

STATE OF MAINE
LAND USE REGULATION COMMISSION

IN THE MATTER OF DEVELOPMENT)	PRE-FILED REBUTTAL
APPLICATION DP 4889)	TESTIMONY OF DAVID RAPHAEL
CHAMPLAIN WIND, LLC)	ON BEHALF OF CHAMPLAIN
BOWERS WIND PROJECT)	WIND, LLC

On behalf of Champlain Wind, LLC, David Raphael of LandWorks is submitting this pre-filed rebuttal testimony in response to the pre-filed direct testimony of the Partnership for the Preservation of the Downeast Lakes Watershed (“PPDLW”) that pertains to potential effects of the Bowers Wind Project (the “Project”) on scenic character and existing uses related to scenic character. This rebuttal testimony provides an evaluation and critique of PPDLW’s testimony, with particular focus on the *Visual Quality and Scenic Character Impact Assessment Report* prepared by Michael Lawrence & Assoc. (“Lawrence Report”).

Specifically, this testimony addresses the following issues: 1) the Lawrence Report’s lack of objective, quantifiable data and analysis, which undercuts the report’s usefulness as a means for assessing the Project’s compliance with regulatory standards, and 2) the growing body of research regarding the minimal impact of wind power development on tourism indicating that PPDLW’s concerns may be overstated.

I. FLAWS IN THE LAWRENCE REPORT

While the PPDLW report provides visual simulations from a variety of locations and some anecdotal information about use and user expectations, it does not provide a comprehensive objective analysis that follows the six evaluation criteria from which to form conclusions about the impact to significant scenic resources. Mr. Lawrence’s report is correct insofar as it outlines the six evaluation criteria the Project is subject to as set

forth by the Maine Wind Energy Act (the Act). These criteria are set forth to determine whether an expedited wind energy development significantly compromises views from a scenic resource of state or national significance such that the development has unreasonable adverse effects on the scenic character or existing uses related to scenic character of the resource. However, the Lawrence Report fails to provide an objective and quantitative analysis by which to make a determination with regard to the Project's visual impact as applied to the six criteria contained in the Act.

In his Introduction/Overview, Mr. Lawrence begins with subjective comments about the beauty of the area and a sentimental approach to describing the context of the Project and surrounding environs: "I felt tiny and the landscape was awesome as I traveled in an open boat over what seemed like vast areas of water. I experienced firsthand wilderness character – dark blue mountains, miles of forested shoreline against radiant sky mirrored perfectly in absolutely calm water, the smell of cedar, waves splashing on the shore, moose, loons calling at night, eagles in flight. . . ." Lawrence Report at 4. Mr. Lawrence's expansive prose provides an indication of the lack of objectivity of the analysis to come. As the Commission's visual consultant Dr. James Palmer has previously noted of Mr. Lawrence's analysis in another project, this lack of objectivity "cannot contribute to a fair and just finding with the criteria set by the Wind Energy Act."¹

It is important to note that, in contrast to the Lawrence Report's nostalgic characterization, these lakes are situated in an area that is actively managed and used by

¹ *Review of Saddleback Ridge Wind Project, Carthage, Maine: Wind Facility-Visual Quality and Scenic Character Report*, James F. Palmer, Scenic Quality Consultants

humans for logging, mechanized recreation and other commercial activities, as opposed to being located in a pristine wilderness area devoid of any development whatsoever. See LandWorks' Pre-filed Direct Testimony at 4. The Lawrence Report, as well as the other testimony submitted by PPDLW, focuses almost exclusively on one type of user: the sporting lodge-based "gentlemen's fishing experience as it was in the good old days." Lawrence Report at 22. In fact, within the Study Area, typical users include day-use local fishermen, whose expectations are entirely ignored by the Lawrence Report. See LandWorks Visual Assessment for the Bowers Wind Project at 43.

In addition, the Lawrence Report labels the area under review as the "Grand Lakes Scenic Watershed." Lawrence Report at 3. The Term "Grand Lakes Scenic Watershed" is a designation invented by PPDLW solely for the purpose of opposing this Project, and it includes a significant area well beyond the statutory 8-mile purview of the Commission's review.

The Lawrence Report contains no objective, quantifiable evidence or detailed discussion on how or why the Project will have an unreasonable adverse effect on scenic character, beyond mere visibility. As the Commission is aware, the Maine Wind Energy Act specifically states that high visibility by itself does not constitute an unreasonable impact:

A finding by the primary siting authority that the development's generating facilities are a highly visible feature in the landscape is not a solely sufficient basis for determination that an expedited wind energy project has an unreasonable adverse effect on the scenic character and existing uses related to scenic character of a scenic resource of state or national significance.

35-A M.R.S.A. § 3452(3).

Furthermore, Mr. Lawrence concludes that the Project does not “fit harmoniously into the surroundings” and will therefore have an “undue adverse effect on the traditional uses of the area.” Lawrence Report at 57. However, the Wind Energy Act explicitly eliminates the requirement of harmonious fit for wind energy developments. 35-A M.R.S.A. § 3452(1). Accordingly, the Lawrence Report fails to provide objective, quantifiable evidence that the Project will have an unreasonable adverse impact *beyond high visibility or inharmonious fit*.

The Legislature has identified areas suitable for expedited permitting of grid-scale wind energy development to help reduce disagreement. In addition, the Commission, through rulemaking, added a portion of the Kossuth Township to the expedited permitting area. As stated in the Wind Energy Act:

...it is in the public interest to reduce the potential for controversy regarding siting of grid-scale wind energy development by expediting development in places where it is most compatible with existing patterns of development and resource values when considered broadly at the landscape level. Accordingly, the Legislature finds that certain aspects of the State's regulatory process for determining the environmental acceptability of wind energy developments should be modified to encourage the siting of wind energy developments in these areas.

35-A M.R.S.A. §3402(2). The Bowers Wind Project has been sited in an expedited area that has been determined to be compatible with the existing land use patterns. Attached as Exhibit A is a map of the Project's location with respect to the State's expedited areas.

There is considerable focus by the intervenors on the village of Grand Lake Stream, West Grand Lake and the surrounding area. Emphasis has been placed on the importance of this area as a tourist destination and its centrality to the region. Lawrence Report at 20. We do not dispute that West Grand Lake and the village are important

tourist areas, but they are located well beyond the 8-mile limit set by the Act. The village is situated nearly 18 miles from the Project and affords no distinct views of Bowers Mountain and the other Project ridges. Attached as Exhibit B is a map indicating the distance of the Project from resources in the area. Ten of the thirteen camps/businesses referenced in the Lawrence Report are situated well beyond 8 miles of the Project, averaging an approximate distance of 17 miles and beyond. The closest camp is Maine Wilderness Camp located on Pleasant Lake less than three miles from the nearest turbine. The owners of that camp stated that they did not believe the turbines would negatively impact their customers' use and enjoyment of the lake and, in fact, the turbines would be viewed positively by some who would ride to the site on ATVs. See May 26, 2011 Interview Summary attached to Pre-filed Direct Testimony of Ms. Whitney. Attached as Exhibit C is a map depicting the location of identified lodges/businesses.

It is widely accepted by aesthetic experts that visibility beyond 8-miles is significantly diminished, and thus the corresponding potential for visual impact beyond this distance is substantially reduced, if not eliminated. This fact is the basis for the review parameters established in the Wind Energy Act:

In making its determination under subsection 1, the primary siting authority shall consider insignificant the effects of portions of the development's generating facilities located more than 8 miles, measured horizontally, from a scenic resource of state or national significance.

35-A M.R.S.A. § 3452(3).

Dr. Palmer, LURC's scenic quality consultant, has reiterated this fact in his review of the Project:

The components of grid-scale turbines, particularly the blades, become difficult to recognize beyond 8 miles.... I suspect this is

the reason why the threshold where wind turbines were determined to have an insignificant scenic impact was set at 8 miles by the Wind Energy Act.

Review of the Bowers Wind Project Visual Impact Assessment by James F. Palmer, June 3, 2011, at 5.

Despite the 8-mile jurisdictional limit established by the Wind Energy Act, Mr. Lawrence, Andrew Buckman, Gary Campbell and other intervenors focus on potential impacts beyond eight miles. While we agree that businesses located beyond eight miles may inform the analysis on level of use of lakes within the 8-mile viewshed, Mr. Lawrence has not engaged in an objective analysis that connects those businesses to the expectations of users of the lakes at issue here. For example, Mr. Lawrence relies solely on website quotes, emotive dialogue, circumstantial reasoning, and subjective commentary by four or five selected individuals as an indication of the expectations of the typical viewer. Lawrence Report at 22-34. He has not provided objective evidence or analysis within the parameters of the review criteria, however, that the presence of wind turbines in the viewshed will decrease use and impact expectations in such a way that it will irreparably damage the local economy and traditional way of life. No additional intercept surveys were conducted, no new numbers were provided that substantiate the Bowers study area as a tourism center or major destination, no further studies were done to demonstrate the amount or type of use of these lakes, and no supplemental reports were presented that confirm wind turbines will have a negative impact on use and user expectations. Quoting Dr. Palmer in his review of Mr. Lawrence's report for the Saddleback wind project, "The quotation of selected testimonials is not a substitute for a reliable study of visitors. I would note that most of

the selected visitor testimonials do not indicate the importance of scenic quality, but focus on family tradition and social activities.” Review of Saddleback Ridge Wind Project, Carthage, Maine: Wind Facility-Visual Quality and Scenic Character Report by James F. Palmer pg. 4. In fact, most of the testimony provided on behalf of PPDW focuses on cultural traditions and emotional memories and does not provide evidence on how turbines, more than 17 miles away in some case, will unreasonably impact the scenic values of a resource of state or national significance.

Mr. Lawrence has provided a number of visual simulations and other graphics in an attempt to demonstrate how the scenic character of these lakes will be unreasonably compromised or degraded. While the simulations provide a general idea of what a view directly towards the Project might look like, there are several inconsistencies or deficiencies, which misrepresent visibility:

- The rotors in the simulations are all in the same fixed position, which misrepresents their actual appearance, as this would never occur. This gives the turbines a false sense of height, as the blades only reach that height during part of their rotation. With this fixed rotor position, the turbines have the appearance of tall vertical spikes, and they thereby have an overly uniform and oppressive character. This effect is compounded by the fact that the turbines are depicted head-on in every simulation, while in reality they would often be viewed at an angle (depending on viewer location and wind direction), and thereby have a reduced visual presence.
- The resolution of the simulations appears to vary, and some of them are noticeably low.
- The accuracy of the representation of the turbines is suspect, as the apparent scale of the turbines in Exhibit 9 and Exhibit 11 are quite different. The turbines in Exhibit 9 appear significantly larger than those in Exhibit 11, yet the nearest visible turbine in Exhibit 11 is actually .2 miles closer. This discrepancy is apparently not a factor of sheet formatting, as both have a stated viewing distance of 20 inches. When compared to our visual simulation from Junior Lake, the towers in Exhibit 9 appear roughly twice as wide as ours, giving them a heavier presence. We also found that the locations of the turbines did not agree with ours in

a number of simulations, notably Pleasant Lake Boat Launch. The accuracy of our simulations has been verified Dr. Palmer.

- The rendering of the simulations is off for a couple simulations, most notably Exhibit 13. In this simulation, some of the turbines appear almost black, which increases the turbine's visual prominence against a light, clouded sky. This would not occur because the turbines are white.
- No other photos are provided that show other views from the lake. This misrepresents the actual visual impact on the area by excluding more prominent views or demonstrating the lake's ability to absorb the turbines in the expansive landscape.

In addition, one significant point can be made about the visual simulations. In no instance do they illustrate a distinctive or striking view or a one of a kind experience, which would be more sensitive to changes in the landscape. While views from these lakes are pleasing, their scenic qualities are not unique to the area. Similar hills, coves, rocks and islands, as well as more spectacular views, can be experienced in lakes all over the region.

Other graphics or exhibits in the report are also misleading:

- Exhibit 39 - The photo depicting a model of a turbine next to a rendering of a 26-story building is (intentionally) misleading if it is being used to suggest the perceived scale of turbines for this Project. Placing a turbine in an urban context such as this, with a drastically different scale and proximity to the viewer, heightens the perceived scale of the turbines. The context for Bowers, however, is quite different - with rolling forest-covered hills, expansive views, large bodies of water, etc. The turbines would never be closer than approximately 2 miles from the lakes that were evaluated pursuant to the Wind Energy Act criteria. Given the broad panorama of views from open bodies of water, the experience of viewing an object of this height from such a distance is substantially different and incomparable to the experience suggested by this exhibit.
- Exhibit 44 - This graphic does not address any relevant regulatory standard. Despite the fact that site work will include grading and tree clearing, this exhibit does not provide any evidence that such site work will be visible from a key public vantage point.

- Exhibits 42 & 43 - There is no analysis of these elevations that explains what an acceptable proportion of turbine height to height above the viewer would be. They are misleading because they don't account for the screening effects of vegetation and topography, which can reduce the apparent height of turbines in relation to the topography when the landscape is viewed in perspective. This type of analysis is more meaningful when based on visual simulations, as they represent what the human eye would actually see from particular vantage points. When reviewing the visual simulations for these lakes, we observed that the proportions of turbine to hill depicted in these diagrams only apply to some of the turbines. In many instances the height of the hills is proportionately taller than depicted in Exhibits 42 and 43. It should also be noted that the visual presence of turbine blades, when viewed from a distance, is much less compared to the tower and hub. As such, analyzing the height of the hub in relationship to the height of the topography would be a more useful exercise. The true visual weight of turbine components can be confirmed in photographs of built wind projects. Attached as Exhibit D are photographs of built wind power projects, as well as photographs of the constructed Rollins Wind Project compared with the original simulations of that project.

Mr. Lawrence also suggests that “Actual wind turbines appear with greater clarity to us than photosimulations can portray.” Lawrence Report at 62. Wind turbines may appear more clearly in reality compared to a printed photo simulation due to a number of factors, including resolution of the photo, quality of the printing, and the lighting conditions present when the photo was taken vs. when the turbines are viewed in reality. However, in many cases photo simulations overstate the visibility of turbines. This effect is demonstrated in the comparison between the photosimulations and the actual turbine views of the Rollins project contained in Exhibit D. Even when viewing turbines in reality, it is often difficult to discern texture or detail due to their smooth light surface, whereas shade and shadow may be apparent.

In short, the Lawrence Report fails to create a substantive, analytical, objective case that the Project will result in an unreasonable adverse effect on the scenic character of the Project area for the following reasons:

- The report and its conclusions are biased and based on emotion and nostalgia rather than an objective analysis that a professional visual expert is required to conduct;
- There is no objective evaluation or detailed presentation of the landscape character, land uses and recreational qualities of the specific Project area;
- There is a distinct lack of technical rigor and adherence to the specific categories and components of the Wind Energy Act that are necessary to address as part of a visual impact assessment;
- There is an overt reliance on selected visual simulations without the analysis to support the conclusions or to address other aspects of the Project area where the Project will not be seen from;
- Both the focus of the analysis and its conclusions are provided in the context of the broader Grand Lakes “Scenic” Watershed - a designation invented by PPDLW solely for the purpose of opposing this Project, which includes a significant area well beyond the statutory purview of the review for this Project;
- There is a presentation of selected testimonials and website excerpts but no additional data, surveys or studies which supplement and support the conclusions with regard to viewer use and expectation; and,
- The report concludes with the statement “The consequent spillover of that negative visual impact will create an undue adverse effect on the traditional uses of the area by causing people to abandon plans to return to the Grand Lakes Scenic Watershed...,” and yet provides no basis for this or evidence that this will, in fact, occur.

