

**PUBLIC ACCEPTANCE STUDY OF THE  
SEARSBURG WIND POWER PROJECT:  
YEAR ONE POST-CONSTRUCTION**

*prepared by*

James F. Palmer  
Clinton Solutions  
610 Clinton Street  
Fayetteville, New York 13066

*submitted to*

Vermont Environmental Research Associates, Inc.  
Rural Route #1, Box 9800  
Waterbury Center, Vermont 05677

Green Mountain Power Corporation  
25 Green Mountain Drive  
P.O. Box 850  
South Burlington, Vermont

*Public Acceptance Study : One Year Post-construction*

December 1997

## **TABLE OF CONTENTS**

<b>Table of Contents</b>	<b>iii</b>
<b>List of Figures</b>	<b>v</b>
<b>List of Tables</b>	<b>vi</b>
<b>Executive Summary</b>	<b>1</b>
Knowledge of the Searsburg Wind Power Project	1
Attitudes towards Wind Power	2
Support for the Searsburg Wind Power Project	3
Visual Quality of the Searsburg Wind Power Project	4
Construction-related Effects of the Searsburg Wind Power Project	6
Influence of Pre-construction Support for Wind Power	7
<b>Introduction</b>	<b>8</b>
Summary of Pre-construction Survey	8
<b>Methods</b>	<b>11</b>
Questionnaire	11
Notes on Statistical Usage	13
<b>Year One Post-construction</b>	<b>14</b>
Respondents' Profile	14
Attitudes Toward Wind Power Plants	17
Attitudes Toward Searsburg Wind Power Project	19
Construction-related Effects of the Searsburg Wind Power Project	22
Visual Quality of the Searsburg Wind Power Project	23
<b>Comparison of Pre- and Post-Construction Responses</b>	<b>29</b>
<b>Proximity Project and Change in Acceptance</b>	<b>36</b>

*Public Acceptance Study : One Year Post-construction*

Attitudes Toward Wind Power Plants	37
Attitudes Toward the Searsburg Wind Power Project	41
Construction-related Effects of the Searsburg Wind Power Project	43
Visual Quality of the Searsburg Wind Power Project	44
<b>Pre-construction Support for Wind Power and Change in Acceptance</b>	<b>50</b>
Attitudes Toward Wind Power Plants	50
Attitudes Toward the Searsburg Wind Power Project	55
Construction-related Effects of the Searsburg Wind Power Project	57
Visual Quality of the Searsburg Wind Power Project	58
<b>References</b>	<b>64</b>

**LIST OF FIGURES**

Figure 1. Comparison of ratings made pre- and post-construction of statements about wind power plants.	2
Figure 2. Comparison of ratings made pre- and post-construction of support for Searsburg Wind Power Project.	3
Figure 3. Comparison of ratings made pre- and post-construction of the Searsburg Wind Power Project with and without the wind turbines.	5
Figure 4. Comparison of ratings made by Searsburg and other respondents of the impacts related to construction of the Searsburg Wind Power Project.	6

## **LIST OF TABLES**

Table 1. Sample Related Aspects of the 1997 Post-construction Survey	12
Table 2. Background characteristics of respondents: 1997	14
Table 3. Recreation participation: 1997	15
Table 4. Sources of information during past year: 1997.	16
Table 5. Ratings of statements about wind power: 1997.	18
Table 6. Ratings of the Searsburg Wind Power Project: 1997.	19
Table 7. Summary of comments from those who visited the site.	20
Table 8. Significance of Searsburg project construction impacts.	22
Table 9. How often do you normally notice the Searsburg wind power project?	23
Table 10. From where can you see the Searsburg wind power project?	24
Table 11. Ratings of Searsburg wind power project simulations.	25
Table 12. How accurate do you think the simulations are when compared to the actual project?	26
Table 13. How important do you think it is that the simulations show the wind turbines moving?	27
Table 14. Comparison of respondents characteristics: 1996 and 1997.	29
Table 15. Sources of information during past year: 1996 and 1997	31
Table 16. Comparison of ratings of statements about wind power plants: 1996 and 1997	33
Table 17. Comparing ratings of the Searsburg wind power project: 1996 and 1997	34
Table 18. Comparing ratings of Searsburg wind power project simulations: 1996 and 1997.	35

*Public Acceptance Study : One Year Post-construction*

Table 19. Comparison of 1997 ratings from Searsburg and other residents of statements about wind power plants.	37
Table 20. Comparison of 1996 and 1997 ratings of statements about wind power plants from Searsburg and from other residents.	39
Table 21. Comparison of 1997 ratings from Searsburg and other residents of the Searsburg wind power project.	41
Table 22. Comparison of the 1996 and 1997 ratings of the Searsburg wind power project from Searsburg and other residents	42
Table 23. Significance of Searsburg project construction impacts for Searsburg and other residents.	43
Table 24. Percent of Searsburg and other residents responding to: How often do you normally notice the Searsburg wind power project?	44
Table 25. Percent of Searsburg and other residents responding to: From where can you see the Searsburg wind power project?	45
Table 26. Comparison of the 1997 mean ratings of Searsburg wind power project visual simulations by Searsburg and other residents.	46
Table 27. Comparison of the 1996 and 1997 mean ratings of Searsburg wind power project visual simulations by Searsburg and other residents.	47
Table 28. Percent of Searsburg and other residents responding to: How accurate do you think the simulations are when compared to the actual project?	48
Table 29. Percent of Searsburg and other residents responding to: How important do you think it is that the simulations show the wind turbines moving?	48
Table 30. Percent change from pre-construction to post-construction in level of support for wind power.	51
Table 31. Comparison by initial level of support for wind power of ratings of statements about wind power plants: 1996 and 1997	53
Table 32. Comparison by initial level of support for wind power of ratings of the Searsburg wind power project: 1996 and 1997	56

Table 33. Significance of Searsburg project construction impacts by initial level of support for wind power.	57
Table 34. Percent response by initial level of support for wind power to: How often do you normally notice the Searsburg wind power project?	58
Table 35. Percent response by initial level of support for wind power to: From where can you see the Searsburg wind power project?	59
Table 36. Comparison of the 1997 mean ratings of Searsburg wind power project simulations by initial level of support for wind power	60
Table 37. Comparing mean ratings of Searsburg wind power project simulations by initial level of support for wind power: 1996 and 1997	61
Table 38. Percent response by initial level of support for wind power to: How accurate do you think the simulations are when compared to the actual project?	62
Table 39. Percent response by initial level of support for wind power to: How important do you think it is that the simulations show the wind turbines moving?	62

## **EXECUTIVE SUMMARY**

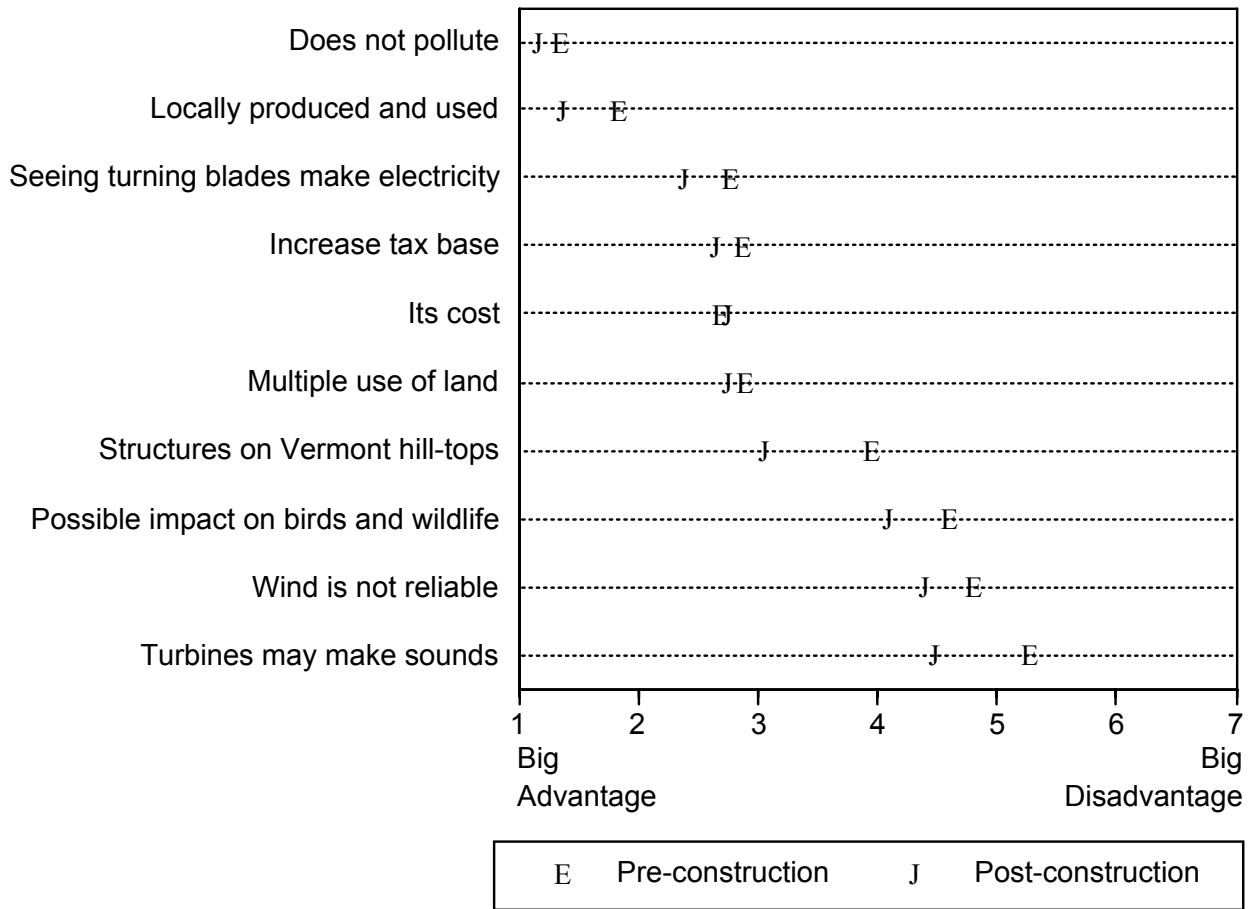
The public acceptance study of the Searsburg Wind Power Project is somewhat unique because it is designed to compare public attitudes before and after the project's construction. This executive summary presents the most important results from the 1996 pre-construction and 1997 one year post-construction surveys.

### **Knowledge of the Searsburg Wind Power Project**

Since all 345 respondents participated in the pre-construction survey, they were all aware of the Searsburg Wind Power Project. During the year and a half construction period they learned about the project from multiple sources. Nearly 90 percent had read *Wind Power News*, and a fifth had attended Wind Energy day on August 16, 1997. Forty percent indicated they had been to the site to see how it works. The most common reaction was a sense of "awe" or express "amazement," while others find the rotating turbines "calming." For some the experience was "almost spiritual."

**Attitudes towards Wind Power**

The advantage or disadvantage of ten wind power characteristics were evaluate before and after the Searsburg Wind Power Project’s construction. A comparison of these ratings is shown in Figure 1 with the operational phrase from each statement. Eight of these characteristics were seen as significantly more advantageous after the project’s construction. The increased acceptance is particularly great relative to possible visual and sound impacts of turbines in the landscape. There was no significant change in two characteristics: wind power’s relative cost, and the possibility of using land under the turbines. This pattern is essentially the same for Searsburg residents compared to residents of the other towns.

