Wind Turbine Siting Issues in Vermont:
Building Consensus Through Stakeholder Workshops

Workshop Outcomes

Introduction:

This is a summary of the outcomes reached for the four workshops sponsored by the Vermont Department of Public Service (DPS), Renewable Energy Vermont Inc. (REV) and Vermont Environmental Research Associates (VERA) that were facilitated by the Woodbury College Dispute Resolution Center (DRC). These workshops occurred in February, March, April and May of 2002. The workshops were proposed as a way to help identify interests and issues among identified stakeholder groups that might be involved in the permitting and development of large wind energy projects in Vermont. The identification and bringing together of these stakeholders was seen as a way to begin the process of building consensus among the participants on the various criteria of siting wind energy projects in Vermont.

The statements and conclusions reported in this summary by the DRC facilitators are not meant as definitive findings of fact or science but as a summary of the discussion points brought forth by the participants in each of the workshops.

Workshop 1

The intention of the first workshop was to prioritize and condense the interest areas that had been identified by the stakeholders in the pre-workshop questionnaire and confirmed during their introductions at the beginning of the meeting.

The first half of the meeting allowed for presentations by the Department of Public Service, reviewing the current mix of power generation and current and anticipated wind contribution; the Public Service Board, discussing the current permitting process for siting wind projects, using the Searsburg project as an example and with reference to the "Quechee Analysis;"[*] and an industry perspective of current wind resource technology and siting requirements for large wind projects by NRG Systems. These presentations helped provide a comprehensive foundation of current information and helped the group form a series of questions for later discussions.

The initial presentations generated the following outcomes/questions:

- How will wind power generated in Vermont be priced?
- Would wind power generated in the state be sold locally or into the region?
- Would back-up power need to be factored into the price of wind generated power?

[*] The "Quechee Analysis" is used by the PSB to evaluate aesthetic impacts.

- How would wind power in Vermont be classified, as a stable source or an intermittent one?

Information about the Searsburg site generated the following questions:

- What made it a success?
- What, if anything, would be done differently in the future?
- How would the public be engaged and specifically, how would information be disseminated in future siting processes?

The presentation on the current generation of wind turbines generation these responses:

- There are great differences in the current generation of wind turbines in terms of reliability and design.
- New towers are designed in a columnar form that allows them to fit the landscape better, allows servicing of the turbines from inside and offers less of a perching opportunity for birds, decreasing the mortality rate.
- The circumference of rotors is larger and the spin rate is slower.
- New generation wind turbines are quieter, making noise less of a factor in siting.
- A specific weather related concern in Vermont is icing on the rotor blades. This can be mitigated by blade design, color and appropriate siting that considers topography and height above sea level.
- Elevations between 2000 and 3500 feet above sea level are the most ideal.
- The lighting of towers to compile with current FAA height regulations was an area of great concern to a number of participants. The intrusion of light into rural areas not currently affected was met with a largely negative response from participants. Tower lighting was discussed across a broad range of topic areas that included permitting, aesthetics and the FAA regulations and will need to be further researched and addressed if it comes up in permitting.

The second half of the meeting introduced the first topic area, a discussion on Land Use and the issues of siting large wind projects in Vermont.

A number of stakeholder interests are concentrated in the land use discussion. Some of these interest areas, aesthetics especially, were found to be complicated and extensive enough to command a subset interest area of it's own. In this initial discussion of land use, a number of topics areas were identified; most will need further discussion and additional research to begin to reach a level of consensus among the participants.

The discussions generated these questions:

- Land designation or classification, what are the prime locations for wind power generation?

- What mapping resources are currently available that show these areas and how do people access that information?
- Do those prime wind generation areas conflict with other uses, ex. what designates a sensitive area? Is it scenic view corridors, wilderness, endangered species, plant or animal, wetland areas or wilderness hiking trail locations?
- What criteria can be used to identify these areas?
- Federal or Public land and resource identification and classification, what are the legalities and process of development on each?
- How is the public involved? How do you manage their input?

Land uses and planning:

- How can local and regional planners utilize the information from these discussions and the proposed planning packet to help make credible decisions when discussing potential sites for development?
- Will this information help identify co-location opportunities and areas of compatible land use?