II. STUDIES INDICATING THAT WIND POWER DEVELOPMENT HAS LITTLE OR NO EFFECT ON TOURISM

The vast majority of PPDLW’s testimony is dedicated to the claim that the Project will have an overwhelming adverse effect on outdoor recreation and tourism in the area. As we noted in our pre-filed testimony, there is a growing body of evidence indicating that PPDLW’s fears are unfounded or exaggerated. Several studies have been conducted in recent years concluding that tourists, including hikers, boaters, and other outdoor recreational enthusiasts, are either unaffected or positively affected by the presence of

wind energy projects. In particular, we refer the Commission to the following studies and reports, which are attached as Exhibits E - J to this testimony:

- Pre-filed Direct Testimony of Todd Comen on Behalf of East Haven Windfarm before the Vermont Public Service Board, November 17, 2003
- Wind Energy Report: Views of Residents of PEI and Visitors to PEI, Tourism Research Centre at University of PEI School of Business, September 4, 2008
- Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction, James F. Palmer, December 1997
- Do Wind Farms Affect Tourism?, Réseau de Veille en Tourisme (Quebec Tourism Intelligence Network, UQAM), December 9, 2009
- Economic Research Findings: The Economic Impacts of Wind Farms on Scottish Tourism, The Scottish Government, March 2008
- Wind Turbines in Tourism Landscapes, Frantal and Kunc, Annals of Tourism Research, Vol. 38, No. 2, at 499-519 (April 2011)

All of these studies conclude that wind energy development in view of tourist destinations does not negatively impact tourism overall. For example, the 2008 study conducted in Scotland, in which 380 tourists were surveyed near operational wind power facilities, found that the vast majority (93-99%) of tourists that had seen a wind farm in the local area suggested that the experience would not have any effect on their decision to return to that area, or to Scotland as a whole. Approximately 25% of those surveyed were engaging in wilderness-related outdoor activities like hiking and wildlife watching.

The conclusions included the following:

- Only 4% of tourists who have viewed a nearby wind farm indicated that the turbines affect their intention of returning to the area (2% said it would increase the likelihood of return and 2% said it would decrease the likelihood of return);
- 72 % of visitors were either positive or neutral about the statement "I like to see wind farms";

- Among hikers, for whom landscape was expected to be a major factor, only 19% indicated a negative attitude toward wind farms, whereas 25% of all respondents indicated a negative attitude; 45% of hikers indicated a positive attitude toward wind farms, while only 39% of all respondents held a positive view; and
- Respondents that had seen a wind farm were less opposed to wind power development than those who had not seen a wind farm.

The 2008 Prince Edward Island study, which used surveys from 1,676 people, of which 1,313 were tourists, included findings with regard to the visual impacts of several operational wind energy facilities on a region that is proximate and similar to Maine:

- With respect to the statement “wind farms ruin the view in the areas they are located,” 63% of respondents disagreed or strongly disagreed, while only 5% of respondents strongly agreed;
- While only 44% of both residents and visitors either agreed or strongly agreed that a wind farm adds to the attractiveness of the area where it is located, about 81% of both residents and visitors either disagreed or strongly disagreed that wind farms are a poor use of PEI’s land base; and
- 71% of resident respondents either agreed or strongly agreed that wind farms are an attraction for visitors to PEI.

A very recent peer-reviewed study conducted in two rural areas of the Czech Republic that host nature-based recreational activities such as hiking, camping and fishing, catalogued the views of 156 tourists and 73 business owners to determine the impact of wind power development on tourism. See Wind Turbines in Tourism Landscapes, Frantal and Kunc, *Annals of Tourism Research*, Vol. 38, No. 2, at 499-519 (April 2011). The study found that over 90% of tourists said that the presence of turbines did not influence their choice of destination, and only 6% of tourists stated that they would not visit an area where turbines are located. Id. at 510. In addition, the study revealed that tourists were much more likely to view turbines favorably than were local

residents. Id. at 512.

Finally, the pre-filed testimony to the Vermont Public Service Board submitted by Todd Comen, a Tourism expert and Professor of Tourism and Hospitality at Johnson State College in Vermont, draws conclusions from a number of studies regarding wind power impacts on tourism as well as original research conducted among visitors to the Northeast Kingdom of Vermont and the area near the Searsburg wind power project in southern Vermont. Comen concludes, based in part on interviews with local tourism industry representatives, that wind energy development can actually be a positive element for tourism. Searsburg and the Northeast Kingdom have a number of geographic and cultural similarities with the Bowers Project Area, with a similar demographic of recreational visitors.

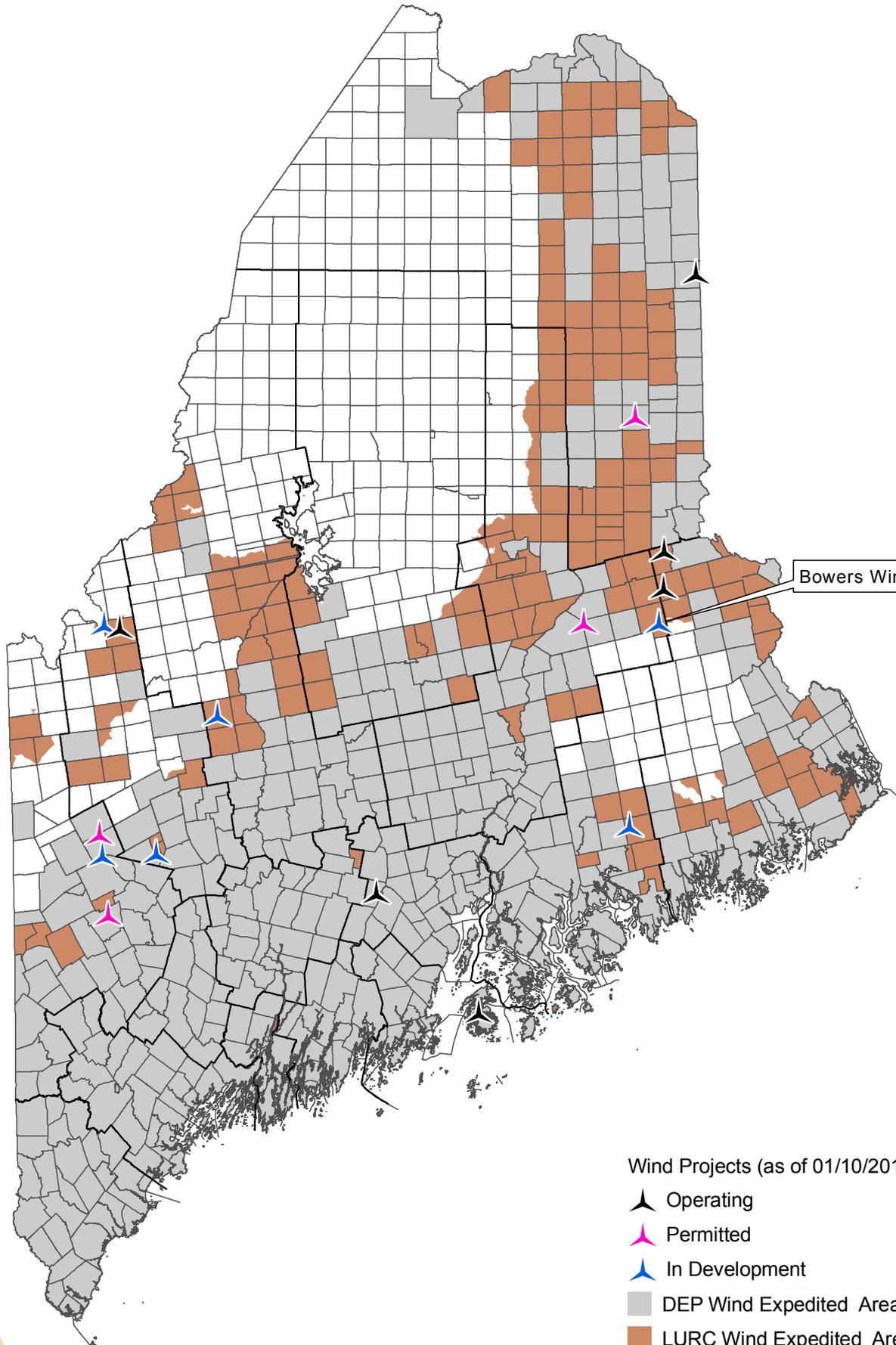
Comen references James Palmer's Searsburg Study, which concluded that after the Searsburg wind power project was built, project opponents' views all became more positive, and most improved substantially. See Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction at 51. One year after the project had been in operation, 89% of respondents to a survey sent to Searsburg residents were either supportive or very supportive of the project. 80% of respondents were either supportive or very supportive of the existing wind power project doubling in size by adding 11 new turbines. Id. at 19. 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. Over time, opponent's views have moved to more neutral ratings, indicating that they are unsure whether there are any real disadvantages, or possible advantages. Id. at 51.

The Baskahegan study discussed in and attached to our pre-filed direct testimony likewise suggests that significant visibility of turbines has not adversely impacted recreational use of Baskahegan Lake. See Pre-Filed Direct Testimony of David Raphael at 21-23.

While we are not contending that the Bowers Wind Project will enhance tourism in the area, we believe that construction of the Project will not result in rejection of the area as a place to visit and recreate, nor will it degrade scenic character or the experience of the local scenery for most users. These conclusions are substantiated by a growing body of evidence, as demonstrated by the attached studies.

Raphael Pre-Filed Rebuttal Testimony Exhibits

- Exhibit A: Map of Project Location and Expedited Permitting Areas
- Exhibit B: Map of Distances Between Area Resources and Project
- Exhibit C: Map of Location of Area Lodges/Businesses
- Exhibit D: Photographs and Photosimulations of Built Wind Power Projects
- Exhibit E: Pre-filed Direct Testimony of Todd Comen on Behalf of East Haven Windfarm before the Vermont Public Service Board, November 17, 2003
- Exhibit F: Wind Energy Report: Views of Residents of PEI and Visitors to PEI, Tourism Research Centre at University of PEI School of Business, September 4, 2008
- Exhibit G: Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction, James F. Palmer, December 1997
- Exhibit H: Do Wind Farms Affect Tourism?, Réseau de Veille en Tourisme (Quebec Tourism Intelligence Network, UQAM), December 9, 2009
- Exhibit I: Economic Research Findings: The Economic Impacts of Wind Farms on Scottish Tourism, The Scottish Government, March 2008
- Exhibit J: Wind Turbines in Tourism Landscapes, Frantal and Kunc, Annals of Tourism Research, Vol. 38, No. 2, at 499-519 (April 2011)



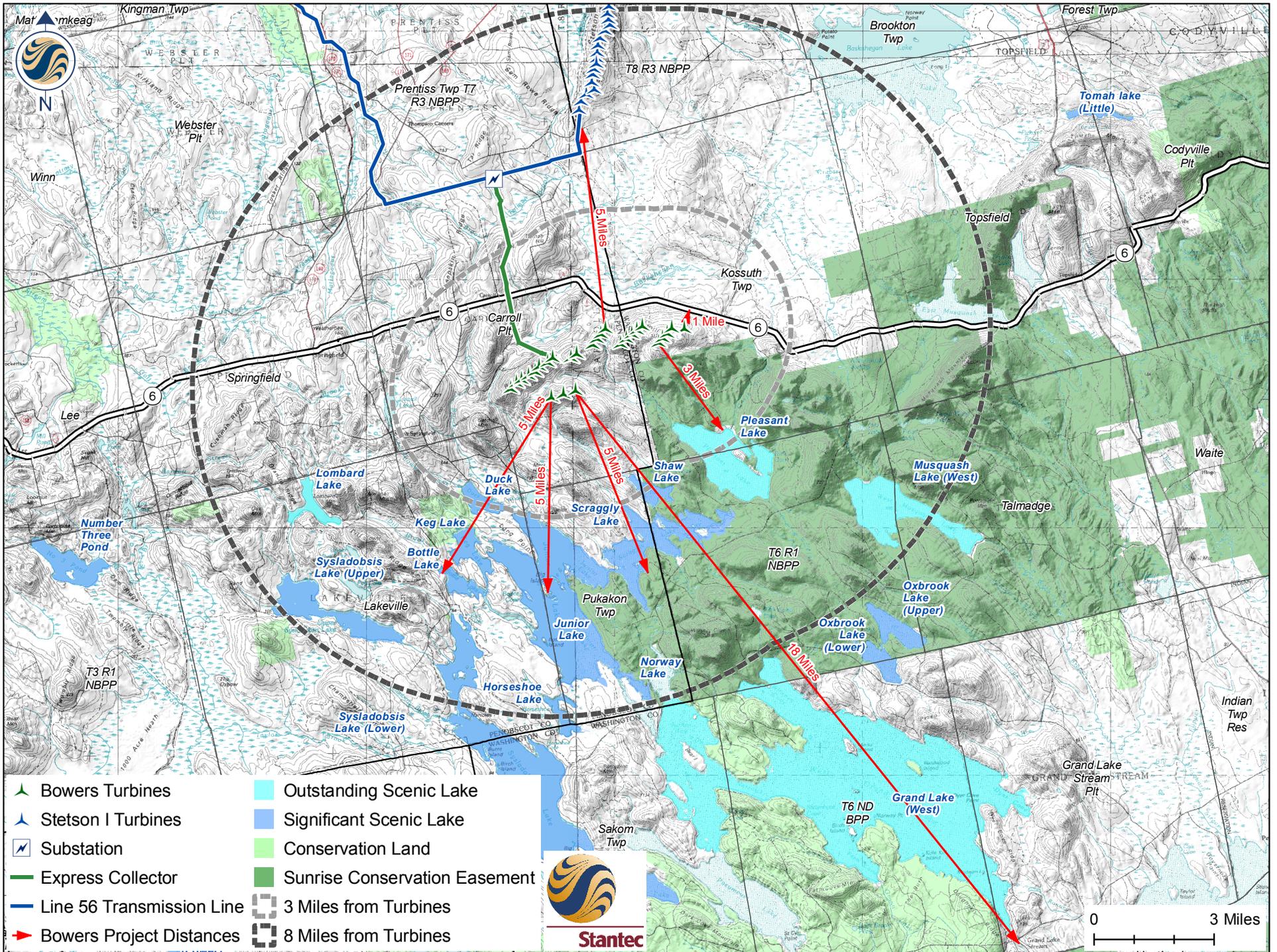
Bowers Wind Project

Wind Projects (as of 01/10/2011)

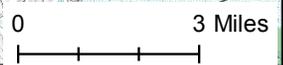
-  Operating
-  Permitted
-  In Development
-  DEP Wind Expedited Area
-  LURC Wind Expedited Area