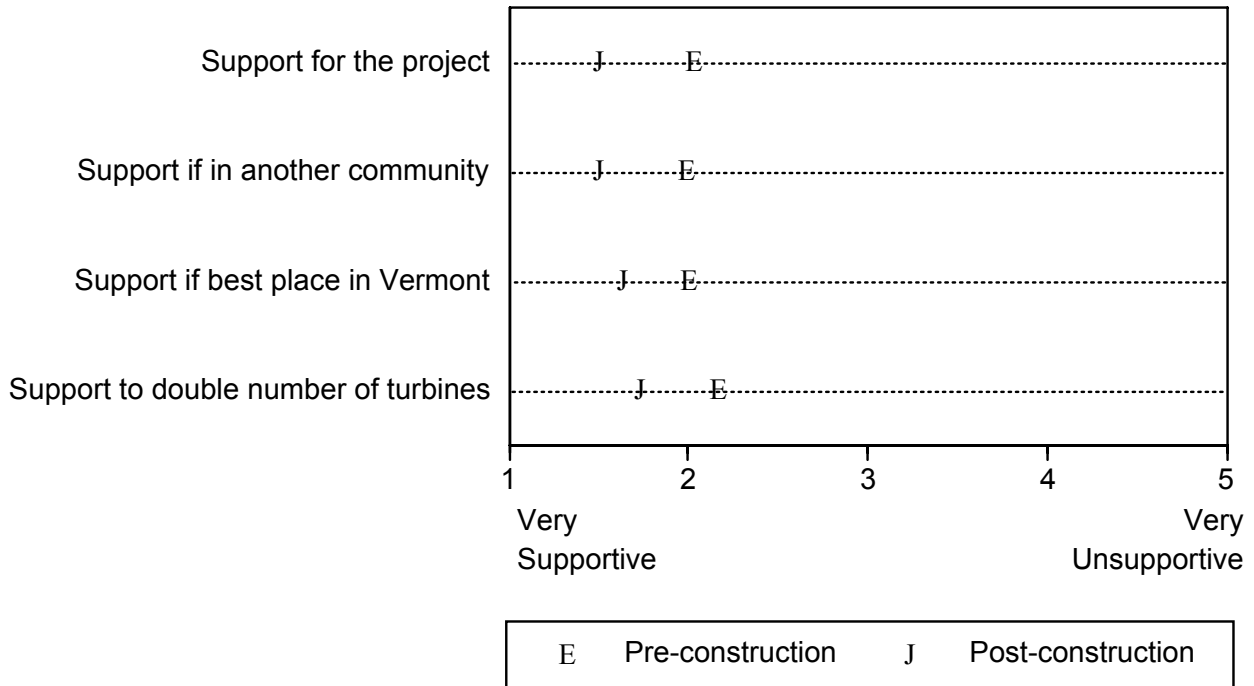


**Figure 1. Comparison of ratings made pre- and post-construction of statements about wind power plants.**

### Support for the Searsburg Wind Power Project

Respondents were asked four questions in 1996 and 1997 to gauge their support for the Searsburg Wind Power Project. The results plotted in Figure 2 show a substantial increase in support for the project. However, this positive shift is not as strong among Searsburg residents.

Clearly, a large portion of this positive shift is based on the respondents' assessment of the completed project rather than the expectations they had prior to construction. As one person wrote, "I think once the turbines were up that people's initial doubts or fears lessened. There is nothing like seeing them 'in the flesh.' Anyone I've talked to thinks they're great." People seem appreciative of Green Mountain Power's efforts to explain the project and what possible impacts it would have on them. "Keep the approach and process, it's good public relations," was one of the comments.

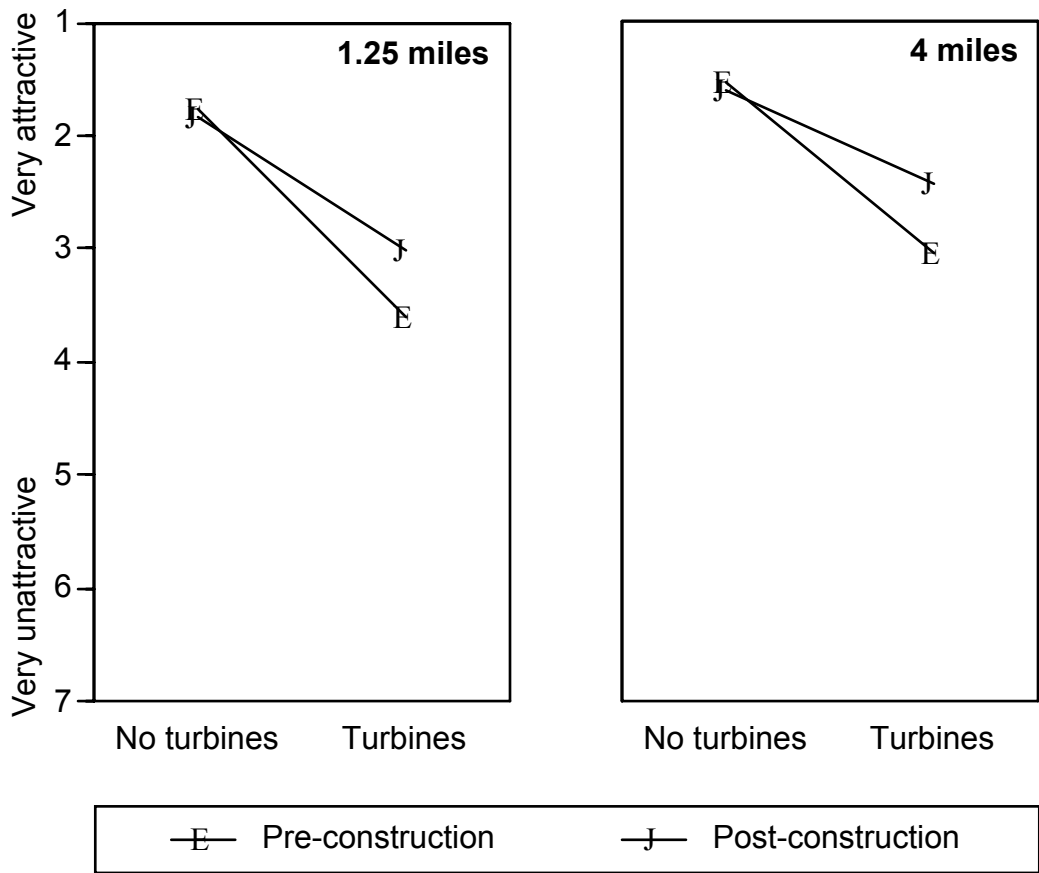


**Figure 2. Comparison of ratings made pre- and post-construction of support for Searsburg Wind Power Project.**

### Visual Quality of the Searsburg Wind Power Project

As part of both surveys, respondents evaluated the scenic quality of 4.5-by-6.5 inch monochrome images of the Searsburg site seen from 1.25 and 4 miles away, before and after the turbines were constructed. The evaluation of the site without the turbines remained virtually unchanged over the intervening year and a half. While the turbines have a significant negative visual impact on the scene, it is significantly reduced in the second survey. This is yet another indication of increased acceptance of the project following its constructions. The evaluations by Searsburg residents is the same as those from residents in other towns.

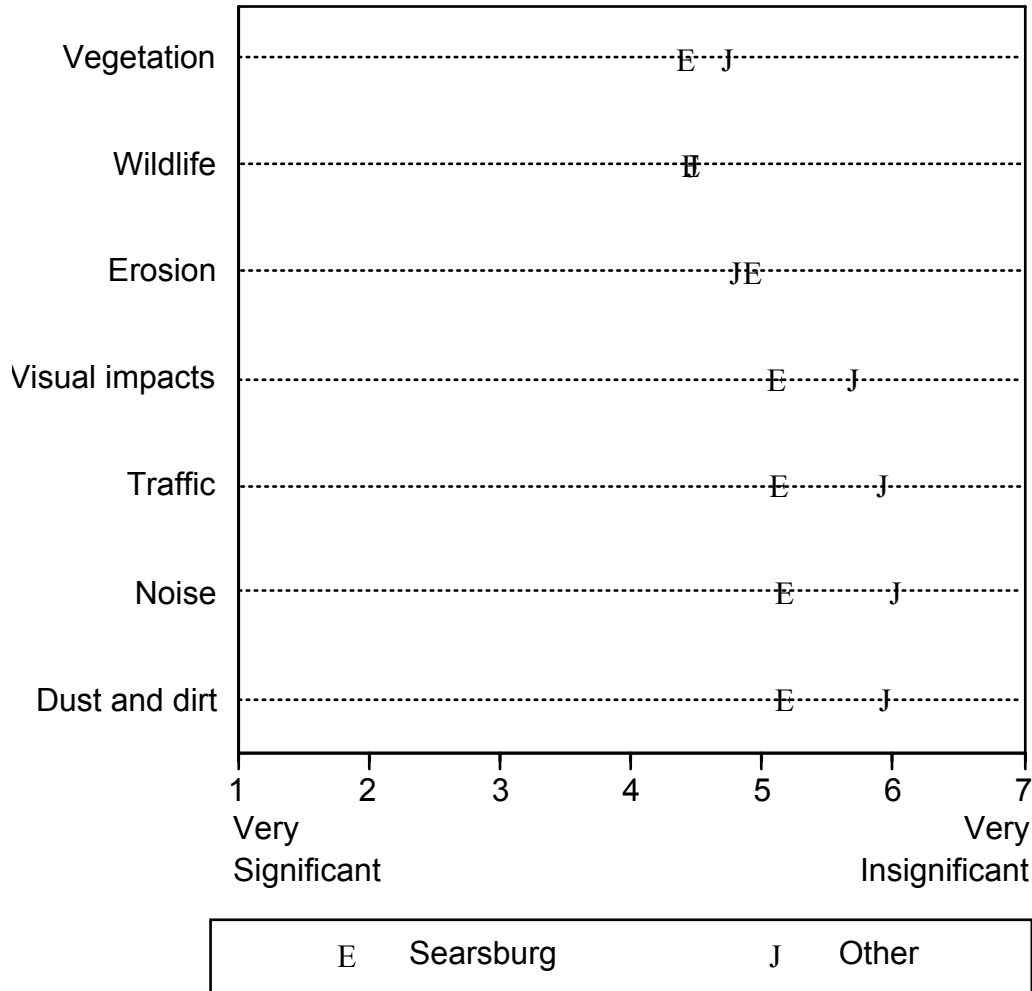
There is very strong support for the truthfulness of these simulations. Nearly half of the respondents judged them to be very accurate, and less than 5 percent indicated they were inaccurate. Many indicated that simulating the movement of the turbine blades and adding color would be an improvement. As one respondent wrote, “I think these are a valuable tool in the initial presentation of the concept. They are essential to making a reasonable decision about the impact of the installation.”



**Figure 3. Comparison of ratings made pre- and post-construction of the Searsburg Wind Power Project with and without the wind turbines.**

### Construction-related Effects of the Searsburg Wind Power Project

The assessment of the construction-related effects by residents of Searsburg and the neighboring towns is shown in Figure 4. All effects were judged of insignificant severity. The assessment of effects to wildlife and erosion are virtually identical for the two groups. The local Searsburg residents judged the effects to be more significant than other respondents.