The key word and the biggest outcome of the first workshop session was education. For many of the participants the information presented was new or an update of what they had previously understood about wind power development and the potential impact on both energy and land use in Vermont. A realization that became apparent was the willingness of participants to identify, discuss and defend their positions and interests but also seek to understand the positions and interest areas of the other participants before forming opinions. The number of issues and the quantity of information to be discussed and digested will make it difficult for the participants to reach consensus on many, if any, of the outstanding discussion points. The most valuable outcome of these workshops may be the gathering of these participants, in one group, to begin the discussion of how wind power might be developed effectively in Vermont.

Workshop 2

The main focus of the second workshop was a discussion and analysis of the visual impact that large wind turbine sites might produce. Landscape architect Jean Vissering presented her working draft of "Visual Resource Considerations in Siting and Designing Wind Facilities Larger than 500 KW". A highlight from Jean's presentation was the introduction of the technology that is available to utilize slides, computer simulations and other visual resources to help describe the visual impact that wind power development will have in any given landscape. The ability to understand and utilize these tools as part of the planning process will be important so that all stakeholders, including the public, would have a more reliable way to gain visual information before forming opinions a specific proposal.

The outcome of the discussions from this workshop highlighted some of the major areas of concern in siting wind power and also generated numerous comments from workshop

participants that could be incorporated into the next draft. Discussion generally referenced:

- What land? There were a lengthy discussion about the availability of federally or state controlled land for development and questions about identifying the information resources that would lead to answers. One source of resource assistance for federal land would be help from the offices of Senators Leahy and Jeffords and Congressman Sanders.
- If Public lands are utilized, how do you, can you, set the development standard high to account for the fact that publicly owned land contains some of the best siting opportunities for wind power?
- Co-location with other uses and already developed areas, such as ski areas, offer potential appealing sites because of infrastructure that may already in place but issues of technical incompatibility and previous mitigation exist.

In a further discussion of Jean Vissering's guide, it was established by workshop participants that the guide will serve a number of purposes as part of the planning packet that will be distributed throughout the state:
Comments included:

- Broad use as an education and resource tool in the permitting and zoning process.
- The guide can act as a resource that "levels the playing field" and provides the background information that less informed interested parties could access.
- It will help give all participants involved in a specific planning process a comprehensive guide to work from.
- Hopefully, it will help streamline the process so that when it gets to the state level-permitting phase, many areas of conflict will have been addressed.
- Completion of the guide gives developers, town and regional planners, landowners and other interested parties, a road map that will inform the design and planning of projects to guide the development process.

It was noted that this guide is still a document in progress and there were a number of comments for additions, corrections or deletions of content that will be incorporated in the second draft.

An especially noteworthy outcome of this workshop was confirmation by participants that the issue of aesthetics in the landscape, as they apply to wind power developments, may be one of the more contentious to resolve. Although, the impact of development on the landscape and specifically the aesthetic impact was an important issue to most everyone present, the level of importance was variable. Defining an area of compromise in development issues based on aesthetics will be difficult because of the wide variation in stakeholder interests and the difficulty in the establishment of an aesthetic norm that would be acceptable to everyone. For instance, one controversial issue established early on in this workshop was tower lighting. One very definitive outcome from the first meeting that was carried over to this second workshop was that,

if the lighting was needed, especially lighting identified by blinking red lights or strobes, on towers because of the tower height and FAA regulations, those wind power sites would be fought strenuously by certain interest groups.

Workshop 3

The focus of the third workshop was wildlife and the impact that wind power development might have on avian and wildlife species. Incorporated in the wildlife impact question was the issue of larger ecological habitat area assessment when considering development. The Vermont Department of Fish and Wildlife presented an overview of information and comment on the species most likely to be impacted by Wind Power development. The specific bird species that were discussed, Bicknells Thrush and the Swanson Thrush have habitat area that may be in prime wind power development areas due to altitude and persistent wind speeds. The presentation and following discussions were generally specific to these two bird species but also included raptors in general and the bear and deer populations existing in potential development areas. There was also discussion on larger habitat management issues and the effect that development might have on wetland and other sensitive habitat and areas that might contain rare plants.

In the case of the Bicknells and Swanson Thrush the discussions centered on the following:

- The sensitivity to these species is the rarity with which they are found in this area.
- Their habitat is restricted to mountainous areas, making them hard to inventory and putting them in potential conflict with wind power development.
- Further study is needed to more reliably assess the full impact that wind power development might have on their habitat and migratory areas.