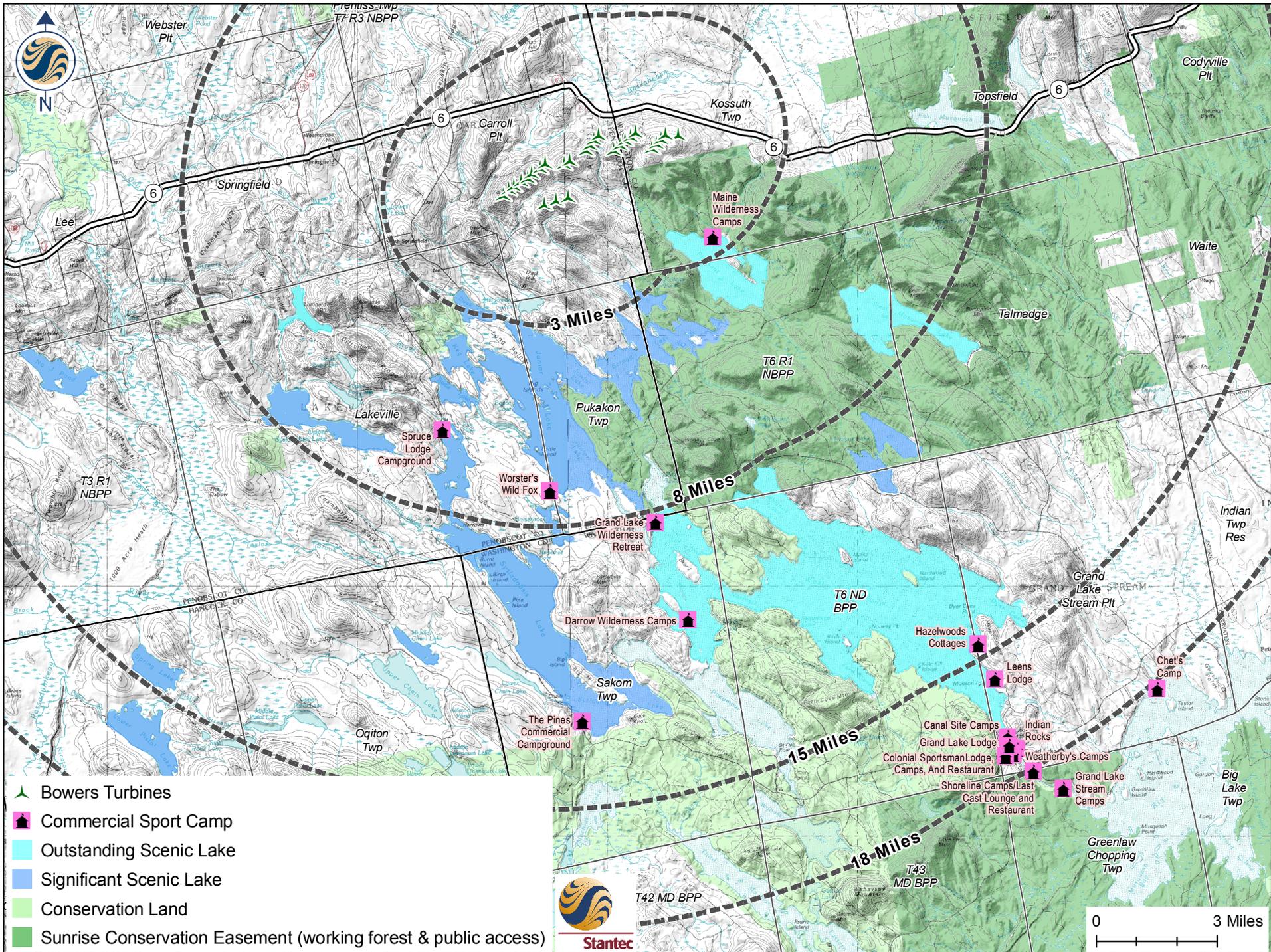


Stantec

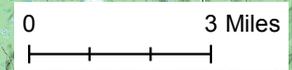


-  Bowers Turbines
-  Stetson I Turbines
-  Substation
-  Express Collector
-  Line 56 Transmission Line
-  Bowers Project Distances
-  Outstanding Scenic Lake
-  Significant Scenic Lake
-  Conservation Land
-  Sunrise Conservation Easement
-  3 Miles from Turbines
-  8 Miles from Turbines





-  Bowers Turbines
-  Commercial Sport Camp
-  Outstanding Scenic Lake
-  Significant Scenic Lake
-  Conservation Land
-  Sunrise Conservation Easement (working forest & public access)





Rollins from Prince Thomas Park.

From this location, the closest turbine at Rollins is approximately 5.4 miles away. Photo taken by TJDA, June 6-7, 2011.

A visual simulation was prepared for Rollins from the sandy beach just adjacent to this location.



Rollins from shore of Madagascal Pond.

From this location, the closest turbine at Rollins is approximately 2.5 miles away. Note that the rotors are difficult to discern from this distance. Photo taken by TJDA, June 6-7, 2011.

A visual simulation was prepared for Rollins from approximately this same location.



Rollins from Upper Hot Brook Lake.

From this location, the closest turbine at Rollins is approximately 2.5 miles away. Note that the rotors are difficult to discern from this distance, despite the silhouette effect present with these light conditions. Photo taken by TJDA, June 6-7, 2011.



Rollins from Upper Pond.

From this location, the closest turbine at Rollins is approximately 2.5 miles away. Note that even with a blue sky, the turbines do not stand out in this photo. Photo taken by TJDA, June 6-7, 2011.

VISUAL SIMULATION FROM MADAGASCAL POND, BURLINGTON

8/18/08

LandWorks

Rollins Wind Project

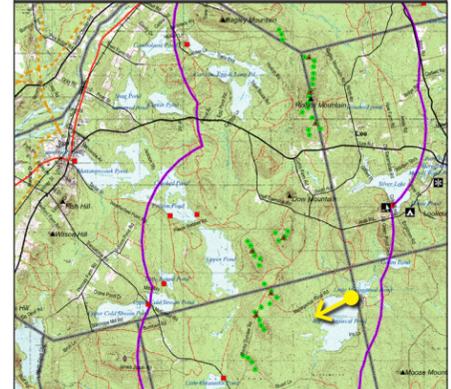
Prepared by LandWorks, Middlebury, VT



Existing Conditions Photograph



View Location Map



Simulation Information

Turbine Information	Model: GE 1.5 MW sle 60Hz
	Hub height: 262'-6" (80 m)
	Rotor diameter: 252'-11" (77 m)
Photograph Information	Date and time: 7/29/08; 12:40 pm
	Location: At Madagascal Pond in Burlington; 45.3060° N, 68.3424° W
	Camera elevation above sea level: 316'-4" (96.4 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 11" (27.9 cm)
Technical Information	Distance to nearest visible turbine: 2.5 miles (4.0 km)
	Software: Nemetschek VectorWorks 2008; Google SketchUp Pro 6; Adobe Photoshop CS3
	Digital elevation data source: http://www.megis.maine.gov/catalog

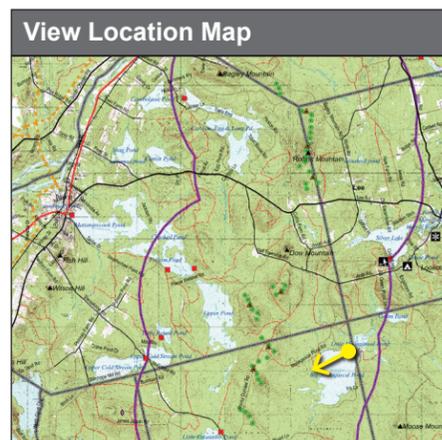
POST-CONSTRUCTION VIEW FROM MADAGASCAL POND, BURLINGTON

Rollins Wind Project

6/17/2011



Prepared by LandWorks, Middlebury, VT



Project and Photograph Information	
Turbine Information	Model: GE 1.5 MW sle 60Hz
	Hub height: 262'-6" (80 m)
	Rotor diameter: 252'-11" (77 m)
Photograph Information	Date and time: 6/8/11; 5:04 pm (photo by TJDA)
	Location: Madagascal Pond in Burlington; 45° 18.3647' N, 68° 20.5555' W
	Camera elevation above sea level: approx. 316'-4" (96.4 m)
	Focal length (35mm equivalent): 56mm
	Viewing distance: approx. 11" (27.9 cm)
	Distance to nearest visible turbine: 2.5 miles (4.0 km)
Technical Information	

VISUAL SIMULATION FROM PRINCE THOMAS PARK, LINCOLN

8/18/08

LandWorks

Rollins Wind Project

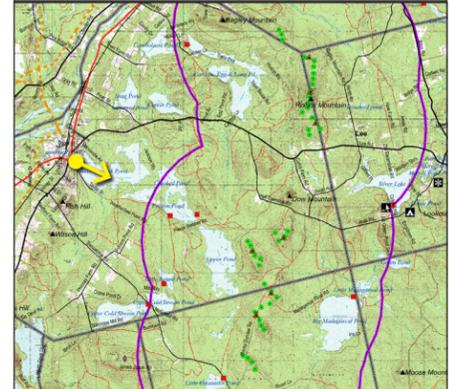
Prepared by LandWorks, Middlebury, VT



Existing Conditions Photograph



View Location Map



Simulation Information

Turbine Information	Model: GE 1.5 MW sle 60Hz
	Hub height: 262'-6" (80 m)
	Rotor diameter: 252'-11" (77 m)
Photograph Information	Date and time: 7/29/08; 10:45 am
	Location: Prince Thomas Park beach on Mattanawcook Pond in Lincoln; 45.3622° N, 68.5001° W
	Camera elevation above sea level: 233'-11" (71.3 m)
	Focal length (35mm equivalent): 56mm
	Simulation viewing distance: 11" (27.9 cm)
	Distance to nearest visible turbine: 5.4 miles (8.6 km)
Technical Information	Software: Nemetschek VectorWorks 2008; Google SketchUp Pro 6; Adobe Photoshop CS3
	Digital elevation data source: http://www.megis.maine.gov/catalog

POST CONSTRUCTION PHOTO FROM PRINCE THOMAS PARK, LINCOLN

Rollins Wind Project

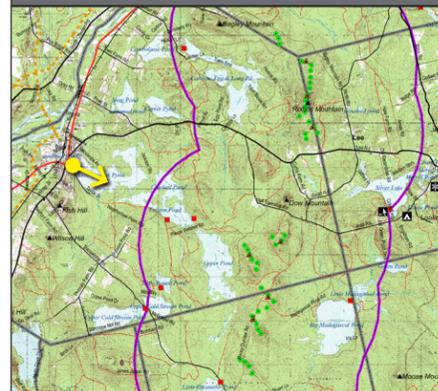
6/8/11



Prepared by LandWorks, Middlebury, VT



View Location Map



Project and Photograph Information

Turbine Information	Model: GE 1.5 MW sle 60Hz
	Hub height: 262'-6" (80 m)
	Rotor diameter: 252'-11" (77 m)
Photograph Information	Date and time: 5/19/11; 2:40 pm
	Location: Prince Thomas Park beach on Mattanawcook Pond in Lincoln; 45.3622° N, 68.5001° W
	Camera elevation above sea level: 233'-11" (71.3 m)
	Focal length (35mm equivalent): 56mm
	Photo viewing distance: 11" (27.9 cm)
Technical Information	Distance to nearest visible turbine: 5.4 miles (8.6 km)
	Software: Adobe Photoshop CS3

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Docket No. _____

Petition of EMDC, LLC d/b/a East Haven Windfarm)
for a Certificate of Public Good pursuant to)
30 V.S.A. sections 231 and 248, authorizing it to construct)
a 6 MW wind electric generation facility, and)
associated transmission and interconnection facilities,)
in East Haven, Vermont, and operate the same.)

**PREFILED DIRECT TESTIMONY OF
TODD COMEN
ON BEHALF OF EAST HAVEN WINDFARM**

November 17, 2003

Summary:

Mr. Comen describes the work that he performed on behalf of East Haven Windfarm related to the proposed project: (i) a review of studies and other information regarding the impact of wind projects outside Vermont on tourism and development; (ii) exploratory research using questionnaires and interviews to assess the reaction of tourists to the proposed project; and (iii) demand projections for the number of tourists who might visit an Interpretive Center at the project site. He also presents his conclusions that the project will provide an economic benefit to the State, and will not unduly interfere with the orderly development of the region.

1 **Q Please state your name and occupation.**

2 Response: My name is Todd Comen, I am an Associate Professor of Hospitality
3 and Tourism Management at Johnson State College. I am also a private consultant,
4 operating under the business name, The Institute For Integrated Rural Tourism.

5
6 **Q What is the Institute for Integrated Rural Tourism?**

7 Response: The Institute For Integrated Rural Tourism is a consulting company that
8 works with rural communities and rural enterprises in the tourism sector. The
9 Institute provides leadership, conducts research, and provides training and education
10 for those interested in successfully weaving tourism into the economic fabric of rural
11 communities. I have clients in Vermont, including the Northeast Kingdom, in
12 Central Europe where I've worked with the Institute For Sustainable Communities
13 (based in Vermont), and in Honduras where I've worked with Partners of the
14 Americas and the Mayan World Foundation. I am currently working with a client in
15 Cameroon seeking training around low impact ecotourism development.

16
17 **Q Please describe your relevant qualifications and experience.**

18 Response: I have been in the tourism and hospitality industry since 1981 when I first
19 developed and managed a country inn on a 140 acre farm in Mendocino County
20 California. I earned a Masters Degree from Cornell University in 1989 with a focus
21 in marketing and quality management. I have worked in operations, planning, and
22 marketing. In Wisconsin I developed and managed a fully integrated agricultural and
23 tourism operation which included two farms totaling 100 acres of fruit and vegetable

1 production, a regional wholesale operation, a three seasons tourist attraction and
2 three retail outlets.

3 Over the past 7 years I have taught tourism and hospitality management
4 courses at Johnson State College and am now a tenured faculty member. I also
5 taught tourism development and marketing part-time at Champlain College.

6 I have been consulting and providing training for the tourism and hospitality
7 industry for over 15 years. Recent Vermont clients include Smugglers' Notch
8 Resort, Topnotch at Stowe Resort and Spa, The Northeast Kingdom Travel and
9 Tourism Association, The Vermont Information Services Division, and The
10 Vermont Department of Employment and Training. A copy of my resume is
11 included as *Exhibit EHWF-TC-1*.

12

13 **Q Have you previously testified before the Public Service Board?**

14 Response: No I have not.

15

16 **Q What is the purpose of your testimony?**

17 Response: The purpose of my testimony is to summarize the work that I performed
18 on behalf of East Haven Windfarm related to the proposed project: (i) a review of
19 studies and other information regarding the impact of wind projects outside
20 Vermont on tourism and development; (ii) exploratory research using questionnaires
21 and interviews to assess the reaction of tourists to the proposed project; and (iii)
22 demand projections for the number of tourists who might visit an Interpretive
23 Center at the project site. I also present my conclusions that the project will provide

1 an economic benefit to the State, and will not unduly interfere with the orderly
2 development of the region.

