

Small and community wind projects have the potential to positively effect public acceptance of windpower. It is anticipated that the eventual appearance of wind turbines in many locations spread across the state will raise public awareness that wind indeed is a usable resource for power generation and that technology exists to exploit it. With increasing public awareness of the contribution of fossil fuel generation to global warming, wind power will likely come to be seen as a good way for citizens to take responsibility for and mitigate the environmental impact of traditional electricity generation. Community wind projects provide an important opportunity to educate the general public on issues associated with climate change, reduction in carbon dioxide emissions, and alternative energy sources. By their nature, community wind projects do not raise some of the issues that larger-scale projects do. These aspects of community wind should be taken advantage of, and means that the value of community wind projects go beyond basic economics.

While our subcommittee viewed the major potential of community wind as primarily educational, the point should not be lost that in some countries with major windpower contributions to the grid, community wind is the dominant form of ownership. For example, eighty-four percent of the turbines in Denmark are owned by residents instead of commercial investors (Bolinger, 2004). In Germany 88% of the turbines are community owned (Bolinger,2004) This picture offers evidence that, over the long term, community wind in Maine could move from small scale educational and awareness-raising efforts to larger scale contributions to the electricity generation system.

Economic Contribution

A study developed by the University of Minnesota determined that community wind in the United States has a greater economic impact on local economies than does corporate wind (Kildegaard & Myers-Kuykindall, 2006). According to the study, "community wind has four times the economic impact on local value added, and 2.8 times the impact on local job creation, relative to a corporate-owned development"(2006, 21).

Barriers to be Overcome

- Land Use Restriction: local land use ordinances may not speak to wind turbines, resulting in uncertainty over what local standards may apply to a project.

- High Cost of Feasibility Study: the feasibility study portion of project development may be difficult for some projects. Typically, feasibility studies have financial, wind analysis, siting, and grid-connection components, all of which may be complex issues depending on the scope and size of a proposed project.

- Poor Wind Resource

- Access to Transmission Lines: some prime locations for wind power development may be at sites far from existing transmission lines.

- Interconnection Process: as mentioned above in the feasibility barrier, interconnection studies and the process may be difficult for some projects.

- Securing Financing: may be difficult, particularly for projects lacking a private partner.

- Lack of State Incentives

- Lack of Support from the Community: highlights the potential importance of the educational aspects of such projects.

Recommendations

1. **Develop a model municipal wind ordinance.**
   - For use/adoption in towns statewide to incent the development of community wind
   - Address issues of potential community concern including setbacks, height, and noise issues
   - Include consideration of the three general classes of community-scale wind (appliance-scale, medium, and larger).

2. **Remove obstacles at the pre-construction stage**
   - Support and expand the PUC agreement with the University of Maine to build capacity in Maine to assist with meteorological studies. This partnership is a logical one to expand upon to discuss programs to help address other obstacles (such as through assistance with economic analysis).
   - Request the PUC to study and develop appropriate rules regarding fee structures and timelines for utility companies to respond to requests for inter-connection studies.
   - Investigate use of existing cell phone towers as MET study sites

3. **Provide a data clearinghouse**
   - Assist with other aspects of wind power development by building a knowledge base, using the PUC-University of Maine partnership mentioned above as a foundation, and drawing in Miane Maritime Academy and the Community College System
   - Expand the State Energy Office to include a clearinghouse and outreach function to provide information to the public on available grants, recommended consultants, and lists of equipment providers

4. **Provide financial incentives/economic assistance**

- Redefine PUC proximity rule such that proximity means within a service territory

- Develop revolving loan program (such as through Efficiency Maine)to assist feasibility studies. PUC currently has a program for renewables that is geared to construction; the program's rules should be refined so that work at the feasibility stage would be eligible as well.

- Allow net billing at or below 100Kw for generation capacity in group ownership

- Offer rebates for small installations (appliance size) similar to the solar rebate program presently offered at the PUC. Could be done as an expansion of existing solar program recognizing wind power as an equally emerging technology to solar with better paybacks and fewer technical drawbacks. Stipulation would be that installations be done at sites that at a minimum demonstrate class 3 wind capability on AWS True wind maps or other wind data.

- BETR treatment for wind generating equipment above the appliance size.

- Sales tax exemption for all small and community wind power equipment

5. **Designate a Facilitator within DOE/PUC to engage Maine schools in the Wind for Schools Program**
   http://www.eere.energy.gov/windandhydro/windpoweringamerica
   Currently involves 5 states (Colorado, Kansas, Nebraska, Montana, South Dakota)
   5 Additional States planned for Spring 2008

6. **Education System Recommendations**

   A. Investigate the need for additional research and development funding in the University of Maine System and recommend changes. Study to be to be complete by September 30th 2008.
   B. Direct Community College System to Investigate Wind Power Training Needs. Study to be Complete by September 30th , 2008.

References

Bolinger, M. A. 2004. ***Community****-owned wind power development: The challenge of applying the European model in the United States, and how states are addressing that challenge*. Presented at Global **Windpower** 2004. Chicago: Lawrence Berkeley National Laboratory

Kildegaard and **Myers**-**Kuykindall**, **2006**. Contact Arne **Kildegaard** at University of Minnesota, Morris for most recent copy- kildegac@morris.umn.edu