The discussion of bird mortality was carried over from the introductory workshop and specifically addressed again was the question of mortality due to operating turbines. In the ensuing discussion of new wind power project designs:

- Mortality seems to be diminished due to turbines that spin at slower speeds and towers that have been re-designed to be more columnar, making them less attractive to perching birds, especially raptors.
- Wind power development in identified migratory path corridors should warrant further study, however, it would appear from the discussions, that birds would fly at an altitude higher then the turbines and mortality would be minimal.
- Where tower lighting is concerned, participants felt that further study would be needed to understand the possible effect of the lighting on avian mortality rates, migratory birds and other wildlife.

In the discussion about black bears and the effect that a wind power development might have on bear habitat, information from the report prepared for Green Mountain Power for the Searsburg, VT wind project was referred to.
Conclusions from the discussion included:

- The Searsburg study was just one site-specific study for a particular size wind development and that future studies should be more extensive.
- Included in the habitat assessment should be mast areas, wetlands and the existing and potential travel corridors.
- Indicated that bear habitat areas needed to be identified early in the planning processes so that they can be taken into account in the planning process.
- Bears in the area of a wind power project may not be impacted to a great degree, once the construction phase of the project was complete.
- A more extensive database of work concerning bears should be established in conjunction with the development of future wind power projects.

Consistent in this workshop was the cross over discussion of various other land use impacts as they might indirectly impact the wildlife discussion. Topics touched on included:

- Property rights and land ownership issues in development areas.
- The impacts that development might have to the hunting and environmental community.
- The impact that development might have to sensitive wildlife and ecological areas.
- The visual impacts associated with development in sensitive areas.
- More information is needed in a readily available form to identify and ascertain the impact that developing wind power might have on Vermont's wildlife and sensitive areas as whole.
- Certain site-specific studies and the information they yield, especially for wild life, could be additive. In the case of bears, for instance, a study protocol would include a database of information that could be added to and could be a valuable source of information in the development of other wind projects. Further site-specific studies should be conducted to establish a larger database of information concerning birds, larger wildlife and ecology in general.
- Study, more closely, the impact that close management of public access to a fully developed wind energy site may have in mediating wildlife concerns.
- The Vermont Center for Geographic Information Mapping may already have mapping information for the State of Vermont that includes information for sensitive areas, endangered and rare species areas, etc. This information should be readily available to the public, town officials' planners, state agencies and developers so that specific development areas and their impacts could be known in advance.
- A need to identify and study other high altitudes species, like the rock shrew, that might be affected by wind power development

As it has been indicated in other workshops to date, participants generally indicated a need for more information and further discussion before any consensus on issues could be considered. Participants believe that the issues identified are important but may disagree on the level of importance to their particular affinity group. The location and availability of State resource information: mapping, wildlife studies, etc. can be a source of frustration due to the lack of information or where information is available, is not centrally located or readily available.

Workshop 4

The main topic area for discussion in this workshop was the second draft of Jean Vissering's visual resources plan for siting utility scale wind projects. Secondary discussion areas included the contents of the Planning Packet and identification of any areas of agreement or consensus on issues from the preceding workshops.

In a repeat of the second workshop, the discussion of the second draft of Jean Vissering's report, "Visual Resource Considerations in Siting and Designing Wind Facilities Larger than 500 KW", generated a great deal of discussion and additional comments and from workshop participants. Included in this discussion were requests by the participants for additions, deletions and further clarification of portions of the report. Building on the changes from the first draft, these additional changes will be considered for incorporation in to the final report. The importance placed on this document as a planning tool, by participants and sponsors of the workshops, often led to frustration at the lack of discussion time to fine tune the language and content of the guide. The purpose of the guide as stated in the draft report, "understanding where wind turbines can be located to minimize the impact on Vermont's scenic landscapes" is the intention of the final version of this report and it will be important to participants in these workshops, that their input was considered. This document will provide specific information to developers, landowners, regulators and other interested parties " of the attributes of the Vermont landscape that make some ridgelines visually sensitive and others very appropriate for wind development." Input from participants in the specific area of "Adverse and Undue impacts and within that area, the consideration of the benefit of renewable energy vs. the impact of projects and how the Public Service Board will weigh the economic benefits vs. the scenic, remain two of the more contested, of many issues, in the document yet to be discussed fully. The fact that so many comments and statements were generated from workshop participants in this fourth workshop leads one to believe that additional draft reports should be made available to the participants for comment before finalizing the report.