3

4 **Q Before discussing your tourism-related work regarding this project, can you**
5 **describe the profile of visitors and tourists to the Northeast Kingdom of Vermont?**

6 Response: Yes I can. Studies by the University of Vermont, School of Natural
7 Resources' Vermont Tourism Data Center (VTDC) provide visitor profiles for the
8 State, although not broken down regionally. Relevant demographic information
9 includes the following:¹

- 10 ▪ 60% of visitors come from the New England and the Mid-Atlantic regions;
- 11 ▪ 45% have annual household incomes greater than \$50,000;
- 12 ▪ 39% have college degrees, with 17% of that group having a post graduate degree;
- 13 ▪ Close to 67% are single and two person households;
- 14 ▪ 72% have no children under the age of 18;
- 15 ▪ Households headed by individuals between 55 and 64 years of age are the most
16 likely to visit Vermont;
- 17 ▪ Households headed by individuals between 45 and 54 years of age are also more
18 likely to travel to Vermont;
- 19 ▪ The target group most likely to visit Vermont originates from the suburbs of
20 major metropolitan areas; and
- 21 ▪ Less than 5% of the visitors to Vermont visit the Northeast Kingdom.

¹ Vermont Tourism Facts and Impacts (Vermont Tourism Data Center, University of Vermont, School of Natural Resources, 2000); 2002 National Survey Of The Vermont Visitor Preliminary Report (Vermont Tourism Data Center for the Vermont department of Tourism and Marketing).

1 Based upon these demographics and other available resources, Vermont
2 tourists are in general well educated, relatively affluent, older and well traveled. They
3 tend to be active rather than passive, enjoying outdoor seasonal recreation. The
4 visitor to Vermont enjoys shopping for specialty products, relaxing at their
5 destination, participating in wildlife viewing, and experiencing the rural towns as well
6 as historical sites and cultural activities.

7 My own research in the Northeast Kingdom during the summer and fall of
8 2003 confirms that Northeast Kingdom visitors have a relatively similar profile to
9 Vermont visitors as a whole. Most originate from the suburbs of major metropolitan
10 areas with 23% originating from the Boston Metropolitan Area alone. My results
11 show that of the 275 survey respondents who answered the age category of the
12 survey, 82% had someone in their party over the age of 40, with 35% of the
13 respondents indicating that someone in their party was between the ages of 50 and
14 65 years old. 18% of the respondents indicated that they had someone in their party
15 between the ages of 23 and 39 years of age, and 45% indicated that they were
16 traveling with children under the age of 17. As with the major studies conducted by
17 UVM for the Vermont Department of Tourism and Marketing, this study shows that
18 visitors to Vermont tend to be older.

19

20 **Q. How do you use demographic and other information to determine what type**
21 **of tourist experience a visitor to Vermont or NEK is seeking?**

22 Response: The Vermont “brand” as commonly characterized by tourism
23 professionals (state, regional, and business officials, for example) is associated with

1 rural landscapes, scenic beauty, high quality specialty products, picturesque villages,
2 outdoor recreation and the integrity of its historical and cultural sites. Vermont is
3 known for its seasonal outdoor recreational opportunities and the opportunity for
4 visitors to relax and unwind.

5 During the summer and fall of 2003, I conducted a “branding” study for the
6 Northeast Kingdom Travel and Tourism Association. The goal was to gather
7 information on the demographic of the visitor to the Northeast Kingdom, identify
8 the activities they are participating in while in the Northeast Kingdom and
9 understand why they chose to visit the region. Study results indicate that Northeast
10 Kingdom visitors are “soft adventure” types who seek independent outdoor
11 recreational activities in safe, natural settings. Camping is popular among visitors to
12 the Northeast Kingdom during the summer months and by and large, the somewhat
13 older crowd is enjoying nature by hiking, biking and canoeing as well as relaxing at
14 their destination and shopping.

15 Visitors like the quiet and non-commercial feel of the NEK. They choose
16 the NEK for its scenery, its lakes and other nature amenities. More visitors seem to
17 visit historic sites rather than participate in cultural activities. Some come for golf,
18 fishing, and shopping for antiques. Most visitors mention that they shop during
19 their stay and hiking, canoeing, wildlife viewing, bird watching, and mountain biking
20 are the top activities mentioned.

1 These characteristics are consistent with the Centric-Venturer label described
2 by Stanley Plog in his analysis of the tourism market.² This market segment has a
3 propensity towards soft adventure, light or moderate physical activity and willingness
4 to take a modicum of risk while on vacation. This market segment continues to
5 grow as the 30 something market segment begins to mature and the baby boomer
6 generation remains active and youthful. It is this segment that will continue to be
7 attracted to the wide variety of multi-sport outdoor recreational opportunities
8 provided by the natural attractions in the Northeast Kingdom.

9

10 **Q Please describe your review of information on projects located outside**
11 **Vermont regarding the connection between wind farms and tourism.**

12 Response: The first step in my assessment of the relationship between wind farms
13 and tourism was to conduct a review of existing information. A search revealed that
14 there is a dearth of academic research and peer reviewed studies on the topic. A
15 review of the literature available on the impacts of wind farms on tourism suggests
16 that most tourists will not be deterred from visiting an area where wind farms are
17 present. Internet websites that highlight wind farms and tourism reveals a trend that
18 brings together wind farm development and tourism rather than drives them apart as
19 two incongruent enterprises. Based upon the materials I reviewed, there was no
20 indication from any of the tourist areas where wind farms have been developed that
21 tourists have been deterred from visiting. On the contrary, visits have increased in

² Leisure Travel: A Marketing Handbook, Stanley C. Plog (Pearson Prentice Hall Publishing, 2004).

1 many areas and the new wind farm attractions have inspired new business
2 development.

3 **Scotland Study**

4 I reviewed a well-designed study of how visitors to the Scottish countryside
5 respond to existing and prospective wind farms. This ‘qual-quant’ study was
6 conducted for VisitScotland, the national tourism agency for Scotland.³ A principal
7 goal of the study was to conduct consumer research into the views, perceptions and
8 ‘thinking’ of visitors regarding wind farms. The authors did not design the study to
9 determine economic impact and did not make any economic projections based on
10 the results of their research. The research team conducted a series of 180 in depth
11 interviews of a wide range of visitors in July of 2002. The interviews were conducted
12 in rural Scotland in the proximity of current and proposed wind farm developments.
13 The subjects were selected according to specific attributes so that a balanced sample
14 of visitors would be well represented. As a result, no single visitor type such as day-
15 trippers or international visitors skewed the results.

16 The authors first established the demographic characteristics of the visitors.
17 Generally, the profile of respondents was relatively old – 61% were 45 years or over,
18 while only 22% were under 35. This tends to reflect the relatively older age profile of
19 the Scottish tourism market. Next, the researchers determined why people choose to
20 visit the target areas in Scotland. Overall, 80% of the respondents indicated that
21 ‘beautiful scenery’ was particularly important when they were deciding to visit the

³ Investigation into the Potential Impact of Wind Farms on Tourism in Scotland, Final Report (NFO World Group, August 30, 2002).

1 area. The ‘friendly people’ also emerged as an important element – over 60%
2 mentioned this. Four other reasons were provided by the respondents: good place
3 to get away from it all and relax (51%); interesting history and culture (48%); nature
4 and wildlife (48%); and unspoiled environment (48%),⁴

5 The Scottish researchers also wanted to know what sorts of facilities or
6 developments in the Scottish countryside detracted from or enhanced the visitor
7 experience.⁵ Results indicate that there are a wide variety of man-made elements in
8 the landscape which people have come to live with that either enhance or detract
9 from their experience. For example, planted, geometric forestry, mobile phone
10 masts, and electrical pylons were thought to detract more from the visitor experience
11 than wind farms. On the other hand, wind farms were thought to enhance the
12 visitor experience nearly as much as ski slopes and more than chair lifts and
13 gondolas. Funicular railways on mountainsides and trails and tracks, both man-made
14 features were also regarded with mixed feelings from respondents in the study.

15 Two thirds of respondents had seen wind farms elsewhere, outside of
16 Scotland. According to the researchers, visitors from other parts of the UK or from
17 overseas countries of origin were particularly likely to have seen wind farms
18 elsewhere (84% and 75% respectively).

19 One of the key confirmations of the study, according to the authors , “is the
20 emotive nature of the whole issue of wind farm development.” Respondents on
21 both sides of the issue “had fairly strong opinions, one way or another, on the

⁴ NFO World Group. pp. 18 and 19.

⁵ NFO World Group, p. 46.

1 development of wind farms.” The majority of respondents – over three quarters –
2 were either positive or at least neutral toward wind farm development. At the same
3 time, a significant minority (21%) of visitors held much more negative views towards
4 wind farm development.⁶

5 The authors reported that a common theme among both the trade and
6 consumers was that wind farms should not be sited in or near designated areas of
7 outstanding scenery such as Areas of Outstanding Natural Beauty (a countrywide
8 designation), National Parks, National Scenic Areas, Sites of Special Scientific
9 Interest, etc. In addition, however, there was a general consensus amongst visitors
10 that, whenever possible, wind turbines should not be located in or near popular
11 tourist areas.⁷

12 The Scottish researchers concluded that “*attitudes towards wind farms tends to be*
13 *slightly more positive amongst those who have actually seen and experienced them (81%) than*
14 *amongst those who have not done so (66%).*”⁸ Based on these figures the Scottish
15 researchers determined, “*This tends to suggest that a number of the perceived negative*
16 *associations with wind farms – visual and noise pollution – are seen to be less problematic amongst*
17 *those respondents who have actually seen them ‘insitu’.*”⁹ In the final analysis, when asked if
18 wind farm development would deter visitors from visiting an area in the future, 70%
19 said that it would make no difference to their travel plans, 26% said that they would

⁶ NFO World Group, p. 80.

⁷ NFO World Group, p. 82.

⁸ NFO World Group, p. 60

⁹ NFO World Group, p. 81.

1 be less likely to return in the future, and 1% said that they would be more likely to
2 return.¹⁰

3 **Tourism Websites**

4 Through the Internet, I located a number of domestic and international
5 destinations that highlight wind farms on their tourism promotion web sites. Tourist
6 areas with wind farm developments reviewed for this research included: Prince
7 Edward Island, Canada; Lake Arenal, Costa Rica; Lincoln County, Minnesota; and
8 Palm Springs, California. Each of these destinations is known for its natural beauty
9 and outdoor recreational activities.

10 **Prince Edward Island, Canada**

11 Prince Edward Island is a natural destination for tens of thousands of
12 tourists each summer season. *“A visit to PEI promises a memorable visual experience. The
13 brilliant greens of pasture and forest complement the glowing reds of fields and cliffs all bordered by
14 the ever-changing ocean. Tiny fishing ports, immaculate farm scenes, communities that still revolve
15 around the local general store; this is the stuff of your Prince Edward Island scrapbook.”*¹¹

16 Amongst beautiful photographs of ‘sunsets and seascapes’, readers of the visitors
17 guide are encouraged to explore this region that “in many ways remains unchanged .
18 . . Juxtaposed at the tip of the island, eight huge windmills pose in dramatic stance
19 against the sky, generating electricity for islanders.”¹²

¹⁰ NFO World Group, p. 82.

¹¹ PEI Visitors Guide 2003, p. 9

¹² PEI Visitors Guide 2003 p. 217.

1 The North Cape Complex of eight wind towers is located on the
2 northernmost tip of Prince Edward Island. The site is also home to North
3 America’s longest natural rock reef which affords the visitor views of seals along the
4 Black Marsh Nature Trail. The nature trail has interpretive signage related to the
5 area’s history, local fishing and unique ecology. The North Cape Wind Farm
6 produces 3% of Prince Edward Island’s energy. An announcement in the visitor’s
7 guide alerts the would-be tourist that soon visitors will be able to view a new turbines
8 which are “almost twice the size as the original 8 wind mills!”

9 The North Cape Site is also home to a visitor’s complex that includes the
10 Wind and Reef Restaurant and Lounge, a newly expanded interpretive center, and a
11 gift shop. The restaurant gives visitors the chance to dine while enjoying a
12 panoramic view of the ocean and reef, or an “excellent view” of the Atlantic Wind
13 Test Site from the lounge. The newly expanded North Cape Interpretive Center
14 houses a series of state-of-the-art displays dedicated to wind energy and the
15 development of the special technology to harness it. Visitors can also explore the
16 history of the North Cape area including the natural history and the history of
17 various cultural groups that settled in the area. The newly expanded center opened
18 in July 2003, and in its first two months nearly 60,000 people visited the center and
19 gift shop. In the past, 40,000 visited the gift shop between June and October; the
20 increase in numbers has been attributed to the wind farm visitor center.¹³ According
21 to Ron Estabrooks, Energy Advisor for the Prince Edward Island Department of

¹³ Telephone communication with gift shop manager on October 15, 2003.

1 Development and Technology, “*from very rough numbers and observations, the development of*
2 *wind projects has substantially improved tourist visits to the site. As a bit of a background, this*
3 *area of the province did not get the tourist visits of the more famous beach areas and other points of*
4 *interest.*”¹⁴

5 **Lake Arenal, Costa Rica**

6 The Costa Rica brand can be summed up in the tagline used in Costa Rica’s
7 international marketing efforts, “No Artificial Ingredients.” Lake Arenal is one of
8 the most beautiful tourist destinations in Costa Rica, according to Martha Honey of
9 the International Ecotourism Society who lived in Costa Rica for ten years. Its rural
10 nature with famous Arenal Volcano towering above the high altitude lake is one of
11 the highlights of a Costa Rican vacation. The Tierras Morenas Wind Farm located at
12 the western end of Lake Arenal consists of 32 wind turbines that are approximately
13 120 feet in height.¹⁵ According to Ms. Honey, the wind turbines are visible from
14 lodging establishments and activity sites along the lakeshore. The destination of
15 Lake Arenal is highlighted at www.arenal.net/lake-arenal.htm. “The majestic Lake
16 Arenal near the famous Arenal Volcano is the largest in Costa Rica.” At [www.get2-
17 costarica.com/hotels_arenal.htm](http://www.get2-costarica.com/hotels_arenal.htm), travelers receive the following advice:

18 *Much is happening nowadays around this 32 kilometers long lake. It is one of the most*
19 *privileged and safe viewpoints of the outstanding active volcano. Hit by the Trade Winds almost all*
20 *year round, this site has become the best destination in Central America for watersport lovers. Safe*
21 *swimming, fresh water fishing, windsurfing, kayaking, canoe and boat trips, and water ski, are*
22 *some of the best options while gazing at the natural fireworks and beautiful landscape. Other*
23 *activities take you away from the water, but not too far. Horses are a common mean of*
24 *transportation in the area, because of their ease to go into the wilderness. Tours are normally offered*

¹⁴ Email communication, October 6, 2003.

¹⁵ Website for Tierras Morenas Wind Farm. www.pi.energy.gov/library/ewslcostarica.pdf.