**Figure 4. Comparison of ratings made by Searsburg and other respondents of the impacts related to construction of the Searsburg Wind Power Project.**

### **Influence of Pre-construction Support for Wind Power**

The Searsburg Wind Power Project is the largest wind power facility east of the Mississippi River. Vermont is a state noted for sensitivity to environmental issues and its landscape qualities. When this study began, the public's reaction was uncertain.

Support for wind power in general was mixed at the time of the pre-construction survey. Approximately 30 percent of the respondents were big supporters of wind power, 36 percent were moderate supporters, and 35 percent were not supporters. This section summarized how this initial level of support for wind power influenced changes in attitudes found in the post-construction survey.

Support for wind power grew in the year and a half between the two surveys. Over half of the respondents are big supporters after completion of the Searsburg project, 30 percent were moderate supporters and less than 20 percent are non-supporters. In general, people tended to retain their level of support or move up one level. Level of support fell for only a few respondents.

**Support for Searsburg Wind Power Project.** In the pre-construction survey, level of support for wind power appears to determine the level of support for the Searsburg Wind Power Project. This support increased in the post-construction survey so that initially big and moderate supporters of wind power have similar assessments of the Searsburg project. Their support remains significantly stronger than initial non-supporters of wind power.

**Scenic value.** Initial level of support for wind power has a large effect on the post-construction scenic evaluations. As initial level of support for wind power increases, higher scenic ratings are given to all scenes. However, the ratings of big and moderate supporters are somewhat similar, and they are both significantly higher than non-supporters.

**Construction related effects.** There is no apparent relationship between initial level of support for wind power and judgments about the significance of impacts experienced from the construction of the Searsburg project.

## **INTRODUCTION**

This report presents the findings of the second in a projected three phase study of public acceptance of the Searsburg Wind Power Project. The full study is designed to investigate the growth and development of public attitudes related to the project from the time prior to construction, through installation, and finally during normal operation. This project is being constructed by Green Mountain Power Corporation during the late-summer and fall of 1996. It is located on a hill top to the east of State Route 8 in Searsburg, Vermont. The most visible aspect of the project is eleven 550 kilowatt wind turbines. However, a new substation and approximately 1.5 miles of 69 kilovolt transmission line connecting it to the power grid are also being constructed. At 6 megawatts of power, this is the largest wind power facility in the eastern United States.

The 1997 post-construction study was conducted after the Searsburg Wind Power Project was constructed and producing power. The study has four primary objectives:

1. Assessment of the nature and degree of the public's acceptance of the Searsburg Wind Power Project.
2. Investigation of any change between pre- and post-construction attitudes toward the Searsburg Wind Power Project.
3. Assessment of environmental effects associated with the construction phase of the project.
4. Evaluation of how visible the project is and how well the simulations represented the project's visual qualities.

### **Summary of Pre-construction Survey**

The pre-construction survey used a mailed questionnaire sent in April 1996 to all Searsburg residents, and a random sample of residents in the 4 towns bordering Searsburg. Sixty-three percent of the sample completed the survey. These same 345 respondents have also agreed to be part of a panel to complete future surveys about the project.

The study investigated public attitudes, preferences and opinions about (1) environmental and related energy issues, (2) power generation fuels, (3) wind power plants in general, (4) the Searsburg Wind Power Project specifically, and (5) the visual quality of the Searsburg project. Following are the general findings from the pre-construction survey.

*Environmental and energy.* There was very strong agreement about the need for environmental protection and energy conservation. However, there was no sense of crisis and no one appeared willing to pay significantly more to make things change. In the context of these questions, wind power is clearly an acceptable alternative in Vermont.

*Power generation fuels.* Overall, there was a desire to increase the amount of wind and hydro produced electricity within the overall mix of fuels. Natural gas and burning municipal waste were without change from their present use. A decrease was indicated for wood, nuclear, oil and coal.

*Wind power plants.* The highest rating in this survey was given in support of wind power plants for not polluting the air or water. Another big advantage was that it is a source of power that can be produced and used locally. More modest advantages were its cost, the potential for multiple land use, and local tax payments. It was a slight disadvantage that turbines must be placed on hill-tops, that they may injure birds, that the wind does not always blow, and that neighbors may hear them.

*Searsburg Wind Power Project.* There was clearly solid support for the project. This was so whether the project is in Searsburg or some other location in Vermont. There was less support for doubling the number of turbines at the current location.

*Visual quality.* There was a significant visual impact from the introduction of the turbines.

In addition to reporting results for the complete group of respondents, three ways of subdividing the responses were also considered: (1) seasonal and year-round residents, (2) Searsburg and neighboring residents, and (3) the degree of supportiveness of the Searsburg project.

*Seasonal and year-round residents.* Forty percent of the respondents were seasonal residents, many of whom have permanent addresses outside of Vermont. Forty-one percent of the seasonal residents knew about the survey prior to receiving the questionnaire, compared to 79 percent of the year-round residents.

Both groups of respondents had similar attitudes toward environmental issues. However, the seasonal residents were more sensitive to the presence of wind turbines and their visual effects to Vermont's landscape. Seasonal residents were also less concerned about tax benefits from a local power facility, or other local

benefits. Seasonal residents were much less likely to support the Searsburg project than year-round residents.

*Searsburg and other residents.* Fourteen percent or 47 of the respondents lived in Searsburg. Ninety-one percent of the Searsburg residents were aware of the project prior to receiving the questionnaire, compared to fifty-nine percent of the other respondents. Overall, the pattern of responses for these two groups was very similar, including the perceived benefit of wind power to the environment, its cost relative to other power sources, and its contribution to the local tax base. However the Searsburg respondents were slightly more critical of how well wind power facilities visually fit into the landscape.

*Supportiveness of the Searsburg project.* The respondents were divided roughly into thirds, those who were very supportive of the Searsburg project, those who were supportive, and those who were uncertain or unsupportive. The more supportive the respondent, the more likely that they knew about the project before receiving the questionnaire in the mail. All three groups have similar opinions about the need for environmental protection. However, level of support for the project is directly related to the belief that greater energy conservation is needed. A more positive attitude toward wind energy in general was also directly correlated with support for the project. All three groups gave similar visual quality ratings to the two pre-construction views. However the most supportive group saw the presence of the wind turbines as being only a slight impact, while the least supportive saw it as being a severe impact.

## **METHODS**

### **Questionnaire**

A questionnaire was developed for the year one post-construction study to investigate public perceptions relative to the five substantive themes. The first section focuses on the extent to which 12 characteristics of wind power projects are judged to be advantageous or disadvantageous. Ten of these questions are repeated from the 1996 pre-construction survey. The second section seeks to gauge the degree of support for the Searsburg project by using 4 questions from the 1996 survey. The third section asks respondents about how they were effected by the Searsburg Wind Power Project's construction. The fourth section focuses of visual quality issues. It identifies how frequently they see the Searsburg project, as well as from where and in which season they can see it. Respondents then rate the attractiveness of the Searsburg site with and without the wind project, as seen from 1.25 and 4 miles away using the same simulations included with the 1996 survey. This time they also are asked to evaluate the effectiveness of these simulations in portraying how the Searsburg project actually looks. They are encouraged to describe any reactions to the project, how it looks, or the simulations. The final section collects information about the respondents. It includes a profile of their outdoor recreation participation and how they have continued to keep informed about the project.

The survey mailings consisted of:

- a cover letter from John Zimmerman, President of Vermont Environmental Research Associates,
- the four page questionnaire,
- pre and post-construction half tone images of the turbines from two views,
- an address card for future mailings,
- a post-paid return envelope for the questionnaire.

Copies of these materials are included in the appendix accompanying this report.

**Sample**

The 1996 pre-construction survey indicated that respondents would be invited to participate in two follow-up surveys. The original survey went to every house in Searsburg and a random sample of households from the other four populated towns surrounding of the wind power project site. An accompanying letter introducing the survey invited the adult most recently celebrating his or her birthday to complete the questionnaire and participate in a follow-up survey. There was a 63 percent response rate to the pre-construction survey. A total of 345 households responded to the pre-construction survey. An additional six responses were returned after the cut-off date for inclusion in the pre-construction survey report. These six responses were added to the pre-construction survey data base for future analysis.

Questionnaires were mailed to these 351 addresses on September 18, with a follow-up postcard reminder sent to those not responding by September 29, 1997. The response statistics for the year one post-construction sample are summarized in Table 1. Twelve of these questionnaires could not be delivered because the respondent had moved without leaving a forwarding address, or was unavailable for some other reason. A total of 250 responses were received by November 21, for a response rate of 73.7 percent.

**Table 1. Sample Related Aspects of the 1997 Post-construction Survey**

---

Sampled addresses	351
Not deliverable	12
Total Usable Sample	339
Responses	250
Response Rate	.737

---

An attempt was made to telephone a sample of 30 non-respondents on November 25 to determine why they chose not to participate. Twenty-six or 86.7 percent could not be contacted because there was no answer, or the phone was disconnected. Two or 6.7 percent indicated they did not receive the survey in the mail or knew nothing about it. Another 6.7 percent indicated they had moved from the area and felt it inappropriate to respond.

### **Notes on Statistical Usage**

The report makes use of some basic statistics that may not be familiar to all readers. Therefore a short explanation may be helpful to some. The actual calculations of the statistics used in this report were done with Data Desk (Vellman 1995), an exploratory data analysis program for the Macintosh computer.

The results of the analyses are generally reported as percentages or averages (i.e., means). Readers are warned that percents may not total to exactly 100 because of rounding error. When the percentage distributions of groups are compared, the  $X^2$  (chi-squared) statistic is used to test if the observed differences could be explained by random variation within the data. When the mean ratings of two groups are compared, a  $t$ -test is used to determine if they are sufficiently different from one another as to be unlikely to have occurred by chance. An analysis of variance  $F$  statistic is used to test whether the difference among several groups' means is greater than the variation within each group would suggest. The statistical significance of these three tests are reported as a probability or  $p$  value. A value smaller than .050 is generally accepted by statisticians as being significant. It means that the observed pattern or value would be expected to occur once in twenty times from random variations in the data alone. The reader is cautioned not to blindly accept results based on statistical significance, which are simply a statement of probability. The importance of results must rely on the interpretation of the reader.

## YEAR ONE POST-CONSTRUCTION

### Respondents' Profile

**Background characteristics.** The demographic information gathered from the post-construction survey is abbreviated, since the targeted respondents had participated in the pre-construction survey. As shown in Table 2, just over 60 percent of the respondents are men. The average age of the group is 55 years.

**Table 2. Background characteristics of respondents: 1997**

		Percentage
<b>Gender:</b>	Male	61.9
	Female	38.1
<b>Age:</b>	18 to 24 years	0.0
	25 to 34 years	5.4
	35 to 44 years	19.6
	45 to 54 years	24.2
	55 to 64 years	24.6
	65 to 74 years	19.6
	over 75 years	6.7

*Note:* n = 247.

**Outdoor recreation participation.** Each respondent was asked to provide a profile of how frequently they engage in 12 outdoor recreation activities. The responses are shown in Table 3. Most respondents hike or walk for recreation; 40 percent do it frequently. Nature study and downhill skiing are occasional activities, followed by fishing and motor boating. More occasional activities include camping, cross-country skiing, picking edible plants, snowmobiling, and hunting. The least common activity involves off-road vehicles, which are never used by 80 percent of the respondents.