Generally, participants thought that this document could serve as a pivotal piece of the Planning Packet and would be helpful if it can capture all of the relative interests of the stakeholders in a constructive way. The guide will not only be of particular interest in Vermont but could provide a valuable set of criteria to other states by putting forth a comprehensive set of guidelines and considerations when wind power is being considered.

When considering the contents of the Planning Packet, feedback from the participants indicated that contents might include:

- Updated resource maps
- The, "Visual Resource Considerations in Siting and Designing Wind Facilities Larger than 500 KW", document.
- Include information on Act 248, Act 250 and the "Quechee Analysis".
- The Planning Packet will help inform and focus the discussions of wind power development in Vermont. The input from the participants in these workshops, as to the content of the packet, will help VELA, DPS, and REV, finalize and produce this document.

The final outcome of the fourth and last workshop was a statement by participants that identified the level of consensus that had been reached to date:

> *"Appropriately sited wind energy should be an important part of Vermont's energy future.*
> *We are committed to educating our own organizations on issues associated with its development and making appropriate public policy recommendations.*
> *The Department of Public Service should continue to provide leadership in education and policy development with the public, the stakeholders, planning organizations and permitting agencies.*
> *We believe that this approach is particularly appropriate in the context of Vermont's existing and ongoing commitment in achieving high level of efficiency in energy use."*

This final statement reflects the fact that representatives of many of the various stakeholder groups were understandably reluctant to move forward with consensus on the issues identified in these workshops until they could report back to their individual organizations, share and discuss the information learned from these meetings and decide what their appropriate next steps might be on an organization level.

Outcomes Summary

The discussion of the issues and outcomes that was generated in these four workshops was possible because a large and varied stakeholder group was identified and brought together, for the first time, to share information, concerns and ideas about the siting of large wind power developments in Vermont. The identification of areas of potential conflict between the stakeholder groups helped to focus discussions on main topic areas of: land use, wildlife, and the visual aesthetics of development as they might apply to wind development. Participants were able to focus on specific issues within these larger general themes that needed refined definitions, clarity or additional information intentions surrounding wind power development from state agencies, developers, environmentalists and other stakeholder groups and clarity on where to find the additional information resources that would help bring the groups closer to consensus in future discussions. The idea is that, as the discussion of wind power

development in Vermont becomes more informed and refined the discussion of potential sites through informed consensus will make the permitting process less contentious. Further work by this group, with the continued support and leadership the PSD, will be important to the development of wind power as an alternative energy source in Vermont.

The phrase, low visibility/low power, high visibility/high power helps to identify one area that Vermonters will need to continue to discuss and hopefully come to some consensus on: Wind projects are likely to be highly visible in our landscape and further discussion on appropriate siting areas and the possible criteria that would make siting possible, should continue among the interested parties, the PSD and the public.

The long term pricing of wind power is another, albeit a more technical, discussion area that was only lightly touched upon in these meetings. How will wind power be priced and delivered to the consumer? How will net metering affect pricing? How will the greater good of clean renewable wind power be weighed against the impact it might have on wildlife and the visual Vermont landscape? One outcome that became apparent from this one topic area and carried through all four workshops was the fact that all the discussion that took place generated more questions then answers.

In the discussion of Vermont landscapes and the varied uses of land in Vermont, the sensory impact that development can bring to the landscape, touched on all the other topic areas that were discussed. The completion of Jean Vissering's guide and it's inclusion in the planning packet will serve as an important reference guide for planners, developers and all other interested parties, in the siting process for wind power development. Further and more complete discussions on the definition and identification of sensitive areas, whether they be scenic vistas and hiking trails or endangered/rare plant and wildlife areas will help to further define areas for development with the least possible mitigation effects and costs. Further clarification and consensus on the definition of adverse and undue impacts will help to focus development into the most reasonable areas.

Identification of stakeholders is a significant step and it can be a complicated process to identify tangible appropriate groups and representatives. Many other states will have the same national advocacy groups, state agencies, industry representatives or similar groups and this list will provide a good starting point for the establishment of a list for potential participants. Responses to pre-workshop questions by the stakeholders were instrumental to setting the agendas for the meetings. The questions, comments and concerns from one meeting had a tendency to cascade over to other meetings and indicate the level of concern and work that still needs to be done.

In general, workshop participants agreed that these workshops had been informative and provided an outlet for the dissemination of information and feedback on the issues that were identified for siting large wind energy projects. Participants also felt that continuing to meet together, in small task specific working groups and occasionally in larger groups, would be beneficial.