1 *for a very low price. One of the most interesting ones might be the visit to the aeolian (wind) energy*
2 *project of the region or a tour around the foothill of the Arenal Volcano.”*
3

4 **Lincoln County, Minnesota**

5 Lincoln County, Minnesota consists of five rural communities including
6 Tyler, Lake Benton, Ivanhoe, Hendricks, and Arco. The website for Lincoln County
7 highlights “hundreds of wind towers [a]top the Buffalo Ridge, reflecting on
8 numerous lakes.” The websites for the towns of Lake Benton and Hendricks feature
9 the wind turbines that dot their landscape. It is obvious that the tourism businesses
10 in these communities have embraced wind energy and believe that visitors will be
11 attracted to the area rather than be deterred from visiting because of the presence of
12 wind farms. A brief picture of two rural communities in Lincoln County is
13 presented below.¹⁶

14 **Lake Benton, Minnesota**

15 The Lake Benton Chamber of Commerce website states that “Lake Benton is
16 proud to be known as the ‘Windpower Capital’ of the American Midwest.”
17 According to the Lincoln County home page, “*Lake Benton boasts of downhill skiing and*
18 *snowmobiling at nearby ‘Hole in the Mountain’ County Park . . . The historic Lake Benton Opera*
19 *House hosts several dramatic and musical productions. Specialty shops provide ‘things to do’ in this*
20 *scenic lake area . . . The Buffalo Ridge large wind power project surrounds Lake Benton.*”¹⁷

21 The 200 wind turbines surrounding Lake Benton are each 257 feet in height.
22 Visitors to the new Heritage and Windpower Learning Center in Lake Benton from

¹⁶ Minnesota Department of Tourism, www.exploreminnesota.com/go.cfm/lincolncounty.

¹⁷ Lake Benton Website, www.brookings.itctel.com/~lbenton/index.html

1 July 25 through September 25 numbered 340 in a town of only 700 people. People
2 from around the U.S. and the world visited the center either in small groups or as
3 independent travelers. In 2002 the center hosted 35 tour groups and in 2003 it
4 hosted 37 tour groups. Tour groups consisted of engineers, school children,
5 legislators and other general tourist groups curious about the wind farms.¹⁸

6 **Hendricks, Minnesota**

7 The website for Hendricks, MN (www.hendricksmn.com) features “four
8 season recreation around the interstate lake.” A Norwegian ethnic celebration is
9 scheduled for May 17 and the Buffalo Ridge Two-Cylinder Tractor show is held the
10 first full weekend of June. The website highlights lakes, campgrounds, parks, wildlife
11 and native prairie which all add character to the rural makeup of Lincoln County.
12 According to the same website, Northern Alternative Energy (NAE) is currently
13 constructing a major visitor center south of Hendricks. The center will provide a
14 new tourist and lodging assets to the Hendricks community. The visitor center will
15 house information resources about wind energy and will be open to the general
16 public. The four buildings making up the visitor center will total 11,400 square feet
17 and feature a:

- 18 • Great room with wind farm view and interpretive information resources,
19 • Wind turbine on-site for viewing and touring,
20 • Interactive wind turbine monitoring, and
21 • Native prairie landscape.

¹⁸ Email communication with Heather Ulrich, Executive Director Lake Benton Chamber of Commerce and Convention and Visitors Bureau on August 13, 2003 and October 7, 2003.

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The Hendricks website also highlights the wind projects in a prominent way: “*Just a few miles south of Hendricks you can visit one of Minnesota’s greatest new tourist attractions – the largest ‘wind farm’ in the U.S. Midwest . . . Scores of tall, sleek wind towers rise 200 feet in the sky, with rotors 150 feet in diameter.*”

Palm Springs, California

A large wind tower installation is located five miles north of Palm Springs, a major tourist destination in the Southern California desert. Guided tours of the wind farm installation are provided by Windmill Tours of Palm Springs.¹⁹ Tours for individuals cost \$23 for adults, \$20 for seniors, and \$10 for children. Group tours are also available. Tourists ride on a 21 passenger bus to the wind farm. There they are able to view the wind farm and a dismantled wind tower and its interior mechanical systems. The tours are run twice per day, three days a week during the winter months. Each tour lasts 1.5 hours. Step on guides are also available for coaches. Groups that are typically attracted to the tour include engineers, college and other school groups as well as the general public. Brochures of the wind farm operation and tour opportunities are available in all of the major hotels in Palm Springs. Over the years the tour company has averaged in the slow season around 200 people per month, and in the busy months around 1,300 people per month, for a total of between 6,000 and 8,000 customers per year.

¹⁹ Telephone conversation with the owner Windmill Tours of Palm Springs, early October 2003.

1 **Q. What conclusions have you drawn regarding wind projects and tourism,**
2 **based upon the information that you gathered?**

3 Response: My review of tourism-based websites and promotional materials indicate
4 that wind farms and tourism are not incompatible. Instead, tourist regions whose
5 primary attractions are nature also highlight wind farms along with lodging,
6 restaurants, canoeing, fishing and hunting, and wildlife viewing, biking, horseback
7 riding, and skiing among others. The results appear to be increased tourism to
8 certain rural destinations due to wind farms. The Scotland study also supports a
9 conclusion that wind farms have not adversely impacted tourism destinations. I have
10 not been able to locate any published studies or credible reports demonstrating that
11 wind farms have a negative effect on tourism.

12 The information I reviewed also suggests that the Vermont “brand” and the
13 demographics of visitors to Vermont and the NEK is similar to the tourist locations
14 discussed above. I believe it is thus fair to conclude that tourists will not be deterred
15 from visiting the NEK, an area of high scenic and natural beauty, if the proposed
16 wind farm were built.

17
18 **Q Please describe the questionnaires and interviews that you have conducted in**
19 **connection with the proposed project.**

20 Response: The focus of my effort was to determine whether the experience in other
21 locales that host wind farms, as described in my prior answers, would apply to visitor
22 perceptions and preferences in Vermont. To determine how visitors to Vermont
23 would respond to the proposed four turbine demonstration project at East Haven,

1 three simple questionnaires were administered to a total of 180 people, one
2 questionnaire in the Northeast Kingdom of Vermont to travelers stopping at visitor
3 centers, one questionnaire in Southern Vermont near the Searsburg wind farm, and
4 one questionnaire via email to skiers residing in other states. Each questionnaire was
5 designed to gauge whether a wind farm would deter tourists from visiting an area or
6 skiing in an area. The questionnaires are included in *Exhibit EHWF-TC-2*. A copy
7 of the photo simulation that accompanied the questionnaire of travelers in the
8 Northeast Kingdom is attached as *Exhibit EHWF-TC-3*.

9

10 **Q Are tourist questionnaires and interviews common techniques used by you**
11 **and other professionals in the tourism field?**

12 Response: Yes. Employing simple questionnaires and interviews is a user-friendly
13 method to identify patterns and themes in tourist behavior. I have used this method
14 on many occasions here in Vermont and in my international work.

15 The use of structured (undisguised or disguised) questionnaires is common
16 in marketing research.²⁰ This type of data collection process generates reliable data
17 because all respondents are presented with exactly the same questions in wording
18 that is in the same order. Inconsistencies are minimized and respondents are clear
19 on what is being asked of them. Probably the greatest advantages of this type of
20 questionnaire is that it is simple to administer and easy to tabulate and analyze.²¹

21 Common responses will often emerge. These common responses when classified

²⁰ Marketing Research: Methodological Foundations, Gilbert A. Churchill (5th ed. Dryden Press, 1991, p. 318)

²¹ Ibid. p. 319.

1 and grouped are then used to reveal patterns of interest and underlying motivations.
2 This type of research is useful, cost effective, and reliable when gathering data about
3 consumer travel behavior and travel preferences.

4 For example, in one of the research projects I conducted for a ski resort, we
5 employed a questionnaire designed to identify reasons why visitors who do not own
6 condominiums return to the resort at lower than expected rates. A multifaceted
7 questionnaire was designed consisting of a series of structured questions, some open
8 ended, some with fixed alternatives, as well as questions that were designed as
9 disguised and unstructured which motivated the respondent to project their
10 emotions through the answers to the questions. I have also employed simple
11 questionnaires to determine skier preferences at area ski resorts and to gauge
12 customer satisfaction at Topnotch at Stowe Resort and Spa. I often employ
13 questionnaires to help spur consumers to enter into conversation which in turn gives
14 me an opportunity to probe deeper into the behavior patterns of the respondent.

15

16 **Q. What were the results of your work?**

17 Response: A description of each informal survey follows.

18 **Northeast Kingdom Questionnaire**

19 On the afternoon of Monday, October 6, 2003 a questionnaire was tested at
20 the Lyndon Information Center. The test indicated that visitors would respond
21 honestly and without need for clarification to the questions. Between October 10
22 and October 17, 2003, the questionnaire was administered to 102 visitors at the
23 Waterford and Lyndon Interstate Information Centers on four separate days

1 (including a Thursday, two Fridays and a Saturday). A test was also run late in the
2 afternoon on Saturday October 11th at the Montpelier Information Center; the
3 results were consistent with those from the Northeast Kingdom (discussed below).
4 Visitors were told that there was a demonstration wind farm development proposed
5 for the region and that their perspective on the development would be helpful.
6 Visitors were then shown a photographic simulation of the proposed wind towers
7 and asked whether the wind farm would deter them from visiting the region or deter
8 them from skiing in the region. Demographic information and visitation rates were
9 requested as part of the questionnaire. The photo simulation was created by Terry
10 Boyle and depicts the 4 turbines on East Mountain as they would appear from
11 Darling Hill in Burke, 7.7 miles away. See *Exhibit EHWF-TC-3*.

12 Visitors were engaged as they browsed around the visitor center and asked if
13 they were visiting Vermont from out-of-state. If the visitor was traveling from out-
14 of-state, the researcher asked if one person in the party would mind completing a
15 brief survey regarding a proposed wind farm development in the region and that
16 their perspective would be greatly appreciated. If the answer was yes, respondents
17 were given a clipboard with the questionnaire attached and shown the photo
18 simulation which was mounted on a foam board backing. It was explained that the
19 photo simulation was from a distance of 7.7 miles and that this was one of the
20 closest views people would have of the proposed wind farm. If the respondents had
21 clarifying questions regarding the size or placement of the wind turbines answers
22 were given clearly and succinctly. Once the respondent completed the questionnaire
23 they were thanked and wished safe travels.

1 Travelers came from around the U.S. and from overseas for the Fall foliage
2 season. U.S. travelers included people from Georgia, Texas, California, Wyoming,
3 Massachusetts, New Hampshire, Wisconsin, Minnesota, New York, Florida,
4 Washington State, Delaware and Michigan. International travelers came from
5 Singapore, Germany, Norway, Canada and Colombia. Nineteen percent of visitors
6 were from Massachusetts, 10% from New Hampshire and 12% from Canada.

7 Thirty-two percent of those interviewed have visited Vermont 10 or more
8 times, 28% have visited 2-4 times, 5 % have visited 5-10 times, and 35% were first
9 time visitors. The average party size was 2 with an average length of stay of 2 nights.
10 The 102 respondents who completed the survey represented 232 travelers. The 102
11 respondents indicated that at least 89 of the 232 people traveling were 45 years of
12 age or older and at least 30 were between the ages 25 and 44 years old. These figures
13 are consistent with numerous studies of the Vermont visitor and mirror the general
14 picture of those travelers surveyed in the VisitScotland study described in the
15 literature review.

16 Visitors had numerous destinations within Vermont including Barton,
17 Newport, Burlington, Stowe, Greensboro, Woodstock, Middlebury, St. Johnsbury
18 and Jay Peak. Some visitors were just passing through Vermont, either sightseeing
19 for the day or driving through to Canada or other points in the U.S.

20 Sixty-three percent of those interviewed have seen a wind farm in the past.
21 Many have seen large wind tower installations in the U.K, Germany, West Texas,
22 Minnesota and other mid-Western States, and California. Some of the visitors have
23 seen wind towers in New Zealand and Prince Edward Island.

1 The final two questions focused directly on the proposed wind farm on East
2 Mountain. Question number 6 asked visitors to view the photo simulation and
3 answer the question, “would the presence of these four wind towers deter you from
4 visiting this region of Vermont?” Ninety-five percent of the respondents said that
5 they would not be deterred from visiting the area. Question number 7 asked visitors,
6 “if you are a skier, and if wind towers were present on this ridgeline (shown in the
7 photo simulation), would you be deterred from skiing at a ski mountain located in
8 this region? Sixty-eight percent of the respondents indicated that they ski. Of those
9 respondents who ski, 92% indicated that if wind towers were present on the ridgeline
10 in the photo simulation, they would not be deterred from visiting a ski area within
11 the same region.

12 **Skier E-Mail Questionnaire**

13 In October 2003, I investigated how skiers would respond to a proposed
14 wind farm. I conducted an Internet search of ski clubs in New England, New York
15 and the Mid-Atlantic States. Email requests to participate in a short email survey
16 were sent to numerous ski clubs. Only two ski clubs were willing to send out a short
17 questionnaire to their members. Those that refused stated privacy as their reason for
18 not accepting the request. The director of the Connecticut Ski Council and the
19 Bucks Mount Ski and Snowboard Club of Pennsylvania agreed to distribute a short
20 email questionnaire to its members with email accounts. I was never told how many
21 members the questionnaire was sent to.

22 A total of 58 members from the two clubs responded to the questionnaire.
23 Each of the respondents ski in Vermont. Results demonstrate that these ski club

1 members ski all over Vermont, with a majority of the respondents skiing multiple
2 locations during any given winter. The results were as follows:

3 **Do you ski in Vermont?**

4 ➤ 100% have recently skied in Vermont.

5 **If yes, where?**

6 ➤ Responding club members ski all over Vermont, with respondents frequently
7 mentioning skiing at Jay Peak, Okemo, Killington, Mt. Snow, Stratton, Stowe,
8 and Sugarbush ski resorts. Bromley, Pico, Haystack, Ascutney, and Smugglers'
9 Notch were mentioned less frequently.

10 **If power generating wind towers were sited in a region of Vermont where you**
11 **ski, would you be deterred from skiing in that region?**

12 ➤ Fifty-five of the respondents, or 95%, would not be deterred from skiing at a
13 resort if wind towers were present in the region.

14 **Southern Vermont Interviews**

15 Given the presence of the Searsburg wind farm within close proximity of one
16 of the busiest tourist destinations in the State, I examined whether visitors to that
17 area had a negative perspective on wind power installations. If visitors in Southern
18 Vermont viewed the Searsburg wind farm negatively, this could suggest that
19 Vermont is different than the non-Vermont locales described above where wind
20 farm developments complement local tourism.

