

Wind Energy Planning Resources for Utility-Scale Systems in Vermont: A Product of the Wind Siting Consensus Building Project

THE WIND SITING CONSENSUS BUILDING PROJECT

The Vermont Department of Public Service carried out the Wind Siting Consensus Building Project to build consensus on the appropriate siting of utility-scale wind energy in Vermont, with special attention to the aesthetic impact of these facilities on Vermont's scenic landscape. The project was made possible by a grant from the U.S. Department of Energy and administered by the Vermont Department of Public Service. Partners in the project included Vermont Environmental Research Associates, Renewable Energy Vermont, and the Woodbury Dispute Resolution Center.

The project is made up of three coordinated parts. The first was a series of consensus-building stakeholder workshops held from February to May, 2002, at the Woodbury Dispute Resolution Center. The second part is a packet of wind energy planning resources for town and regional planners in the state. This packet, which also serves as a summary of the outcomes of the stakeholder workshops, is available below. The third part of the project is a state-wide wind energy education and outreach initiative.

WIND ENERGY PLANNING RESOURCES

["Wind Energy Planning Resources for Utility-Scale Systems in Vermont."](#)

The Appendices to the Packet:

I. [Report by the Woodbury Dispute Resolution Center](#) on the Wind Siting Consensus Building Workshop series, July 2002.

II. [List of Participants](#) in the Wind Siting Consensus Building Workshops.

III. "[Wind Generated Electricity History and Assessment](#)." Prepared Pursuant to Act. No. 59 of the 1993 Vermont Legislature, January 1994.

IV. "[State of Vermont Wind Resources and Transmission](#)." Prepared by Vermont Environmental Research Associates with sponsorship from the U.S. Department of Energy, March 2002.

V. "[Green Mountain Power Corporation's Searsburg Wind Project: The Vermont Public Service Board's Perspective](#)." Presentation given in 2001 to the National Wind Coordinating Committee by Peter Meyer, Environmental Analyst, Vermont Public Service Board.

VI. "[Energy Costs for Utility-Wind Facilities](#)." American Wind Energy Association, 1999.

VII. "[Public Service Board Docket Number 5823](#): Petition of Green Mountain Power Corporation for a certificate of public good for authority to construct a 6 MW wind generation facility and associated line extension in Searsburg, Vermont."

May 1996. Pages 25-29, 44-45.

VIII. "[A Movement Study of Black Bears in the Vicinity of a Wind Turbine Project](#)." by Jeffrey Wallin C.W.B., Multiple Resource Management, Inc., September 1998.

INTERNET REFERENCES

(2b) [The 1998 Vermont Wind Energy Resource Assessment](#) conducted by the Vermont Department of Public Service.

(3c) "[Methodology for Wind Turbine String Identification and Estimating the Theoretical Wind Power Potential in Vermont](#)." Vermont Environmental Research Associates, Inc., 2001 (<http://www.northeastwind.com>).

(3c) "[The Vermont Statutes on line](#):" (<http://www.leg.state.vt.us/statutes/statutes2.htm>).

(5b) The website of the [Federal Aviation Administration](#) (<http://www.faa.gov/>).

(5c) "[An Assessment of the Impacts of Green Mountain Power Corporation's Wind Power Facility on Breeding and Migrating Birds in Searsburg, Vermont](#)." National Renewable Energy Laboratory, July 1996-July 1998 (<http://www.nrel.gov/docs/fy02osti/28591.pdf>).

OTHER WIND ENERGY PLANNING RESOURCES

[American Wind Energy Association](#) (www.awea.org).

Koepl, G.W. Putnam's Power From the Wind. Van Nostrand Reinhold: New York, 1982.

[National Renewable Energy Laboratory](http://www.nrel.gov) (www.nrel.gov).

[National Wind Coordinating Committee](http://www.nationalwind.org)
(www.nationalwind.org).

National Wind Coordinating Committee: "[Avian Collisions with Wind Turbines: A Study of Existing Studies and Comparisons to Other Sources of Avian Mortality in the United States](http://www.nationalwind.org/pubs/avian_collisions.pdf)." August 2001
(http://www.nationalwind.org/pubs/avian_collisions.pdf).

National Wind Coordinating Committee. "[Permitting of Wind Energy Facilities: A Handbook](http://www.nationalwind.org/pubs/permit/permitting2002.pdf)." July 2002
(<http://www.nationalwind.org/pubs/permit/permitting2002.pdf>).

[Renewable Energy Vermont](http://www.REVermont.org), Vermont's trade association of renewable energy businesses (www.REVermont.org).

Palmer, Dr. James - Clinton Solutions. "[Searsburg Public Acceptance Study, Year One Post-Construction](#)." Executive Summary, December 1997.

[Vermont Environmental Research Associates, Inc.](http://www.northeastwind.com) Also the site for information about Green Mountain Power's Searsburg wind power facility (www.northeastwind.com).

Vissering, Jean. "[Wind Energy and Vermont's Scenic Landscape: A Discussion Based on the Woodbury Stakeholder Workshops](#)." Contracted by the Vermont Department of Public Service, 2002.

BACKGROUND TO THE REPORT

Wind power -- or electricity generated from the energy of the wind -- is the fastest growing source of electricity generation in the world . Wind projects in the United States are expanding rapidly, especially in the western and mid-western states. In 2001, a wind farm on the Oregon-Washington state line with a maximum output of 263 megawatts (MW) came on line. On the east coast, wind developers are proposing a project with a maximum output of 450 MW to be located on Horseshoe Shoal five miles off the shore of Cape Cod. By comparison, Vermont peak electric demand is about 1,000 MW. Multiple studies have shown that Vermont's wind resource is abundant enough to meet a significant portion of the state's electric power needs. While wind power may be environmentally sound in certain ways, it, like other forms of power generation, also has environmental costs, such as the aesthetic impact of wind turbines on the landscape.

Early in 2001, the Vermont Department of Public Service (DPS) recognized the need to address the environmental concerns, and especially the aesthetic impact, of utility-scale wind power generation facilities in the state. The DPS also saw the need to provide Vermont town and regional planners with the latest wind energy siting information so they could plan for wind energy development in their jurisdictions.

To these ends, the DPS received a grant from the U.S. Department of Energy (U.S. DOE) to build consensus among key stakeholders -- including developers, environmentalists, government, and others -- on how wind power projects can be appropriately sited in Vermont. The three objectives of the consensus building effort were to hold a series of wind energy stakeholder workshops, to produce a packet of wind energy siting resources for town and regional planners, and to disseminate information on wind energy around the state. These components are known collectively as the Wind Siting Consensus Building Project.

This document, "Wind Energy Planning Resources for Utility-Scale

Systems in Vermont," is the second of these components. Its purposes are to: 1) Provide town and regional planners with current information on the issues surrounding the siting and development of utility-scale wind energy facilities and 2) Summarize the issues and information discussed by stakeholders in the four wind siting consensus building workshops held in the spring of 2002.

Ideally the information presented herein will help planners consider the long-term role of wind energy facilities in their town and regional plans. This documents also presents the informational materials and siting concerns discussed by the stakeholders in the four workshops. The complete report on the content and discussions of the workshop series, as well as the list of stakeholders, are located in Appendices I and II.

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