**Table 3. Recreation participation: 1997**

Recreation activity	Percentage			Mean
	Frequently	Occasional	Never	
Hiking or walking	39.5	52.8	7.7	1.68
Nature study or bird watching	18.1	45.6	36.3	2.18
Downhill skiing	27.4	23.4	49.2	2.22
Fishing	12.5	43.5	44.0	2.31
Power or motor boating	16.9	31.5	51.6	2.35
Camping	10.5	34.7	54.8	2.44
Cross-country skiing	12.5	29.8	57.7	2.45
Picking edible plants	7.7	28.2	64.1	2.56
Canoeing or kayaking	6.0	29.4	64.5	2.58
Snowmobiling	11.7	18.5	69.8	2.58
Hunting	11.7	13.3	75.0	2.63
Off-road vehicles or ATVs	8.1	11.7	80.2	2.72

*Note:* n = 248. Means are calculated using 1 = frequently, 2 = occasionally, and 3 = never.

**Knowledge of the Searsburg Wind Power Project.**

All the respondents were aware of the Searsburg project because they had responded to the pre-construction survey and were subsequently placed on the mailing list to receive Green Mountain Power's newsletter, *Wind Power News*. During the past year and a half, 40 percent indicated that they had been to the project site to see how it works and what it looks like. However, they were asked how they had heard about the Searsburg Wind Power Project since the last questionnaire (April 1996). Their responses are listed in Table 4.

Close to 90 percent identified *Wind Power News* as a source of information about the project. Almost 60 percent also kept up on the project's progress through newspaper or radio reports. Approximately half saw some construction activity and 37 percent learned about it from friends. On August 16 Green Mountain Power held Wind Energy Day, an open house for the public to learn about the project and other energy topics. Over 20 percent of the respondents indicated that Wind Energy Day was a source of information for them.

**Table 4. Sources of information during past year: 1997.**

Source	Percent
Newsletter from Green Mountain Power	88.5
Newspaper or radio report	58.8
Saw construction activity	51.0
From friends or acquaintances	37.4
Wind Energy Day activities (August 16, 1997)	21.8
Some other source	6.2

### **Attitudes Toward Wind Power Plants**

The respondents' attitudes toward wind power was gauged by asking how much they agreed or disagreed with twelve statements about commonly cited advantages or disadvantages. Table 5 summarizes their responses.

Almost 90 percent of the respondents think that a very big advantage of wind energy is that it does not pollute the air or water. Eight-one percent see health safety as also being a very big advantage. That it is a locally produced source of energy is identified as a big advantage by three-quarters of the respondents.

Wind power turbines also receive solid support for several other characteristics. There is strong support among 60 percent of the respondents for being able to see the wind turbines producing power. Over half of the respondents find the clustering of wind turbines in several places is preferable to building a large conventional power plant. Of much less importance are the project's contribution to the local tax base, its cost relative to other energy sources, and the possibility of finding other compatible uses for land surrounding the turbines. There is only a very slight advantage to the need for wind turbines to be placed on ridges, making them highly visible.

Three attributes were generally considered to be disadvantages. Forty-six percent of the respondents expressed some concern about possible noise from the turbines. The fact that the wind does not blow all the time was also identified as a concern by 46 percent of the respondents. Possible impacts to wildlife were a possible concern for 31 percent of the respondents. However, large percentages of the respondents also indicated that they were unsure about the advantage or disadvantage of these three characteristics.

**Table 5. Ratings of statements about wind power: 1997.**

Statement	Percentage							Mean Rating
	Big Advantage	Advantage	Slight Advantage	Unsure	Slight Dis-advantage	Dis-advantage	Big Dis-advantage	
It does not pollute either the air or water.	88.4	7.2	2.0	1.2	0.0	0.8	0.4	1.21
Wind energy is safe for my healthy and my family's.	80.6	13.8	2.0	3.2	0.0	0.0	0.4	1.30
It's an energy source that can be produced and used locally.	74.6	16.9	3.6	4.4	0.0	0.0	0.4	1.40
I like seeing wind turbine blades turning, knowing they are producing electricity our community is using.	41.5	19.1	16.7	12.2	4.4	3.7	2.4	2.43
Small clusters of wind turbines can be located in several places to produce as much power as a conventional power plant in one place.	34.8	21.6	16.8	19.6	2.8	1.2	3.2	2.50
The wind power facility will increase the local tax base and lower property taxes.	27.7	15.7	19.3	35.3	0.4	1.2	0.4	2.70
Its cost relative to other sources.	31.7	10.4	14.9	37.8	1.6	1.6	2.0	2.80
Land under wind turbines can be used for some other purposes.	23.7	21.2	20.4	26.5	4.9	1.2	2.0	2.80
Wind turbines must be on hill-tops to intercept strong winds resulting in man-made structures on the Vermont landscape.	35.5	14.1	9.1	11.6	15.3	5.4	9.1	3.10
Wind turbines' impact on birds and wildlife (which is not well understood, and may be negative).	5.6	5.2	14.5	43.8	13.7	10.4	6.8	4.13
Wind power is not reliable because the wind does not blow all the time.	1.7	3.7	18.3	30.3	27.0	10.4	8.7	4.43
Wind turbines may make sounds heard by neighboring residences.	2.4	3.2	12.5	35.7	23.3	13.7	9.2	4.52

Notes : n = 250 Means are based on ratings with 1 = a big advantage and 7 = a big disadvantage.

**Attitudes Toward Searsburg Wind Power Project**

Four questions were asked to gauge the support for the Searsburg Wind Power Project. The results in Table 6 show that two-thirds of the respondents are very supportive of the Searsburg Wind Power Project, and another 23 percent are supportive. Only 11 percent indicate some uncertainty or level of unsupportiveness. These figures remain virtually unchanged when the question is whether such a project would be in a community other than their own. When asked about their support if their community were the only suitable location for such a wind power project, 58 percent would be very supportive and 28 percent supportive. Fifty-nine percent of the respondents are very supportive of doubling the number of turbines at the Searsburg site if it becomes a demonstrated success; an additional 21 percent are supportive.

**Table 6. Ratings of the Searsburg Wind Power Project: 1997.**

Statement	Percentage					Mean Rating
	Very Supportive	Supportive	Uncertain	Unsupportive	Very Unsupportive	
From what you know about this wind power project, how supportive of it are you?	66.3	22.8	6.1	1.6	3.3	1.53
If this project were located in or near a community other than your own, how supportive would you be of it?	64.5	23.4	8.5	2.0	1.6	1.53
Assuming that there are no other places in Vermont better suited for a project of this type, how supportive would you be of this project in your community?	58.0	27.8	7.8	2.9	3.7	1.67
If the project is technically successful, how supportive would you be of doubling it's output from 11 to 22 turbines?	58.9	21.0	11.3	3.2	5.6	1.76

Notes : n = 248. Mean are based on ratings with 1 = very supportive and 5 = very unsupportive.

**In their own words.** The 100 respondents who had been to the project site to see how it works and what it looks like were asked to share what they thought. Of the seventy-eight offering responses, 19 percent were negative and 81 percent were

positive. Their responses fall into five general categories, as summarized in Table 7.

Two-thirds of the aesthetic responses were positive, while a third were negative. Most found them "very attractive," and "fascinating to watch--works of art." Others found them an "ugly reminder of commercialism" that "ruins the view" and is a "ghostly intrusion on the natural landscape." Sound was mentioned by a few people. Most indicated that the turbines were "pretty quiet," but one wrote that "it's OK, but I hear them at night and it is sort of disturbing to listen to since we are in such a desolate area."

Emotional responses are by far the most common. Of these, over 90 percent are positive. Many report feeling a sense of "awe" and express "amazement," while others find them "calming." For one respondent the experience was "surreal--similar to seeing Yankee Rowe for the first time many ears ago--all that technology working quietly in the woods." For another it was "almost spiritual." Only 9 percent of the emotional responses are negative, such as "[I feel] annoyed" and "I live close enough to know I don't like them."

Just over half of the environmental comments were positive. Most indicated that the project seemed to "do as little damage as possible to the area" and that they were "eco-friendly." Negative comments concerned the "removal of vegetation," and possible "disruption to wildlife." One respondent was left to "wonder what the moose in the area think of it?"

Ninety percent of those commenting on the technology had positive observations. They commented on the "impressive workmanship," and interest in it as an "engineering achievement." The only negative comment indicated concern with their "viability in our climate."

All the utilitarian comments were positive. These people were pleased to "see nature at work" and think of it as a "good way to produce power."

**Table 7. Summary of comments from those who visited the site.**

	Percent
Aesthetic	16.7
Emotional	43.6
Environmental	14.1

*Public Acceptance Study : Year One Post-construction*

Technological	15.4
Utilitarian	10.3

---

**Construction-related Effects of the Searsburg Wind Power Project**

During the eighteen months between the 1996 and 1997 surveys some of the respondents saw the construction and testing of the Searsburg Wind Power Project. This year one post-construction survey sought to determine whether the respondents thought there were any significant environmental effects from this construction activity. The results in Table 8 indicate all the construction effects were somewhat insignificant.

Respondents seem most uncertain about disturbance to wildlife during construction. They also are most uncertain about damage to vegetation and construction related erosion. The other construction effects were clearly thought to be insignificant. Forty-four percent found the visual effects of the construction activity to be very insignificant. Half found the increased traffic congestion to be very insignificant. Fifty-two percent indicated that the increased dust and dirt from construction activity was very insignificant. Noise associated with construction activity was very insignificant for 54 percent of the respondents.

**Table 8. Significance of Searsburg project construction impacts.**

Statement	Percentage							Mean Rating
	Very Significant	Significant	Slightly Significant	Uncure	Slightly Insignificant	Insignificant	Very Insignificant	
Disturbance to wildlife during construction.	6.5	4.5	8.1	40.7	9.8	12.2	18.3	4.52
Removal or damage of vegetation during construction.	4.5	3.7	11.4	32.5	10.6	17.1	20.3	4.74
Erosion resulting from construction activity.	3.7	3.7	5.7	39.0	9.4	15.4	23.2	4.86
Visual effects from construction activity.	3.3	4.1	4.9	11.1	7.8	24.3	44.4	5.67
Increased traffic congestion or delays.	1.6	2.0	4.1	11.8	12.2	18.7	49.6	5.85
Dust and dirt from construction activity.	2.4	2.4	4.1	11.4	6.5	21.1	52.0	5.89
Noise from construction activity.	2.8	1.6	3.7	11.0	5.7	21.1	54.1	5.95

Note: n = 246. Mean are based on ratings with 1 = very significant and 7 = very insignificant.

**Visual Quality of the Searsburg Wind Power Project**

**Visibility.** Respondents were asked how often they normally noticed the Searsburg Wind Power Project. The results are listed in Table 9. Eighteen percent indicated that they noticed the wind turbines at least daily. Another 44 percent indicated that they noticed them at least a couple times during the week. Thirty-eight percent indicated that they noticed them only once a month or even less frequently.

When asked how frequently they recreated in areas where the Searsburg Wind Power Project was visible, 28 percent responded frequently, another 49 percent responded occasionally, and 23 percent responded never.