21 On Labor Day weekend 2003, I visited the region around the Searsburg wind
22 farm, and interviewed a number of tourist-related business owners as well as
23 employees in the town offices. I also administered a simple questionnaire to tourists

1 in downtown Wilmington and at area attractions. Business owners reported that
2 tourist levels were high for the Labor Day weekend and that weekends during the
3 summer of 2003 had been busy. The area tourist business owners and managers that
4 I spoke with for this exploratory research included:

- 5 • Dot's Restaurant
- 6 • Vermont House Hotel, Restaurant, Bakery and Bistro
- 7 • Misty Knoll Bed and Breakfast
- 8 • The Adams Family Farm
- 9 • Mountaineer Inn

10 Dot's Restaurant was selected as a site for both an owner interview and
11 visitor intercepts because it is the most popular breakfast place in Wilmington. The
12 owner of the Vermont House was selected due to its downtown location and
13 proximity to numerous tourist retail shops. Misty Knoll Bed and Breakfast was
14 selected because it has a view of the Searsburg wind farm from its front porch. The
15 Adams Family Farm was selected because it is known as one of the most popular
16 and best run attractions in Vermont. And the Mountaineer Inn was selected because
17 it is a small enough property that the owners know their customers and are highly
18 regarded for their success in the lodging business.

19 Each of the business owners or managers willingly offered their opinion of
20 the impact of the Searsburg wind farm on tourism-related businesses. All of those
21 interviewed observed no negative impact on their businesses and were in fact proud
22 that the wind farm was located in their region of Vermont. Every business person
23 interviewed had a favorable opinion of the wind farm.

1 The Misty Knoll Bed and Breakfast is located high on Stowe Hill Rd. in
2 Wilmington and has a commanding view from the front porch of the wind towers
3 which are located on a ridge five miles away. Guests, according to the owner, are
4 curious about the wind towers and find them very interesting. On a clear day the
5 towers stand out on the ridgeline and guests sit on the porch watching them spin in
6 the distance. According to the owner, the presence of the wind farm does not deter
7 repeat visits to the B&B.

8 Perhaps the most popular attraction in the area other than the Mt. Snow Ski
9 Resort is the Adams Family Farm, which hosts thousands of visitors each year.
10 They are open year round and offer guided wagon and sleigh rides up into the hills
11 above the farm yard. The Searsburg wind farm is visible from two points on the
12 farm tour, five or six miles in the distance. During the guided rides, Mr. Adams
13 points out the wind towers. The theme of the guided talk is how farming in
14 Vermont has changed, with each Adams generation having to do something different
15 in order to make a life on the farm. The senior Adams weaves the Searsburg wind
16 farm into his story of change, as it has become a part of the changing Vermont
17 landscape.

18 The owners of Dot's Restaurant emphasized how much they favored the
19 wind farm. They believed that the downturn in the summer tourism business was
20 due to external factors that impacted tourism and that the presence of the wind farm
21 since 1997 has had no negative impact on their business.

22 The owner of the Mountaineer Inn saw no impact on her business from the
23 wind farm. Although it wasn't within view from the inn, she would like to offer

1 groups staying at her 27 room inn the opportunity to tour the wind farm installation.
2 Prior to 9/11, she would organize tours of the other power generating installations in
3 southern Vermont including the Yankee Nuclear Plant and the GMP hydropower
4 installation. She hoped that in the future she could include the GMP wind farm at
5 Searsburg in an educational tour. Her guests really enjoyed the opportunity to learn
6 while on vacation.

7 Finally, the owner of the Vermont House Hotel, Restaurant, Bakery and
8 Bistro saw no negative impact from the wind farm on her business. She had
9 purchased the businesses over the last couple of years and was continuously
10 investing in upgrading her product.

11 As a footnote to this exploratory research, a recent article in the October 6,
12 2003 Burlington Free Press about the Searsburg wind farm highlighted Innkeeper
13 Adam Grinold, owner of the White House Inn in Wilmington. The White House
14 Inn has a clear view of the Searsburg wind towers at a distance of approximately five
15 miles. Mr. Grinold stated in the article that the wind turbines have “become part of
16 the landscape.”

17 **Southern Vermont Questionnaire**

18 To get a more direct sense of how visitors viewed the wind farm in
19 Searsburg, I asked a total of 20 visitors at both the Adams Farm and waiting outside
20 of Dots Restaurant in Wilmington for breakfast on Sunday morning to complete a
21 short questionnaire regarding the Searsburg wind farm. See *Exhibit EHWF-TC-2*.
22 Respondents were asked if they were visiting the area from out-of-state. Those that
23 answered yes were told that I was conducting some exploratory research on the

1 impact of the Searsburg wind farm on tourism in the area. They were then asked if
2 they would mind completing a short questionnaire. Respondents were typically in a
3 party of two or traveling as a family with young children. The majority originated
4 from the key sending states of Massachusetts, New York and Connecticut.

5 A third of the respondents knew of the Searsburg Wind farm and 100% of
6 the respondents said that the wind farm did not deter them from visiting specific
7 attractions in the area. 100% also said that additional wind towers would not deter
8 them from visiting the Southern Vermont region in the future. Nearly half of the
9 respondents ski in Vermont and all respondents said that the presence of wind
10 towers at ski resorts or on mountains close to a ski area would not deter them from
11 visiting a particular ski area.

12
13 **Q. In your opinion do the results from your questionnaires and interviews**
14 **provide an indication of how tourists might react to the East Mountain**
15 **Demonstration Project?**

16 Response: Yes. It is apparent from the 180 respondents that it is very likely tourists
17 would not be deterred from visiting the Northeast Kingdom region of Vermont by
18 this project. I believe that the results of the exploratory studies will hold true during
19 all seasons. Visitor activities and primary destinations may change with the season,
20 but the main reasons for visiting remain consistent.

21 Summer visitors are generally pushed to travel to the Northeast Kingdom
22 from a personal or family need for respite and recreation in a quiet, non-commercial
23 setting. Most visitors during the summer months have an interest in outdoor

1 activities such as walking on back roads, biking, hiking, canoeing or kayaking, and
2 wildlife viewing. Summer visitors also tend to spend time relaxing at their
3 destination. Fall visitors mimic much of the summer demographics but may be
4 somewhat older, travel without children, tend to stay for shorter time periods, do
5 more sightseeing from their automobiles as opposed to outdoor activity, and are
6 more apt to travel from great distances to visit Vermont.

7 During the winter, most visitors require active recreation such as alpine or
8 Nordic skiing, snowshoeing, or snowmobiling. They participate in these activities
9 mainly in designated natural areas where scenery is important but intervention by
10 people is important to insure satisfactory recreational experiences.

11 All three of the surveys mentioned above asked visitors questions about
12 skiing behavior. In the first survey of visitors to the Northeast Kingdom, a great
13 majority of those who answered yes to the question of whether they ski stated that
14 the presence of wind towers in the region would not deter them from skiing at a ski
15 area in the same region. In the email survey which only went to alpine skiers, an
16 overwhelming majority would not be deterred by the presence of wind turbines.
17 And in the interviews with tourists in the Wilmington/Searsburg area it was very
18 clear that the wind turbines did not deter people from skiing in the region.

19

20 **Q. What other materials did you review related to whether the project will impact**
21 **tourism and development in the region?**

22 Response: As described below, I reviewed the pre- and post-construction surveys of
23 residents in the Searsburg area, performed in conjunction with the Searsburg wind

1 project.²² I also reviewed a property value study which looked at a number of wind
2 farm locales around the country.

3 Pre construction and post construction surveys were administered to 345
4 residents around the Searsburg wind farm which is owned and operated by Green
5 Mountain Power, as part of the Public Acceptance Plan required by the Board under
6 the CPG. The post-construction report concluded that there is increased acceptance
7 of the wind farm following construction. An important finding of the post-
8 construction report concerns the accuracy of photo simulations of the proposed
9 project -- "There is strong support for the truthfulness of these simulations. Nearly
10 half of the respondents judged them to be very accurate, and less than 5 percent
11 indicated they were inaccurate."²³

12 In addition, support for wind power grew in the year and a half between the
13 two surveys. The pre-construction response indicated strong support of the wind
14 farm from only 30% of those surveyed, 36% were moderate supporters and 35%
15 were not supporters. In the post-construction survey, over half of the respondents
16 were strong supporters, 30% were moderate supporters and less than 20 percent
17 were non-supporters. The reports are attached as *Exhibits EHWF-TC-4 and -5*.

²² Public Acceptance Study of the Searsburg Wind Power Project: Pre-construction Baseline (James F. Palmer, July 1996); Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-construction (James F. Palmer, December 1997).

²³ Searsburg Post-construction Study, p. 4.

1 **REPP Property Value Study**

2 The Renewable Energy Policy Project (REPP) of Washington, D.C.
3 conducted a study of the impact of wind farm development on property values.²⁴
4 Based on a review of the literature, the study authors selected property within five
5 miles of the wind developments. Although wind turbines may be visible beyond five
6 miles, the authors noted that beyond this distance they do not tend to be highly
7 noticeable, and they have relatively little influence on the landscape's overall
8 character and quality.

9 In order to ascertain the impact of wind power development on the value of
10 property located within five miles of the wind projects, the study authors gathered
11 records for all property sales within a five mile radius of each wind project and for a
12 comparable community within the same region covering six years and straddling the
13 on-line date of the projects. Ten sites around the U.S. were selected. One of the
14 selected sites was the Searsburg wind farm. For all ten sites combined, more than
15 25,000 records of property sales within a five mile radius and the selected
16 comparable communities were analyzed.

17 Two datasets were selected for analysis in the Searsburg area. The first was
18 of property types sold between 1994 and 1998 prior to the completion of the project.
19 Primary residences and vacation homes, accounting for 1,584 sales, were analyzed.
20 The second dataset contained information on individual property sales from May
21 1998 through October 2002, and accounted for 2,333 sales. Property types from this

²⁴ The Effect of Wind Development on Local Property Values (Renewable Energy Policy Project, Washington, D.C. 2003). www.solstice.crest.org/wind/index.html.

1 dataset used in the analysis were primary homes, primary condominiums, vacation
2 condominiums, and camp or vacation homes. The final view shed data set used by
3 the researchers contained 1,055 sales from 1994 to 1998 and 1,733 sales from 1999
4 to 2002, for a total comparison of 2,788 home sales during the period studied.

5 The REPP report made the following central findings:²⁵

- 6 ▪ Monthly average sales prices grew faster within a five mile radius of the projects
7 than in the comparable area, indicating that there is no significant evidence that
8 the presence of wind farms had a negative effect on residential property values.
- 9 ▪ The rate of change in average five mile radius sales prices was 62% greater than
10 the rate of change of the comparable [area] over the study period.
- 11 ▪ The rate of change in average five mile radius sales price after the on-line date
12 increased at 2.6 times the rate of decrease before the on-line date.
- 13 ▪ The rate of change in average five mile radius sales price after the on-line date is
14 18% greater than the rate of change of the comparable area after the on-line date.

15

16 **Q. In your opinion, based upon all of the information that you reviewed, and the**
17 **questionnaires and interviews that you conducted, will the proposed project unduly**
18 **interfere with the orderly development of the Northeast Kingdom region?**

19 Response: No. It seems that the region is on a path of mixed use development and
20 for good reason. I wouldn't recommend that any region rely on one single industry
21 for its economic development or economic security. If world conditions continue

²⁵ REPP Report at pp. 40 and 42.

1 on the course they have taken over the past two years, and if the state of Vermont
2 and the Northeast Kingdom region effectively promote and deliver a quality
3 experience for visitors, the tourism industry should continue to grow slowly in this
4 region. I believe this because the trend in demand for niche tourism products
5 focused on nature-based and soft adventure travel continues to grow with the steady
6 increase in the number of travelers whose demographics and lifestyle characteristics
7 mirror the centric-venturer and near-venturer travel consumer segments described by
8 Stanley Plog. The Northeast Kingdom region of Vermont has an opportunity along
9 with Vermont in general, to continue to attract this growing market because of its
10 natural beauty, abundant wildlife, quiet backroads, and outdoor recreational
11 opportunities. The head researcher for VisitScotland in an email comment on wind
12 farms and tourism, suggested that this project in particular has the potential to open
13 up additional access to natural areas for visitors who may require ease of access but
14 still possess the desire to experience nature. The Scottish researcher said, “it could
15 also be argued that the access roads to wind farms helps to open up the countryside
16 to visitors who would otherwise find the area inaccessible.”²⁶

17 In conclusion, I think the project and its associated visitor center would not
18 have a negative effect on the tourism sector in the NEK, and in fact have the
19 potential to accelerate the development of that sector.

20

²⁶ Email communication with Brian Hay, Head of Research, VisitScotland, November 3, 2003.

1 **Q You mentioned the project's proposed Interpretive Center. In your opinion,**
2 **how many tourists might be expected to visit a center located at the project site?**

3 Response: I have conducted a demand study to estimate the economic impact of the
4 proposed visitor center on the region. Demand projections provide information
5 necessary to complete a preliminary design phase, including criteria such as size of
6 facilities, functional areas of the center, parking needs, staffing needs, and types of
7 interpretive programming that will potentially attract consumers and meet their
8 educational and recreation requirements. It is also important for the community in
9 which this proposed center will be located to understand the potential impacts from
10 visitors of such a development.

11 This visitor's center could be designed to meet a variety of visitor educational
12 and recreational needs. According to Mathew Rubin's testimony, no final decisions
13 have been made as to the precise scope of activities at the center, and many factors
14 will play a role in its final design (environmental and traffic issues, cost, etc). With
15 that understanding, the major elements of a visitor's center could include some or all
16 of the following:

- 17 • The story of the cold war era early warning radar system as told through the
18 stories of those who served in installations from deep in the Canadian wilderness
19 on the Pinetree and Dew Lines to those who served in Vermont and across the
20 United States. This component of the center would be one of the measures
21 designed to mitigate for the alteration of this historic resource, which has been
22 determined to be eligible for listing on the national register of historic places.

- 1 • The story of energy with emphasis on past, present, and future energy
2 production methods. This program will feature the evolution of wind energy,
3 the idea, the technology, and the leaders in the industry.
- 4 • The story of the natural history of the Northeast Kingdom. With such
5 tremendous 360 degree views, visitors could be oriented to this rich natural
6 region through topographic educational programs that describe the geologic and
7 living heritage of the region. Provided that environmental issues are adequately
8 addressed, the center could provide interpretation of a high altitude spruce/fir
9 forest (including one of the few examples of old growth spruce in Vermont),
10 guided hikes and bird watching, and wildlife viewing.
- 11 • Recreation and education could be combined in hiking and mountain biking
12 programs with emphasis on access during the summer and fall seasons for
13 families. Handicap and elderly accessible trails could be developed so that these
14 visitors who travel especially during the fall foliage season could enjoy a natural
15 experience in Vermont. Observation areas, interpretive signage, and guided
16 walks could be part of the offering.
- 17 • Winter recreational access, including snow shoeing, back country skiing and
18 snowmobiling.
- 19 • Hunting and fishing access to the Champion Lands could be accessed through
20 the base (cantonment) area of the East Haven Wind Farm visitor system.

21 **Methodology**

22 To predict demand, a number of variables and comparisons are considered.
23 The following information was collected to inform the demand projections:

- 1 • Number of visitors to existing wind farm developments that have an
- 2 operating visitor center;
- 3 • Number of visitors utilizing tour operations that guide people to wind farms;
- 4 • Numbers of tourists with an interest in wind power;
- 5 • Cold war era early warning system attractions and/or information on
- 6 numbers of people interested in this era in history;
- 7 • Number of tourists seeking views from mountain tops in Vermont;
- 8 • Number of visitors to the main attractions in the Northeast Kingdom;
- 9 • Number of visitors stopping at information centers in the Northeast
- 10 Kingdom; and
- 11 • Number of visitors to state parks in the Northeast Kingdom.

12 **Demand Projections**

13 After gathering information on the above subjects through primary and
14 secondary research, it is projected that a visitor education recreation center at the
15 proposed East Haven Wind Farm will attract visitors from June through
16 October. Keeping in mind that there are a lot of variables to consider when
17 constructing demand projections, one might expect anywhere from 6,000 to
18 12,000 visitors once the center is fully operating and perhaps up to as many as
19 25,000 visitors once its fair share of the attractions market is captured after
20 several years of operation.

21
22
23

1 **Q Have you performed this type of demand projection for other projects?**

2 Response: Yes. I have developed or analyzed demand projection for an agricultural
3 tourist attraction, retail shops, restaurants and lodging facilities.

4
5 **Q Is this type of demand projection commonly used in the tourism and
6 marketing fields?**

7 Response: Yes, this type of study is common especially when developing new
8 facilities such as a restaurant or hotel. It is more difficult to develop accurate
9 projections for tourist attractions but business level projections must be made in
10 order to assess feasibility of a project.

11

12 **Q. In your opinion, based upon your surveys, literature review, and demand
13 projections, will the proposed project provide an economic benefit to the State?**

14 Response: Yes. I believe that this project will attract visitors who otherwise may not
15 have visited this region, and/or keep visitors in the region for a longer period of
16 time. This will provide opportunities for businesses in the region to capture new
17 customers attracted to the visitor center, and/or additional revenues from existing
18 customers.

19

20 **Q. Does this conclude your testimony at this time?**

21 Response: Yes it does.

WIND ENERGY REPORT:
VIEWS OF RESIDENTS OF PEI AND VISITORS TO PEI

Prepared by:

The Tourism Research Centre
School of Business
University of PEI



Date: September 4, 2008

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EXECUTIVE SUMMARY

The wind energy survey was designed by the Tourism Research Centre at the University of Prince Edward Island. It was distributed to both Island residents and visitors in a paper or web-based format generating a total of 1,676 useable responses. In total, 363 of these were from residents, 1,313 from visitors. The survey was implemented to capture perceptions of wind energy production and wind farms, and their perceived effects on the landscape. Do wind farms “fit” with “The Gentle Island” brand for visitors, and support the attempt to label PEI as a “Green Province?” In addition, the survey was structured to compare perceptions of renewable and non-renewable energy generation methods. Finally, is there support for further expansion of wind farms on PEI?

Overall, the report demonstrates support from both Islanders and visitors for the development of energy through renewable sources, particularly wind energy. Islanders wanted to see, on average, 68.5% of their energy generated via wind turbines. Visitors were slightly more supportive at 72.0%. In addition, many respondents are willing to make an indirect financial investment in renewable energy sources by paying more for electricity generated in this manner.

Support for wind energy was also evident when respondents were asked what words came to mind when thinking about wind turbines as a means to generate electricity. Many respondents used positive words such as clean, renewable, unlimited, safe, and environmentally friendly. The negative comments made were primarily from residents concerned about noise, appearance, reliability, land use, and bird kills.

There is some disagreement between visitors and Islanders as to PEI’s position as “Canada’s Green Province”. While over 83% of visitors feel this statement is either accurate or very accurate, only 30% of Islanders feel the same way. In addition, 37% of residents feel this statement is not accurate or not at all accurate. Only 7% of visitors feel this way.

Attitudes towards wind farms on PEI are quite consistent among visitors and Islanders. Consider that at least 82% of visitors and 75% of residents either agreed or strongly agreed that “There should be more wind farms on PEI”, “The PEI Provincial government should encourage the development of wind farms by providing permits to developers”, “Wind farms put PEI on the forefront of the green energy movement”, and “The PEI Provincial government should financially support the development of wind farms.”

In addition, while only 44% of both residents and visitors either agreed or strongly agreed that a wind farm adds to the attractiveness of the area it is based, about 81% of both residents and visitors either disagreed or strongly disagreed that wind farms are a poor use of PEI’s land base. Finally, 71% of Island respondents either agreed or strongly agreed that wind farms are an attraction for visitors to PEI.

In conclusion, both visitors and residents support wind energy and the current focus on wind energy production on PEI. In addition, there is strong support for further development of wind energy production on PEI. Based on this research, it appears that wind farms “fit” with “The Gentle Island” brand for visitors, and support the attempt to label PEI as a “Green Province,” at least among visitors. However, there are local concerns regarding noise, health effects, land use, and changes to bird migration that should be addressed.

1. INTRODUCTION

1.1. Background

“The Gentle Island” read the tourist brochures and the Web sites extolling the virtues and pleasures of Prince Edward Island. Pictures of PEI’s pastoral landscape and sandy beaches give credibility to the slogan. The message is strong and clear, and one that attempts to draw increasing numbers of tourists. But, does the reality match the image conveyed in PEI’s tourism marketing? In the minds of visitors, does the slogan fit?

At the same time, PEI is encouraging and actively supporting the development of a major wind energy industry. Currently about 15% of the Island’s electricity needs are generated by wind. The goal is to increase this to 33% by 2013. In addition, PEI has started to use the phrase “Canada’s Green Province” on license plates and in promotional material for the province. Does this slogan accurately represent PEI?

Currently there are four wind farms on PEI at North Cape, Norway, West Cape, and East Point. Do these wind farms “fit” with “The Gentle Island” brand for visitors, and support the attempt to label PEI as a “Green Province?” In addition, what are Island residents’ views on wind farms? It is important to understand the perceptions of both Islanders and visitors to this environmentally sensitive source of energy and evaluate how it affects the perceptions of PEI. Do both groups feel that the “Canada’s Green Province” slogan accurately represents PEI?

Coastal and scenic touring is an integral part of the overall Island experience, and a key reason why many people visit PEI. Given the importance of the Island land and seascape on tourism and Islanders alike, the Tourism Research Centre felt that a survey should be undertaken to examine the perceptions of wind energy on Prince Edward Island.

1.2. Objectives of the Study

It is important that perceptions, both positive and negative, are measured for both stakeholder groups. In particular, how are wind turbines as a physical entity regarded? Are they a blight on the landscape or does wind energy further strengthen the overall positioning of PEI as a progressive, green province? The key research objectives for this project are as follows:

1. To assess perceptions of green energy, in particular wind farms and wind energy among visitors and Islanders. In doing so, determine each stakeholders’ opinions on wind energy expansion on PEI.
2. To determine perceptions of both stakeholder groups with respect to increasing the physical presence of windmills in PEI.
3. With respect to the second objective, where would it be “acceptable” to increase the number of wind farms on PEI?
4. To determine what impact wind energy expansion will have on the PEI tourism brand.

2. METHODOLOGY

2.1. Data Collection

The survey used for this research project was developed by the Tourism Research Centre (TRC), in consultation with Tourism PEI. The survey was tested twice and, based on the comments received from the surveyors and respondents, was revised to meet the survey objectives and be more user-friendly. The final version of the survey is provided in Appendix A. Three methods were used to implement the survey.

First, the TRC has developed a proprietary on-line panel of individuals who have visited PEI at least once in the past five years. Residents of PEI are not included in the panel. This is a branded panel; it is comprised of travellers who opted to join the panel. They are aware that the data is being collected by the TRC on behalf of the Province of PEI.

The panel portion of the survey was conducted from August 5 to August 13, 2008. In total, 7,362 panel members were invited to complete the survey through an e-mail request. A reminder e-mail was sent on August 12 to panel members who did not start the survey. Overall, 2,0023 panel members started the survey while 1,612 surveys were completed. Of these, 403 were completed by panel members who had not visited PEI in the past two years (a requirement to qualify for the study) and these respondents were excluded from this study. Therefore, a total of 1,209 completed surveys are used for this study.

Second, a paper-based survey of both visitors and Island residents was used. This survey was implemented on various days over the period from July 30 to August 28. The primary locations where the survey was implemented were at various Visitors Information Centres on PEI, at the airport, and at the Wood Islands ferry. In total, 145 paper-based surveys were completed.

Third, to increase the probability of Island residents completing the survey, a Web-based survey was developed. Roughly 1,970 e-mails were sent to Island residents requesting they complete the survey. In total, 391 Island residents started the survey, 322 finished the survey. The overall numbers of individuals who started and completed the survey by survey method and respondent type are provided in the table below.

Number of Samples collected, discarded and used for the Study

	Number of Surveys Collected	Number Discarded	Number of Surveys used for Study
Type of Survey			
Panel Survey	1,612	403	1,209
Online Survey	391	69	322
Paper-based Interview	145	0	145
Total	2,148	472	1,676
Type of Respondents			
PEI Residents	418	55	363
Visitors	1,730	417	1,313
Total	2,148	472	1,676

Note: Number of samples discarded includes non-resident respondents who did not visit PEI and resident respondents who did not finish the survey.

2.2. Statistical Issues

Since the results of any survey are based on a sample of the total population, there is the possibility that some sampling error is associated with the results. For this survey, samples must be drawn from two populations: visitors and Island residents. For residents, the sample size is 363. In terms of statistical accuracy, a sample of this size has a sampling error of 4.8% at a 95% confidence level. That is, if all PEI residents over 18 were surveyed, we would be 95% confident that the results presented in this report would fall within a range of plus or minus 4.8% of the results of surveys of all residents. An alternative way to view this statistical concept is that if the same survey were conducted 100 times, the results in this report would fall within a range of plus or minus 4.8%, 95 times out of the 100 times the survey was conducted.

For visitors, the sample size is 1,313. In terms of statistical accuracy, a sample of this size has a sampling error of 2.7% at a 95% confidence level.

2.3. Sample Characteristics

The demographic characteristics of the survey respondents are provided in the following table. Note that results for both visitors and Island residents are provided. Some of the key results are as follows.

Consistent with many other survey results, more females than males responded to the survey. These respondents are primarily married and in the 35 to 64 age bracket. A similar result applies for residents, with the exception that a much larger percentage of the respondents are in the 25 to 34 age bracket. In terms of employment status, visitors are either working full-time or are retired. For residents, about three-quarters are working full-time, very few are retired. While the visitors who responded to the survey are highly educated with 67.5% having at least graduated from a post-secondary institution, Island residents are even more highly educated with 75.6% having at least graduated from a post-secondary institution.

Household incomes are fairly evenly dispersed with the peak for both visitors and residents occurring in the \$40,000 to \$80,000 range. Slightly more Island residents report incomes of less than \$40,000 while slightly more visitors report incomes of more than \$100,000.

About 80% of the visitors are from other Canadian provinces, 17% are from the US, while 3.3% are from International countries. As a result, for this survey, US visitors are over-represented while Canadian and International visitors are under-represented when compared to the following mix of all visitors to PEI: 85% Canadian, 10% US, and 5% international. These numbers are based on the 2007 Exit Survey results.

Demographic Characteristics of Respondents

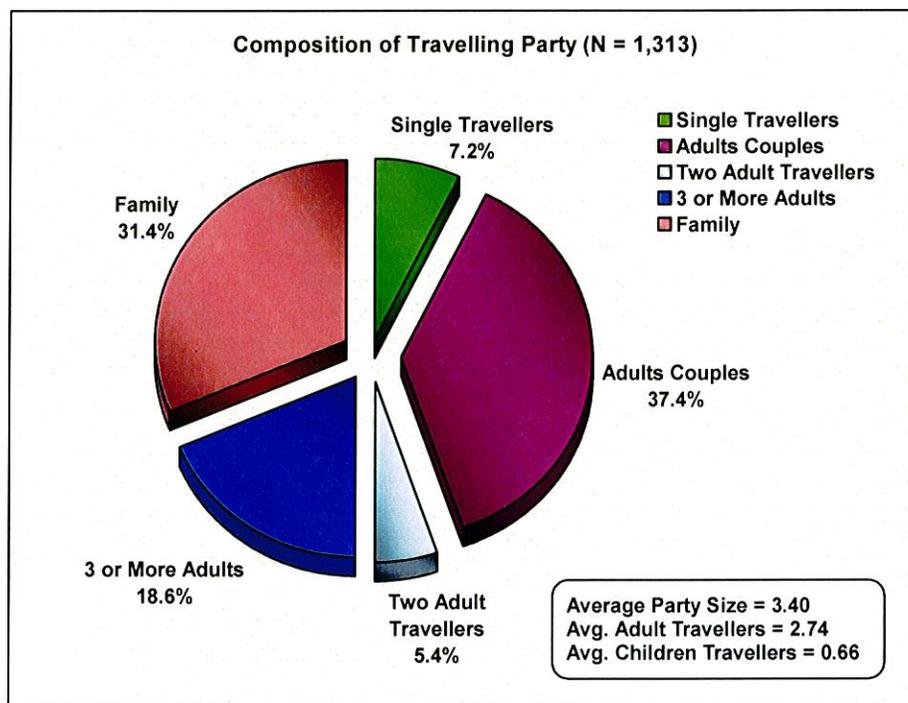
	Visitors (N = 1,313)		Residents (N = 363)		Total (N = 1,676)	
Gender						
Male	514	39.4%	147	44.8%	661	40.5%
Female	790	60.6%	181	55.2%	971	59.5%
Marital Status						
Married / living common-law	1,042	80.2%	230	69.9%	1,272	78.1%
Single (never married)	130	10.0%	62	18.8%	192	11.8%
Widow/widower	24	1.8%	5	1.5%	29	1.8%
Divorced or separated	91	7.0%	26	7.9%	117	7.2%
Other	13	1.0%	6	1.8%	19	1.2%
Age						
18 to 24	17	1.3%	33	10.1%	50	3.1%
25 to 34	151	11.6%	68	20.7%	219	13.4%
35 to 44	250	19.2%	59	18.0%	309	19.0%
45 to 54	375	28.8%	86	26.2%	461	28.3%
55 to 64	354	27.2%	65	19.8%	419	25.7%
65 to 74	137	10.5%	11	3.4%	148	9.1%
75 and over	17	1.3%	6	1.8%	23	1.4%
Employment Status						
Working full time	754	58.0%	247	75.1%	1,001	61.4%
Working part time	107	8.2%	13	4.0%	120	7.4%
Working seasonally	9	0.7%	13	4.0%	22	1.4%
Unemployed	13	1.0%	15	4.6%	28	1.7%
Retraining or upgrading	32	2.5%	23	7.0%	55	3.4%
Retired	279	21.5%	3	0.9%	282	17.3%
Homemaker	74	5.7%	0	0.0%	74	4.5%
Student	14	1.1%	3	0.9%	17	1.0%
Other	18	1.4%	12	3.6%	30	1.8%
Education Level						
Less than High School	17	1.3%	6	1.8%	23	1.4%
High School Diploma	168	13.0%	23	7.0%	191	11.8%
Some post-secondary	235	18.2%	51	15.5%	286	17.7%
Graduated community/Technical college	294	22.8%	87	26.4%	381	23.5%
Graduated university (undergraduate)	331	25.6%	86	26.1%	417	25.7%
Post graduate degree/Professional designation	246	19.1%	76	23.1%	322	19.9%
Household Income						
Under \$20,000	21	2.0%	16	5.8%	37	2.8%
\$20,000 to \$39,999	115	10.8%	35	12.8%	150	11.2%
\$40,000 to \$59,999	210	19.8%	48	17.5%	258	19.3%
\$60,000 to \$79,999	217	20.5%	53	19.3%	270	20.2%
\$80,000 to \$99,999	186	17.5%	40	14.6%	226	16.9%
\$100,000 to \$124,999	148	13.9%	42	15.3%	190	14.2%
\$125,000 to \$149,999	62	5.8%	18	6.6%	80	6.0%
\$150,000 to \$174,999	43	4.1%	11	4.0%	54	4.0%
\$175,000 to \$199,999	17	1.6%	2	0.7%	19	1.4%
\$200,000 to \$224,999	14	1.3%	3	1.1%	17	1.3%
\$225,000 to \$249,999	5	0.5%	1	0.4%	6	0.4%
\$250,000 or more	23	2.2%	5	1.8%	28	2.1%
Origin of Country						
Canada	1,048	79.8%	363	100.0%	1,411	84.2%
United States	222	16.9%	0	0.0%	222	13.2%
International	43	3.3%	0	0.0%	43	2.6%

3. GENERAL TRAVEL DATA FOR VISITORS

The following three sections provide results that **apply only to visitors to PEI**. These results indicate the composition and size of the travel party, the type of visitation, and the areas visited while on PEI. This information relates to the last trip the respondent took to PEI.