**Table 9. How often do you normally notice the Searsburg wind power project?**

Frequency	Percent
Many times a day	6.2
Once or twice a day	11.9
Couple times a week	18.9
Couple times a month	24.7
Once a month	7.8
Not even once a month	30.5

Since the wind turbine towers had been installed for a year at the time of the post-construction survey, it was possible for the respondents to identify how frequently they see the project, during which season it is visible, and from where. Table 10 summarizes the responses to these questions. Whether it is summer or winter, the great majority of respondents cannot see the project from their home, the home of friends or relatives, or the place where they work. However, it is a clearly visible to half the respondents when they drive around the area, and a little visible to an additional third.

**Table 10. From where can you see the Searsburg wind power project?**

Season: Location	Percentage			Mean
	Not visible	A little visible	Clearly visible	
<b>Summer:</b> Your home	86.3	3.3	10.4	1.24
Friend or relative	74.7	12.0	13.3	1.39
Your place of work	92.1	2.9	5.0	1.13
While driving in the area	16.2	36.5	47.3	2.31
<b>Winter:</b> Your home	83.7	4.4	11.9	1.28
Friend or relative	71.8	12.8	15.4	1.44
Your place of work	90.7	3.5	5.7	1.15
While driving in the area	15.4	30.0	54.6	2.39

*Note:* n = 241 in summer and 227 in winter. Means are calculated using 1 = not visible, 2 = a little visible, and 3 = clearly visible.

**Scenic quality.** Respondents used black and white simulations to evaluate the visual quality of the project site both without and with the wind turbines at a distance of 1.25 and 4 miles from the project. The results in Table 11 show a clear preference for the site before construction of the project, though it is still judged an attractive landscape with the turbines clearly visible.

A two-way analysis of variance (ANOVA) indicates that the longer view is more attractive ( $F = 18.3, p < .0001$ ), and the presence of the wind turbines has a significant negative impact on attractiveness ( $F = 113.8, p < .0001$ ). There is a mild tendency for the visual impact being less severe for the far view than for the near view. However, this interaction between the distance of the view and the presence of the wind turbines is not statistically significant ( $F = 3.1, p = .078$ ).

**Table 11. Ratings of Searsburg wind power project simulations.**

View	Percentage							Mean Rating
	Very Attractive	Attractive	Slightly Attractive	Unsure	Slightly Unattractive	Unattractive	Very Unattractive	
View A: 1.25 miles away, no turbines	55.9	23.5	11.8	3.4	2.5	1.3	1.7	1.84
View B: 4 miles away, no turbines	62.8	24.4	8.5	1.7	0.9	0.4	1.3	1.60
View C: 1.25 miles away, with turbines	23.8	25.4	19.6	8.8	9.6	5.4	7.5	3.01
View D: 4 miles away, with turbines	30.7	34.9	16.0	6.7	4.6	4.2	2.9	2.44

Notes : n = 240. Mean are based on ratings with 1 = very attractive and 7 = very unattractive.

**Simulation quality.** With completion of construction, respondents are able to share their judgment of how well the visual simulations used in the surveys represent the way the Searsburg project actually looks. As reported in Table 12, 47 percent of the respondents thought the simulations were very accurate, and an additional 40 percent thought they were somewhat accurate. Fifty-three of the respondents responded to our request to verify their judgment of accuracy by going someplace where they could see the simulations, while the remaining 168 responded from memory. There is no significant difference between those who went someplace where they could see the wind turbines to check the simulations' accuracy and those who made their judgment from memory ( $t = .08, p = 0.933$ ).

**Table 12. How accurate do you think the simulations are when compared to the actual project?**

Frequency	Percent	Checked outside?	
		Yes	From memory
Very accurate	46.6	50.9	47.6
Somewhat accurate	40.3	39.6	41.1
Uncertain	8.5	1.9	7.1
Somewhat inaccurate	3.4	5.7	3.0
Very inaccurate	1.3	1.8	1.2
Number of responses	236	53	221

*Note:* 24% checked accuracy in the field, the remainder responded from memory. There is no significant difference between these two groups ( $\chi^2 = 2.95, p = 0.566, df = 4$ ).

A more difficult question is how well any static medium, such as a photograph, can represent a dynamic feature, such as the Searsburg wind turbines. The results reported in Table 13 show that 48 percent think it is unimportant to show the movement of the wind turbines, while 39 percent think that the movement is an important characteristic that should be represented by the simulations.

**Table 13. How important do you think it is that the simulations show the wind turbines moving?**

Frequency	Percent
Very important	10.9
Somewhat important	28.2
Uncertain	13.0
Somewhat unimportant	24.8
Very unimportant	23.1

Respondents were also invited to share any comments about the simulations or their use to explaining the project to the public. Almost everyone agrees that the simulations are very accurate. However, several indicated that "people should see and hear for themselves before drawing any conclusions."

There seemed to be substantial support for the use of simulations. "They are an excellent tool!" "They were a valuable tool in the initial presentation of the concept; essential to making a reasonable decision about the impact of the installation." "Keep the approach and process. It is good public relations."

The most common criticism is that the simulations are black-and-white rather than color. Several commented that a view closer than a mile away would have been included. A couple people also indicated that they thought movement would be an important addition, perhaps through a video simulation. A couple of people also thought that the turbines "look bigger in real life."

An artifact of photographs is that they draw attention to aspects of our environment that fade into the background as we become accustomed to them. For instance, several people commented about the overhead wires in the pre-construction views. However, one respondent indicated that this was an unfair representation, since "when actually on the road, the wires are not as noticeable to the viewer."

Similarly, another respondent wrote "the reality is that I don't see or think about the turbines while driving from Wilmington to Bennington."

## COMPARISON OF PRE- AND POST-CONSTRUCTION RESPONSES

A primary objective of the one year post-construction survey is to investigate how the public's acceptance of the Searsburg Wind Power Project may change from the just before construction commenced until just after it was placed in service. Five themes were investigated in both the 1996 pre- and 1997 post-construction surveys: (1) respondent background characteristics, (2) sources of information about the project, (3) attitudes toward wind power, (4) attitudes toward the Searsburg Wind Power Project, and (5) pre- and post-construction scenic value of the project.

### Respondents' Profile

**Background characteristics.** Two demographic characteristics were obtained from respondents to the 1997 survey. As shown in Table 14, slightly more females responded to the second than the first survey. There were more respondents from the first survey in the over 75 years old age group, compared to the second survey. In the second survey, it was the 35 to 44 years old group that was larger than expected. Taken together, these two demographic attributes indicate that 24 respondents to the second survey were not the same person who responded to the first survey. While this accounts for 10 percent of the respondents, it is not likely a cause for serious concern. Members of the same household are more likely to share opinions concerning social issues than are people from different households. While a change in the household member responding to the survey does introduce potential error, it is not anticipated that it will bias the results.

Based on this demographic comparison, it appears that all but 13 of the 250 respondents are the same person in both surveys.

**Table 14. Comparison of respondents characteristics: 1996 and 1997.**

		Percentage	
		1996	1997
<b>Gender:</b>	Male	64.7	61.9
	Female	35.3	38.1
<b>Age:</b>	18 to 24 years	0.9	0.0
	25 to 34 years	6.5	5.4
	35 to 44 years	6.5	19.6
	45 to 54 years	22.2	24.2
	55 to 64 years	26.9	24.6

*Public Acceptance Study : Year One Post-construction*

65 to 74 years	19.1	19.7
over 75 years	17.9	6.7

---

*Note:* Respondents in 1996 n = 331, and in 1997 n = 247.

**Prior knowledge of wind power generation facilities.** In 1996, prior to the commencement of construction, one-third of the respondents had not heard of the Searsburg Wind Power Project. The results in Table 15 show how the way people learn about the project and wind power changed in the year and a half between the two surveys. Almost 90 percent of the respondents read *Wind Power News*, the newsletter from Green Mountain Power, while only a third read it before the construction began. Also, half of the respondents saw construction activity during the past year and a fifth went to the Wind Energy Day activities. Virtually no one had seen activity on the site prior to commencement of construction. Awareness through the news media and in discussions with friends has also increased, though not as much as one might expect. No public meetings were held concerning the project in the past year and a half, so this was not a source of information in 1997.

**Table 15. Sources of information during past year: 1996 and 1997**

Source	Percent	
	1996	1997
Newsletter from Green Mountain Power	37.7	88.5
Newspaper or radio report	44.2	58.8
Saw construction activity	0.4	51.0
From friends or acquaintances	29.0	37.4
Wind Energy Day activities (August 16, 1997)	- -	21.8
Public meeting	8.7	- -
Some other source	5.2	6.2
Not heard	36.8	- -

### **Attitudes toward Wind Power Plants**

Ten statements about the advantages or disadvantages were evaluated by respondents to both surveys. Table 16 shows the mean ratings in 1996 and 1997, as well as the results of a Paired-*t* test of the statistical significance of the change between surveys. Respondents gave their highest ratings in both surveys to the first two statements. Even so, there is a highly significant increase in their support of wind power because it does not pollute the air or water, and because it is a locally produced and used source of energy. Respondents also expressed a significantly greater interest in liking to see the turbine blades turning and knowing that they are producing electricity for their community.

There is no significant change in their attitude towards the next three advantages: increased local tax base, cost relative to other sources, and potential for multiple-use of the land.

The changes in attitude toward the final four statements are statistically significant. During the first survey, respondents were clearly uncertain about the advantage or disadvantage of having to place wind turbines on highly visible ridge tops. After the project's construction, respondents came to see this overall as a slight advantage. The potential impacts to wildlife was seen as a slight disadvantage in 1996, but changed to an uncertain rating in 1997. Prior to construction, the unreliability of wind and the potential of noise from the turbines were seen as real disadvantages. In 1997, concern for these disadvantages was significantly reduced.

**Table 16. Comparison of ratings of statements about wind power plants: 1996 and 1997**

Statement	Mean		Paired <i>t</i>	<i>p</i>
	1996	1997		
It does not pollute either the air or water.	1.37	1.21	3.44	0.0007
It's an energy source that can be produced and used locally.	1.86	1.40	5.56	< .0001
I like seeing wind turbine blades turning, knowing they are producing electricity our community is using.	2.80	2.43	3.30	0.001
The wind power facility will increase the local tax base and lower property taxes.	2.89	2.70	1.64	0.102
Its cost relative to other sources.	2.72	2.80	-0.63	0.528
Land under wind turbines can be used for some other purposes.	2.92	2.80	0.85	0.398
Wind turbines must be on hill-tops to intercept strong winds resulting in man-made structures on the Vermont landscape.	3.97	3.10	6.30	< .0001
Wind turbines' impact on birds and wildlife (which is not well understood, and may be negative).	4.63	4.13	5.07	< .0001
Wind power is not reliable because the wind does not blow all the time.	4.83	4.43	4.56	< .0001
Wind turbines may make sounds heard by neighboring residences.	5.29	4.52	7.69	< .0001

Notes : n = 250 Means are based on ratings with 1 = a big advantage and 7 = a big disadvantage.

**Attitudes toward Searsburg Wind Power Project**

Respondents to the first survey expressed overall support for the Searsburg or a similar wind power project. Table 17 reports the mean ratings and paired-*t* test for the 1996 and 1997 responses. As measured by each question, support has increased significantly in the year and a half. Respondents express strong support for the project, even if it was in their own community or were to double in size.

**Table 17. Comparing ratings of the Searsburg wind power project: 1996 and 1997**

Statement	Mean		Paired <i>t</i>	<i>p</i>
	1996	1997		
From what you know about this wind power project, how supportive of it are you?	2.05	1.53	8.38	< .0001
If this project were located in or near a community other than your own, how supportive would you be of it?	2.01	1.53	7.35	< .0001
Assuming that there are no other places in Vermont better suited for a project of this type, how supportive would you be of this project in your community?	2.02	1.67	4.95	< .0001
If the project is technically successful, how supportive would you be of doubling it's output from 11 to 22 turbines?	2.18	1.76	5.58	< .0001

*Notes* : n = 244. Mean are based on ratings with 1 = very supportive and 5 = very unsupportive.

**Visual Quality of the Searsburg Wind Power Project**

Overall, respondents in both 1996 and 1997 think that the project changes the attractiveness of the site. The mean scenic evaluations from the 1996 and 1997 surveys of the site pre- and post-construction are shown in Table 18. The ratings of the Searsburg site prior to construction of the project did not change meaningfully between 1996 and 1997. However, ratings of the scenic value of the site with the wind turbines in place improved markedly.

These results indicate that the basis of scenic judgments has remained stable -- ratings of the site without the project are stable. However, the significant reduction in perceived scenic impact provides another indication of increasing public acceptance of the project.

**Table 18. Comparing ratings of Searsburg wind power project simulations: 1996 and 1997.**

View	Mean		Paired <i>t</i>	<i>p</i>
	1996	1997		
View A: 1.25 miles away, no turbines	1.76	1.84	- 0.44	0.663
View B: 4 miles away, no turbines	1.53	1.60	- 0.53	0.596
View C: 1.25 miles away, with turbines	3.61	3.01	5.42	≤ 0.0001
View D: 4 miles away, with turbines	3.04	2.44	6.10	≤ 0.0001
Near visual impact (View A – View C)	-1.85	-1.61	-5.0	≤ 0.0001
Far visual impact (View B – View D)	-1.51	-0.84	-5.3	≤ 0.0001
Average visual impact	-1.68	-1.01	-5.3	≤ 0.0001

Notes : n = 226. Means are based on ratings with 1 = very attractive and 5 = very unattractive.

## **PROXIMITY PROJECT AND CHANGE IN ACCEPTANCE**

The NIMBY or “Not in my backyard!” phenomenon has led to gridlock for all kinds of development proposals across the country. This study provides an unusual opportunity to investigate any differences between changes in the pattern of acceptance from those in whose backyard a project is located and other regional residents. There are 34 respondents who live in Searsburg. It is within their backyards that this project is located.

This section compares the post-construction ratings by Searsburg residents and other respondents of wind power, the Searsburg project, their experience with any impacts from the construction, and various questions about the project’s visual quality. In addition, the pre-construction and post-construction responses are compared separately for the Searsburg residents and the other respondents. These comparisons over time are made for the questions that were included in both surveys: attitudes toward wind power, support for the Searsburg project, and the scenic value of the project site before and after the project’s construction.

**Attitudes Toward Wind Power Plants**

The post-construction survey found few differences between the Searsburg residents and the other respondents concerning attitudes toward wind power plants. Table 19 shows that the only statistically significant difference is a slightly less positive feeling among Searsburg residents that wind power provides good health safety. However, overall both groups rate health safety as one of the greatest advantages of wind power -- along with being pollution free and locally produced.

**Table 19. Comparison of 1997 ratings from Searsburg and other residents of statements about wind power plants.**

Statement	Searsburg	Other	<i>t</i> - test ( <i>p</i> )
It does not pollute either the air or water.	1.41	1.18	1.7 (.095)
It's an energy source that can be produced and used locally.	1.44	1.39	0.3 (.754)
Wind energy is safe for my health and my family's	1.55	1.26	2.0 (.044)
I like seeing wind turbine blades turning, knowing they are producing electricity our community is using.	2.18	2.46	0.9 (.362)
The wind power facility will increase the local tax base and lower property taxes.	2.44	2.74	1.3 (.212)
Small clusters of wind turbines can be located in several places to produce as much power as a conventional power plant in one place.	2.47	2.51	0.1 (.890)
Land under wind turbines can be used for some other purposes.	2.70	2.81	0.4 (.668)
Its cost relative to other sources.	3.03	2.76	1.0 (.337)
Wind turbines must be on hill-tops to intercept strong winds resulting in man-made structures on the Vermont landscape.	3.18	3.08	0.2 (.804)
Wind turbines' impact on birds and wildlife (which is not well understood, and may be negative).	4.03	4.15	0.5 (.650)
Wind power is not reliable because the wind does not blow all the time.	4.03	4.50	1.9 (.062)
Wind turbines may make sounds heard by neighboring residences.	4.12	4.59	1.9 (.059)

Notes : Means are based on ratings with 1 = a big advantage and 7 = a big disadvantage.

Table 20 shows how the attitudes of the Searsburg residents and the other respondents have changed over time. Overall, the ratings suggest that all respondents have a greater appreciation for the advantages of wind power than they did before the construction began. For both groups, the potential of wind power as a local source of energy is more appreciated. Now that the turbines are in operation, they are much less concerned that the blades will produce noise that disturbs the neighbors. They are also less concerned about potential danger to wildlife, and problems with reliability of the wind as a source of energy. Both groups, but particularly the Searsburg residents, are appreciative of being able to see the turbine blades turning and knowing that it is producing power for their community. The non-Searsburg residents are now much less concerned that placing the turbines along ridge-tops will create a visual problem. They are also more appreciative since completion of the project that wind energy does not pollute the air or water.

The single possible exception to this greater appreciation is the cost of wind power relative to other sources. While not statistically significant, both groups see cost as less an advantage now that the project is in operation than they did before construction began.

**Table 20. Comparison of 1996 and 1997 ratings of statements about wind power plants from Searsburg and from other residents.**

Statement	Searsburg			Other		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
It does not pollute either the air or water.	1.56	1.41	1.2 (.257)	1.34	1.18	3.2 (.001)
It's an energy source that can be produced and used locally.	1.88	1.44	2.8 (.008)	1.86	1.39	5.0 (≤.0001)
I like seeing wind turbine blades turning, knowing they are producing electricity our community is using.	3.12	2.18	4.0 (.0004)	2.75	2.46	2.4 (.018)
The wind power facility will increase the local tax base and lower property taxes.	2.76	2.44	1.1 (.299)	2.91	2.74	1.4 (.175)
Land under wind turbines can be used for some other purposes.	3.15	2.70	1.1 (.266)	2.88	2.81	0.4 (.696)
Its cost relative to other sources.	2.76	3.03	-0.9 (.369)	2.72	2.76	-0.3 (.738)
Wind turbines must be on hill-tops to intercept strong winds resulting in man-made structures on the Vermont landscape.	3.75	3.18	1.3 (.191)	4.00	3.08	6.2 (≤.0001)
Wind turbines' impact on birds and wildlife (which is not well understood, and may be negative).	4.79	4.03	2.4 (.023)	4.61	4.15	4.5 (≤.0001)
Wind power is not reliable because the wind does not blow all the time.	4.91	4.03	3.1 (.004)	4.82	4.50	3.6 (.0004)
Wind turbines may make sounds heard by neighboring residences.	5.32	4.12	3.9 (.0004)	5.28	4.59	6.7 (≤.0001)

*Notes* : Means are based on ratings with 1 = a big advantage and 7 = a big disadvantage.

**Attitudes Toward the Searsburg Wind Power Project**

Searsburg residents are still significantly less supportive than are the other respondents of the Searsburg wind power project as proposed and constructed. However, as Table 21 shows their ratings for the project and alternative scenarios are all still solidly on the supportive side of the scale. While the non-Searsburg respondents are more supportive of the alternative scenarios, the difference is not statistically significant.

**Table 21. Comparison of 1997 ratings from Searsburg and other residents of the Searsburg wind power project.**

Statement	Searsburg	Other	Paired <i>t</i> ( <i>p</i> )
From what you know about this wind power project, how supportive of it are you?	2.00	1.46	3.1 (.002)
If this project were located in or near a community other than your own, how supportive would you be of it?	1.78	1.49	1.8 (.074)
Assuming that there are no other places in Vermont better suited for a project of this type, how supportive would you be of this project in your community?	1.74	1.65	0.5 (.648)
If the project is technically successful, how supportive would you be of doubling it's output from 11 to 22 turbines?	2.06	1.71	1.6 (.104)

*Notes :* Mean are based on ratings with 1 = very supportive and 5 = very unsupportive.

Table 22 shows how support from the Searsburg residents and the other respondents has changed during the construction and completion of this project. Support has increased for both groups. This change is very significant for the non-Searsburg respondents. The modest support among the Searsburg group has not significantly changed concerning the project as constructed, or the possibility that it might be moved to someone else's backyard. However, they are significantly more supportive of keeping the project where it is in Searsburg if it is the best suited place, and even in enlarging the existing project to twice its present size.

**Table 22. Comparison of the 1996 and 1997 ratings of the Searsburg wind power project from Searsburg and other residents**

Statement	Searsburg			Other		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
From what you know about this wind power project, how supportive of it are you?	2.18	2.00	1.2 (.226)	2.01	1.46	8.5 ( $\leq$ .0001)
If this project were located in or near a community other than your own, how supportive would you be of it?	1.97	1.78	1.1 (.264)	2.01	1.49	7.4 ( $\leq$ .0001)
Assuming that there are no other places in Vermont better suited for a project of this type, how supportive would you be of this project in your community?	2.06	1.74	1.9 (.070)	2.00	1.65	4.6 ( $\leq$ .0001)
If the project is technically successful, how supportive would you be of doubling it's output from 11 to 22 turbines?	2.55	2.06	3.5 (.002)	2.12	1.71	4.9 ( $\leq$ .0001)

Notes : Mean are based on ratings with 1 = very supportive and 5 = very unsupportive.

**Construction-related Effects of the Searsburg Wind Power Project**

The experience of the effects associated with the construction of the Searsburg project by the Searsburg residents is compared in Table 23 to the experience by the other respondents. All effects were considered to have a modestly insignificant impact by both groups. However, the non-Searsburg residents found them to be less a problem than the Searsburg residents. The difference is statistically significant for traffic congestion, noise, dust and dirt.

**Table 23. Significance of Searsburg project construction impacts for Searsburg and other residents.**

Statement	Mean		<i>t</i> -test ( <i>p</i> )
	Searsburg	Other	
Removal or damage of vegetation during construction.	4.44	4.78	1.1 (.276)
Disturbance to wildlife during construction.	4.47	4.53	0.2 (.841)
Erosion resulting from construction activity.	4.94	4.85	0.3 (.765)
Visual effects from construction activity.	5.13	5.75	1.9 (.055)
Increased traffic congestion or delays.	5.16	5.96	2.9 (.004)
Noise from construction activity.	5.19	6.06	3.1 (.003)
Dust and dirt from construction activity.	5.19	5.99	2.8 (.006)

*Note:* Mean are based on ratings with 1 = very significant and 7 = very insignificant.

**Visual Quality of the Searsburg Wind Power Project**

**Visibility.** Table 24 shows that Searsburg residents see the project much more frequently than do the other respondents (*Chi-square* = 10.3, *df* = 5, *p* = 0.0667). Fifty-seven percent of the Searsburg residents see the project at least once a week, while only 34 percent of the non-Searsburg residents see it that frequently.

**Table 24. Percent of Searsburg and other residents responding to:  
How often do you normally notice the Searsburg wind power project?**

Frequency	Searsburg	Other
Many times a day	12.9	5.2
Once or twice a day	22.6	10.4
Couple times a week	22.6	18.4
Couple times a month	16.1	25.9
Once a month	0.0	9.0
Not even once a month	25.8	31.1

*Note: Chi-square* = 10.3, *df* = 5, *p* = 0.0667

Table 25 gives some indication from where they see the project. In general, The Searsburg wind power project is clearly visible from about 10 percent of the houses surveyed. In the winter, 14 percent of Searsburg residents can see the project a little, compared to 3 percent of the other respondents. This difference is statistically significant. Searsburg residents are much more likely to see the project during either the summer or winter from the homes of friends or neighbors. Relatively few of the respondents see the project from their place of work. However, over half of the respondents see it clearly while driving around the area.

**Table 25. Percent of Searsburg and other residents responding to: From where can you see the Searsburg wind power project?**

Season: Location	Searsburg			Other			Chi-square (p)
	Not	A little	Clearly	Not	A little	Clearly	
<b>Summer:</b> Your home	86.7	3.3	10.0	86.3	3.3	10.4	0.005 (.997)
Friend or relative	56.7	16.7	26.7	77.3	11.4	11.4	6.7 (.035)
Your place of work	93.3	3.3	3.3	91.9	2.8	5.2	0.2 (.899)
While driving in the area	16.7	30.0	53.3	16.1	37.4	46.4	0.7 (.717)
<b>Winter:</b> Your home	75.0	14.3	10.7	84.9	3.0	12.1	7.4 (.025)
Friend or relative	53.6	21.4	25.0	74.4	11.6	14.1	5.3 (.072)
Your place of work	85.7	7.1	7.1	91.5	3.0	5.5	1.4 (.500)
While driving in the area	17.9	28.6	53.6	15.1	30.2	54.8	0.2 (.928)

**Scenic value.** Both the Searsburg and other residents see the project as having a significant visual impact on the site. Further, Table 26 shows that there are no significant differences in the ratings given the individual scenes or the project impacts.

**Table 26. Comparison of the 1997 mean ratings of Searsburg wind power project visual simulations by Searsburg and other residents.**

View	Searsburg	Other	Paired <i>t</i> ( <i>p</i> )
View A: 1.25 miles away, no turbines	1.81	1.84	0.1 (.890)
View B: 4 miles away, no turbines	1.62	1.60	0.1 (902)
View C: 1.25 miles away, with turbines	3.26	2.98	0.8 (.426)
View D: 4 miles away, with turbines	2.81	2.39	1.4 (.157)
Near visual impact (View A – View C)	-1.45	-1.12	0.9 (.353)
Far visual impact (View B – View D)	-1.28	-0.77	1.6 (.107)
Average visual impact	-1.41	-0.95	1.4 (.164)

*Notes:* Means are based on ratings with 1 = very attractive and 5 = very unattractive.

The change in rating by the Searsburg and other respondents between the 1996 and 1997 surveys is given in Table 27. It is important that the ratings of the pre-construction scenes did not change significantly over the intervening year and a half. This stability demonstrates that the ratings are reliable measurements. Over this same time period, the ratings by both groups of the post-construction scenes became significantly more favorable. This demonstrates that the public developed a greater sense of visual acceptability for the project as it was being built.

**Table 27. Comparison of the 1996 and 1997 mean ratings of Searsburg wind power project visual simulations by Searsburg and other residents.**

View	Searsburg			Other		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
View A: 1.25 miles away, no turbines	1.52	1.81	- 1.1 (.294)	1.79	1.84	-0.0 (.963)
View B: 4 miles away, no turbines	1.43	1.62	- 1.0 (.327)	1.54	1.60	- 0.1 (.907)
View C: 1.25 miles away, with turbines	4.14	3.26	3.6 (.002)	3.54	2.98	4.6 (≤.0001)
View D: 4 miles away, with turbines	3.68	2.81	2.5 (.019)	2.95	2.39	5.6 (≤.0001)
Near visual impact (View A – View C)	-2.61	-1.45	-3.0 (.007)	-1.75	-1.11	-4.2 (≤.0001)
Far visual impact (View B – View D)	-2.25	-1.28	-2.2 (.036)	-1.41	-0.77	-4.8 (≤.0001)
Average visual impact	-2.43	-1.41	-2.6 (.016)	-1.58	-0.95	-4.6 (≤.0001)

**Simulation quality.** Both the Searsburg residents and other respondents found the simulations to be accurate representations of the wind power project, as indicated in Table 28. There is no statistical difference between their accuracy judgments ( $Chi\text{-square} = 2.95$ ,  $df = 4$ ,  $p = 0.566$ ).

**Table 28. Percent of Searsburg and other residents responding to:  
How accurate do you think the simulations are when compared to the actual project?**

Frequency	Searsburg	Other
Very accurate	51.7	45.9
Somewhat accurate	34.5	41.1
Uncertain	10.3	8.2
Somewhat inaccurate	0.0	3.9
Very inaccurate	3.6	1.0

*Note: Chi-square = 2.95, df = 4, p = 0.566.*

It is apparent from the survey questions in Table 19 and Table 20 that both the Searsburg residents and other respondents think that the turning turbine blades are visually interesting. While most respondents think that it is unimportant to represent the blades' movement in the simulations, a sizable minority does think it would be important. Table 29 shows that there are no statistical differences between the groups in this regard ( $Chi\text{-square} = 6.33$ ,  $df = 4$ ,  $p = 0.176$ ).

**Table 29. Percent of Searsburg and other residents responding to:  
How important do you think it is that the simulations show the wind turbines moving?**

Frequency	Searsburg	Other
Very important	13.3	10.6
Somewhat important	23.3	28.8
Uncertain	20.0	12.0
Somewhat unimportant	10.0	26.9
Very unimportant	33.3	21.6

*Public Acceptance Study : Year One Post-construction*

*Note: Chi-square = 6.33, df = 4, p = 0.176.*

## **PRE-CONSTRUCTION SUPPORT FOR WIND POWER AND CHANGE IN ACCEPTANCE**

How does the public's predisposition towards a project type influence its acceptance of a specific project? This is an important question for those wishing to understand the possible dynamics of public acceptance over time. For instance, how much does this general attitude change? Is the pattern of change in attitude over time the same or different for initial supporters and non-supporters? Does initial support lead the public to be more accepting of information about a project, such as the visual simulations, or not?

This section looks at comparisons based on the respondents' initial evaluation of the advantages and disadvantages of wind power. It begins by describing how the respondents are divided into three levels of initial support. It then compares how these levels of initial support relate to the various other factors investigated in this study.

### **Attitudes Toward Wind Power Plants**

The advantage or disadvantage of ten characteristics commonly attributed to wind power projects are evaluated in the pre- and post-construction surveys. Each characteristic is rated on a 7-point rating scale with 1 being for a big advantage, 4 for unsure, and 7 for a big disadvantage. The average of these ten ratings is used in this section as an index of overall support for wind power.

The 250 respondents to both surveys are divided into three approximately equal-sized groups based on their overall support for wind power in the first survey, prior to construction. A respondent is considered a big supporter if her average rating is less than 3.0 for all ten characteristics. A respondent is a moderate supporter if his mean rating is less than 3.6. Respondents with mean ratings of 3.6 or greater are uncertain or non-supporters of wind power.

Prior to construction, 30 percent of the respondents investigated here were big supporters of wind power, 36 percent were moderate supporters, and 35 percent were not supporters. The results in Table 30 show how respondents' support changed during the period of the Searsburg project's construction. The 1997 post-construction survey found only 17 percent of the respondents who were non-supporters of wind power. The number of moderate supporters was slightly lower at 31 percent, while big supporters of wind power had soared to 52 percent.

**Table 30. Percent change from pre-construction to post-construction in level of support for wind power.**

1997 Level of Support	Percent (1996 Level of Support)			1997 % Total Sample
	Non-supporter	Moderate Supporter	Big Supporter	
Non-	35.6	9.0	4.1	16.8
Moderate	35.6	37.1	17.6	30.8
Big	28.7	53.9	78.4	52.4
1996 % Total	34.8	35.6	29.6	100.0

Notes: n = 250.  $X^2 = 53.6$ ,  $df = 4$ ,  $p \leq 0.0001$

In 1996, and again in 1997, there were significant differences in how the three levels of supporters rated the advantages of wind power. The differences in their initial predisposition toward wind power seems to still influence their judgments after the construction of the Searsburg project. The change in ratings for each of the 10 characteristics that contribute to the index of support for wind power are shown in Table 31.

Non-supporters' ratings all became more positive; most improved substantially. Initially, non-supporters had fearful expectations about the impacts of the turbines on wildlife, the noise they might produce, their conspicuous visibility, and likely unreliability. All of these concerns have moved to more neutral ratings indicating that they are unsure whether they are real disadvantages, or possible advantages. Money issues are the only area where initial non-supporters' scores did not improve. There was positive, but statistically insignificant, improvement in their ratings of the relative cost and contribution to the local tax base.

Moderate supporters generally improved their ratings also, and most their change is also statistically significant. Their primary concerns were also impacts to wildlife, sound, and reliability. Their assessment of sound and wildlife problems significantly improved significantly.

Big supporters were already closer to the most positive ratings, so there was less opportunity for significant improvement in their ratings. However, four of their

scores actually became less positive. In particular, they had come to think that possibilities of multiple use of the land under the turbines, and the relative cost of wind power were not as advantageous as they once thought.

In general, non-supporters are tending to become moderate supporters, and moderate supporters are tending to become big supporters.

**Table 31. Comparison by initial level of support for wind power of ratings of statements about wind power plants: 1996 and 1997**

Statement	Non-supporter			Moderate Supporter			Big Supporter		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
It does not pollute either the air or water.	1.66	1.40	2.24 (0.028)	1.33	1.12	3.48 (0.0008)	1.09	1.09	0.0 (1.000)
It's an energy source that can be produced and used locally.	2.60	1.66	5.13 (≤0.0001)	1.70	1.34	2.97 (0.005)	1.19	1.16	0.39 (0.698)
Wind turbines must be on hill-tops to intercept strong winds resulting in man-made structures on the Vermont landscape.	5.22	3.93	4.60 (≤0.0001)	3.86	3.06	4.10 (≤ 0.0001)	2.63	2.17	1.97 (0.052)
The wind power facility will increase the local tax base and lower property taxes.	3.49	3.08	1.97 (0.053)	3.02	2.67	1.97 (0.053)	2.03	2.30	-1.46 (0.148)
Land under wind turbines can be used for some other purposes.	3.53	3.11	2.08 (0.040)	3.19	2.85	1.66 (0.102)	1.88	2.38	-2.60 (0.011)
Its cost relative to other sources.	3.64	3.33	1.47 (0.146)	2.65	2.51	0.89 (0.377)	1.75	2.54	-4.50 (≤ 0.0001)
Wind turbines' impact on birds and wildlife (which is not well understood, and may be negative).	5.46	4.63	5.24 (≤0.0001)	4.52	4.12	2.40 (0.018)	3.78	3.55	1.10 (0.274)
1 Wind turbines may make sounds heard by neighboring residences.	6.26	4.86	8.78 (≤0.0001)	5.01	4.58	3.03 (0.003)	4.46	4.05	2.08 (0.041)
Wind power is not reliable because the wind does not blow all the time.	5.38	4.58	5.14 (≤0.0001)	4.82	4.57	1.92 (0.058)	4.19	4.09	0.79 (0.430)

*Public Acceptance Study : Year One Post-construction*

I like seeing wind turbine blades turning, knowing they are producing electricity our community is using.	4.15	3.26	3.67 (0.0004)	2.44	2.11	2.08 (0.040)	1.64	1.84	-0.70 (0.487)
---	------	------	------------------	------	------	-----------------	------	------	------------------

---

*Notes* : Means are based on ratings with 1 = a big advantage and 7 = a big disadvantage.

**Attitudes Toward the Searsburg Wind Power Project**

Table 32 shows how support for the Searsburg project and specific alternatives changed between 1996 and 1997 among the three levels of wind power supporters. In 1996 the non-supporters of wind power were generally uncertain about their support of the Searsburg project, whether it was the only possible location or could be located elsewhere. After the project's construction, their overall ratings changed significantly to be somewhat supportive. Respondents who were moderate supporters of wind power were somewhat supportive of the Searsburg project in 1996, and became significantly more supportive by 1997. The big supporters of wind power were already very supportive of the Searsburg project, and there are no significant changes in their assessment.

**Table 32. Comparison by initial level of support for wind power of ratings of the Searsburg wind power project: 1996 and 1997**

Statement	Non-supporter			Moderate Supporter			Big Supporter		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
From what you know about this wind power project, how supportive of it are you?	2.86	1.98	7.40 ( $\leq 0.0001$ )	1.81	1.29	5.66 ( $\leq 0.0001$ )	1.35	1.28	0.97 (0.334)
If this project were located in or near a community other than your own, how supportive would you be of it?	2.64	1.90	5.48 ( $\leq 0.0001$ )	1.83	1.28	6.80 ( $\leq 0.0001$ )	1.47	1.38	0.88 (0.382)
Assuming that there are no other places in Vermont better suited for a project of this type, how supportive would you be of this project in your community?	2.75	2.09	4.70 ( $\leq 0.0001$ )	1.82	1.37	5.32 ( $\leq 0.0001$ )	1.36	1.50	-1.17 (0.248)
If the project is technically successful, how supportive would you be of doubling it's output from 11 to 22 turbines?	2.94	2.18	5.37 ( $\leq 0.0001$ )	1.93	1.51	3.56 (0.0006)	1.58	1.55	0.34 (0.738)

Notes : Mean are based on ratings with 1 = very supportive and 5 = very unsupportive.

**Construction-related Effects of the Searsburg Wind Power Project**

The ratings of how each of the three levels of supporters of wind power were effected by the construction activity associated with the Searsburg project are shown in Table 33. In general, the ratings indicate that there were no important impacts from the construction activity. There are no significant differences in ratings that can be attributed to their initial support of wind power.

**Table 33. Significance of Searsburg project construction impacts by initial level of support for wind power.**

Statement	Mean			F -test
	Non-supporter	Moderate Supporter	Big Supporter	
Disturbance to wildlife during construction.	4.30	4.61	4.68	1.2 (0.305)
Removal or damage of vegetation during construction.	4.58	4.83	4.81	0.6 (0.564)
Erosion resulting from construction activity.	4.64	4.93	5.03	1.3 (0.280)
Visual effects from construction activity.	5.58	5.78	5.63	0.3 (0.711)
Increased traffic congestion or delays.	5.79	5.98	5.78	0.5 (0.619)
Dust and dirt from construction activity.	5.80	6.05	5.79	0.7 (0.487)
Noise from construction activity.	5.94	6.07	5.81	0.6 (0.560)

*Note:* Mean are based on ratings with 1 = very significant and 7 = very insignificant.

**Visual Quality of the Searsburg Wind Power Project**

**Visibility.** Initial level of support for wind power is not associated with how frequently the respondents see the Searsburg wind power project, as seen in Table 34. This relationship is looked at in more detail in Table 35. Again there are no significant association between the different level of support and where or when they see the Searsburg project.

**Table 34. Percent response by initial level of support for wind power to: How often do you normally notice the Searsburg wind power project?**

Frequency	Non-supporter	Moderate Supporter	Big Supporter
Many times a day	8.1	4.7	5.6
Once or twice a day	12.8	9.3	14.1
Couple times a week	15.1	23.3	18.3
Couple times a month	26.7	23.3	23.9
Once a month	7.0	8.1	8.5
Not even once a month	30.2	31.4	29.6

*Note: Chi-square = 3.65, df = 10, p = 0.962*

**Table 35. Percent response by initial level of support for wind power to: From where can you see the Searsburg wind power project?**

Season: Location	Non-supporter			Moderate Supporter			Big Supporter			$X^2$ ( $p$ )
	Not	A little	Clearly	Not	A little	Clearly	Not	A little	Clearly	
<b>Summer:</b> Your home	85.9	3.5	10.6	84.9	4.5	10.5	88.6	1.4	10.0	1.3 (0.861)
Friend or relative	65.9	16.5	17.6	80.2	9.3	10.5	78.6	10.0	11.4	5.5 (0.244)
Your place of work	88.2	4.7	7.1	93.0	2.3	4.7	95.7	1.4	2.9	3.2 (0.524)
While driving in the area	17.6	34.1	48.2	11.6	40.7	47.7	20.0	34.3	45.7	2.5 (0.637)
<b>Winter:</b> Your home	83.3	3.9	12.9	81.7	7.3	11.0	86.6	1.5	11.9	3.1 (0.534)
Friend or relative	64.1	16.7	19.2	76.8	8.5	14.6	74.6	13.4	11.9	4.4 (0.354)
Your place of work	87.2	5.1	7.7	90.2	3.7	6.1	95.5	1.5	3.0	3.1 (0.547)
While driving in the area	14.1	24.4	61.5	13.4	32.9	53.7	19.4	32.8	47.8	3.5 (0.477)

Note:  $df = 4$

**Scenic value.** The scenic ratings of the visual simulations by each of the three levels of support for wind power are given in Table 36. There is a consistent pattern of the same view receiving more scenic ratings with increasing support for wind power. However, Turkey’s honestly significant difference post-hoc test shows that the differences between moderate and big supporters is not significant for any of the ratings in Table 36, while they are both significantly different from the ratings made by non-supporters of wind power.

**Table 36. Comparison of the 1997 mean ratings of Searsburg wind power project simulations by initial level of support for wind power**

	Non-supporter	Moderate Supporter	Big Supporter	<i>F</i> -test ( <i>p</i> )
View A: 1.25 miles away, no turbines	2.12	1.71	1.65	3.2 (0.042)
View B: 4 miles away, no turbines	1.89	1.48	1.41	4.8 (0.009)
View C: 1.25 miles away, with turbines	3.98	2.59	2.40	20.5 ( $\leq 0.0001$ )
View D: 4 miles away, with turbines	3.27	2.03	1.97	21.1 ( $\leq 0.0001$ )
Near visual impact (View A – View C)	-1.82	-0.87	-0.73	8.4 (0.0003)
Far visual impact (View B – View D)	-1.39	-0.55	-0.55	8.0 (0.0005)
Average visual impact	-1.64	-0.71	-0.64	9.1 (0.0001)

The change between 1996 and 1997 in scenic ratings of the four views by the three levels of supporters is presented in Table 37. There are no significant differences between the ratings in 1996 and 1997 of the views without turbines. This indicates all three levels of supporters have relatively stable landscape ratings. However, the evaluations by non-supporters and modest supporters of the simulations with turbines and their visual impact are significantly more attractive in 1997 than in 1996. There are no significant differences in how big supporters rated the views in 1996 and 1997.

**Table 37. Comparing mean ratings of Searsburg wind power project simulations by initial level of support for wind power: 1996 and 1997**

	Non-supporter			Moderate Supporter			Big Supporter		
	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )	1996	1997	Paired <i>t</i> ( <i>p</i> )
View A: 1.25 miles away, no turbines	1.82	2.12	-1.3 (0.199)	1.77	1.71	1.0 (0.327)	1.68	1.65	-0.2 (0.865)
View B: 4 miles away, no turbines	1.61	1.89	-1.5 (0.128)	1.49	1.48	0.9 (0.386)	1.48	1.41	0.2 (0.842)
View C: 1.25 miles away, with turbines	4.76	3.98	3.9 (0.0002)	3.26	2.59	4.2 (0.0001)	2.67	2.40	1.0 (0.306)
View D: 4 miles away, with turbines	4.10	3.27	4.0 (0.0001)	2.62	2.03	5.0 ( $\leq 0.0001$ )	2.27	1.97	1.3 (0.187)
Near visual impact (View A – View C)	-2.94	-1.82	-4.1 (0.0001)	-1.49	-0.87	-3.0 (0.003)	-0.99	-0.73	-1.2 (0.226)
Far visual impact (View B – View D)	-2.49	-1.39	-4.6 ( $\leq 0.0001$ )	-1.13	-0.55	-3.5 (0.0008)	-0.79	-0.55	-0.6 (0.536)
Average visual impact	-2.71	-1.64	-4.5 ( $\leq 0.0001$ )	-1.31	-0.71	-3.5 (0.0007)	-0.89	-0.64	-0.7 (0.498)

**Simulation quality.** Table 38 describes how accurate each of the three levels of supporters for wind power believed the simulations to be. Those who are big supporters are particularly more likely to find the simulations to be very accurate.

**Table 38. Percent response by initial level of support for wind power to: How accurate do you think the simulations are when compared to the actual project?**

Frequency	Percent		
	Non-supporter	Moderate Supporter	Big Supporter
Very accurate	42.0	43.5	55.7
Somewhat accurate	38.3	42.4	40.0
Uncertain	8.6	11.8	4.3
Somewhat inaccurate	8.6	1.2	0.0
Very inaccurate	2.5	1.2	0.0

*Note: Chi-square = 16.5, df = 8, p = 0.036.*

The level of support for wind power does not appear to be related to how important the respondents thought it was for the simulations to show the motion of the wind turbine blades. Table 39 shows the pattern of responses.

**Table 39. Percent response by initial level of support for wind power to: How important do you think it is that the simulations show the wind turbines moving?**

Frequency	Percent		
	Non-supporter	Moderate Supporter	Big Supporter
Very important	6.1	11.6	15.7
Somewhat important	24.4	29.1	31.4
Uncertain	11.0	17.4	10.0
Somewhat unimportant	31.7	24.4	17.1
Very unimportant	26.8	17.4	25.7

*Note: Chi-square = 11.1, df = 8, p = 0.194.*

## **REFERENCES**

Palmer, J.F. 1996. **Public Acceptance Study of the Searsburg Wind Power Project: Pre-construction Baseline.** Fayetteville, NY: Clinton Solutions

Vellman, P.F. 1995. **Data Desk Handbook and Statistics Guide.** [version 5.0] Ithaca, NY: Data Descriptions Inc.

## **APPENDIX**

- Survey cover letter
- Questionnaire
- Project images
- Follow-up postcard