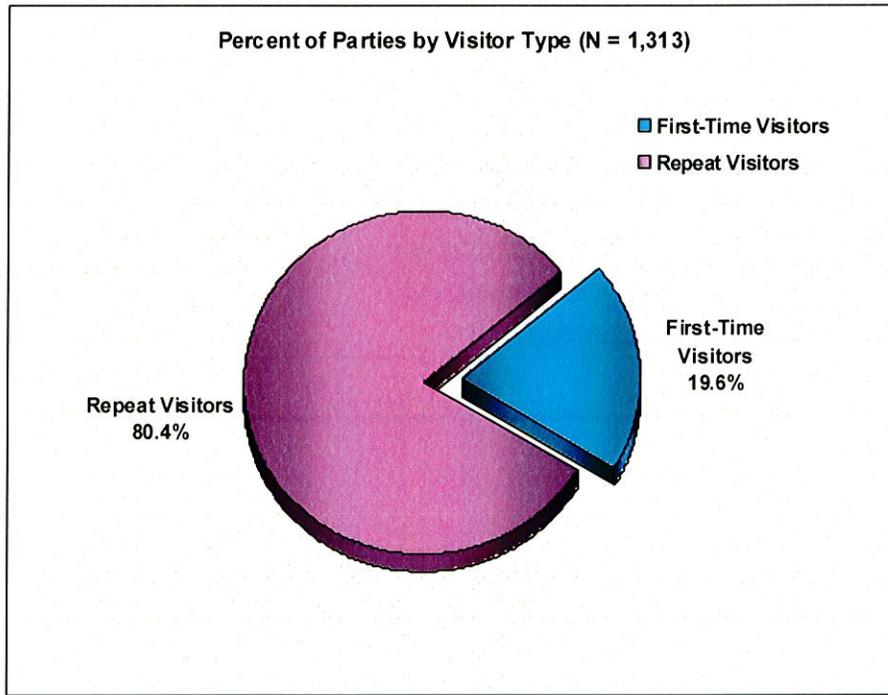
3.1. Composition and Size of Travel Party

The mix of travel parties answering this survey are very comparable to the travel parties that visit PEI, based on the results for the 2007 Exit Survey. The two exceptions are that there are relatively fewer adult couples (6.8% fewer for this survey), but more 3 or more adult parties (6.5% more for this survey). In addition, the average party size is 0.4 persons more than results for the Exit Survey.



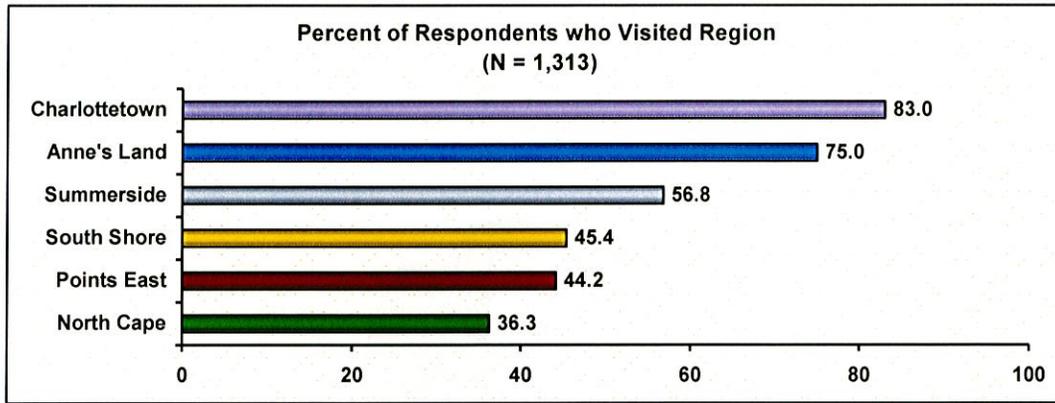
3.2. Type of Visitation

In the 2007 Exit Survey, 27% of respondents were visiting for the first time. For this survey the figure is slightly lower. This is due to the characteristics of the panel; having visited PEI is a condition of being a member of the panel.



3.3. Regions Visited While on PEI

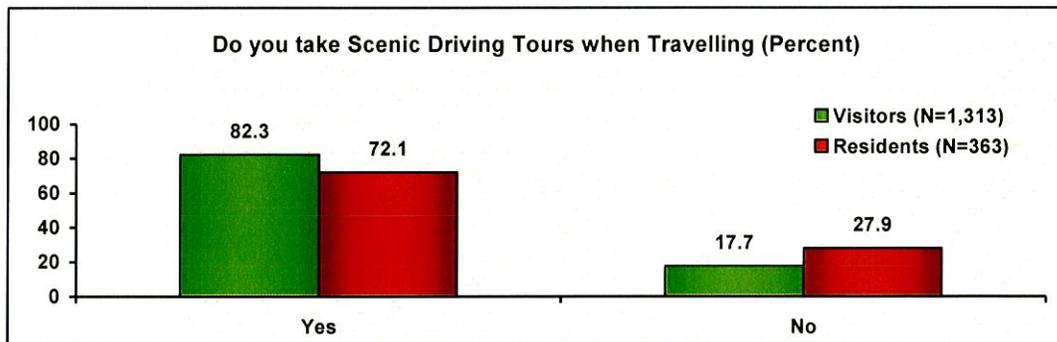
Consistent with the results of the Exit Survey, Charlottetown and Anne’s Land are the two most popular areas to visit while on PEI. Fewer visitors travel to the eastern and western regions of PEI. Since these are the locations on PEI where the wind farms are located, it is expected that a bare majority, at best, would have seen a wind farm on PEI.



4. PROPENSITY FOR TAKING SCENIC DRIVING TOURS

Q: When you travel, do you normally take driving tours to view the scenery and to see the destination?

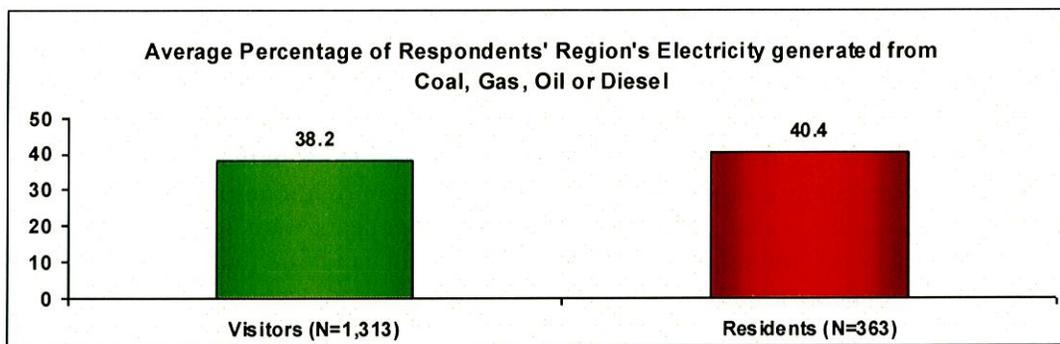
Visitors are more likely to take scenic drives when visiting a destination compared to residents. The very high percentage of both visitors and residents that take scenic drives is consistent with earlier research completed by the TRC. This work reported that over 80% of respondents take scenic drives when visiting a destination. This result is important as those touring an area are much more likely to observe wind farms and be able to offer an opinion regarding how these farms influence their impressions of the area.



5. PERCENTAGE OF ELECTRICITY GENERATED FROM COAL, GAS, OIL, OR DIESEL

Q: There are various methods used to generate electricity. What percentage of your province's or state's or country's electricity would you like to see generated from sources such as coal, gas, oil, or diesel?

The chart provides the average response to this question. Also provided in the table is the minimum, maximum, and median response, as well as the standard deviation of the responses. The results indicate that visitors and residents both have very similar views regarding this issue. Both feel that roughly 40% of the electricity in their province/state/country should be generated by using fossil-based fuels. However, the mid range value (the median) is only 30% for visitors, 40% for residents perhaps reflecting that most electricity consumed on PEI is generated by this source.

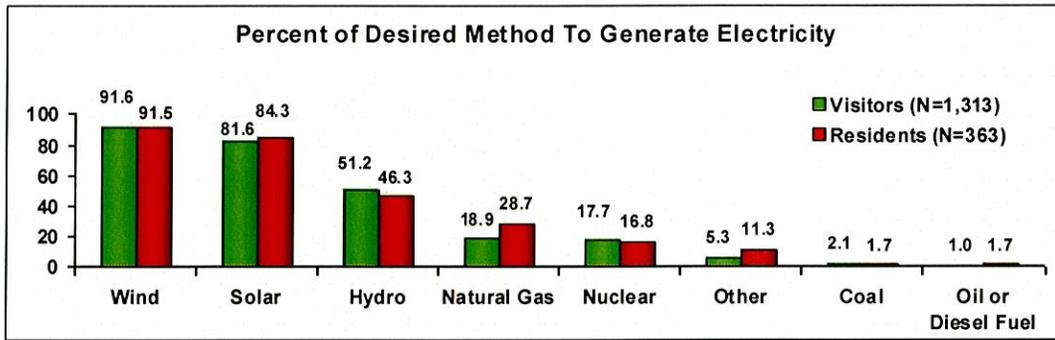


	Visitors (N = 1,313)	Residents (N = 363)	Total (N = 1,676)
Mean	38.20	40.35	38.65
Std. Deviation	23.28	22.82	23.19
Median	30.00	40.00	35.00
Minimum	1	1	1
Maximum	100	100	100

6. DESIRED METHOD TO GENERATE ELECTRICITY

Q: If it were possible in your province, state, or country, which of the following would you like to see increased as a method to generate electricity?

The consistency of the results for both residents and visitors is striking. More than 9 out of 10 of both residents and visitors want to see the increased use of wind as a method to generate electricity. This is an impressive sign of support for more wind farms. At the opposite end of the scale, almost none of the respondents wanted to see the increased use of coal, oil, or diesel as a means for generating electricity.



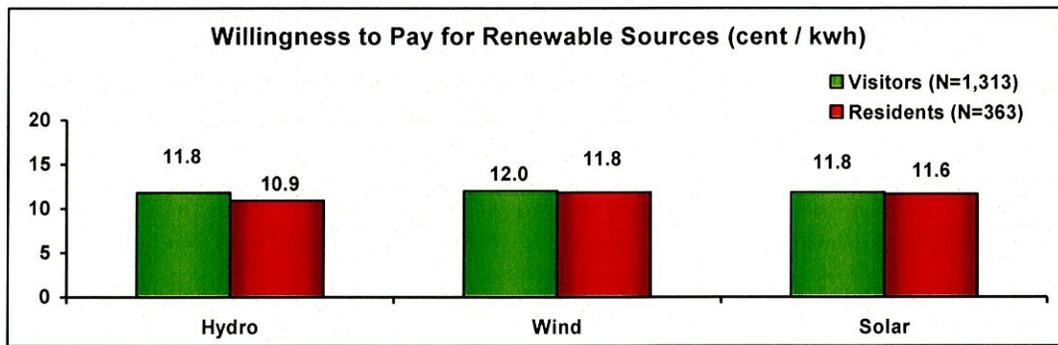
7. WILLINGNESS TO PAY FOR ELECTRICITY FROM RENEWABLE ENERGY SOURCES

Q: If in your province/state/country, the price of electricity generated by traditional methods was 10 cents per kwh, how much would you be willing to pay per kwh for electricity generated from the following renewable sources of power?

The chart provides the average response to this question. Also provided in the table is the minimum, maximum, and median response, as well as the standard deviation of the responses. The results in the previous question indicate that the vast majority of respondents want to see more electricity generated by using the wind (and other renewables). These results indicate that, on average, they are willing to pay more for energy produced by renewable sources.

For visitors, the average premium they are willing to pay for wind energy is 20%. For residents, the average premium is much less, but it is still a significant 18%. The average premium for solar, which is also a highly desired method to use to generate electricity, is lower at 18% and 16%, respectively. Only about half of the respondents wanted to see the increased use of hydro power, but they are willing to pay an average premium of 18% and 9%, respectively.

However, these mean results should be interpreted with some caution as the mid-range response (the median) is only 10 cents. That is, over half of the respondents were only willing to pay the same rate for the various types of renewable energy as the rate paid for traditional methods. While some respondents are willing to pay more (some much more), the majority are not.



	Visitors (N = 1,313)	Residents (N = 363)	Total (N = 1,676)
Hydro			
Mean	11.79	10.89	11.61
Std. Deviation	8.44	5.06	7.86
Median	10	10	10
Minimum	0.05	0.25	0.05
Maximum	100.00	60.00	100.00
Wind			
Mean	12.00	11.83	11.97
Std. Deviation	8.12	7.69	8.03
Median	10	10	10
Minimum	0.02	0.25	0.02
Maximum	100.00	80.00	100.00
Solar			
Mean	11.82	11.63	11.78
Std. Deviation	8.04	6.39	7.73
Median	10	10	10
Minimum	0.02	0.25	0.02
Maximum	100.00	70.00	100.00

8. IMPRESSIONS OF FOSSIL BASED METHODS

Q: Using fossil-based fuels (e.g., coal, gas, oil) is one way to generate electricity. What words come to mind when you think about fossil-based fuels as an electricity generation method?

The verbatim responses to this question are provided in Appendix B. Note that there are 17 pages of responses divided into three columns. By far the most common responses are pollution, dirty, expensive, running out, and non-renewable. A review of the comments in the Appendix makes it clear that the vast majority of the respondents to the survey have very negative opinions of coal, gas, and oil as a method to generate electricity. This is the case even though about 63% of the electricity used in North America is generated by using coal, oil, or natural gas.

9. IMPRESSIONS OF WIND POWER

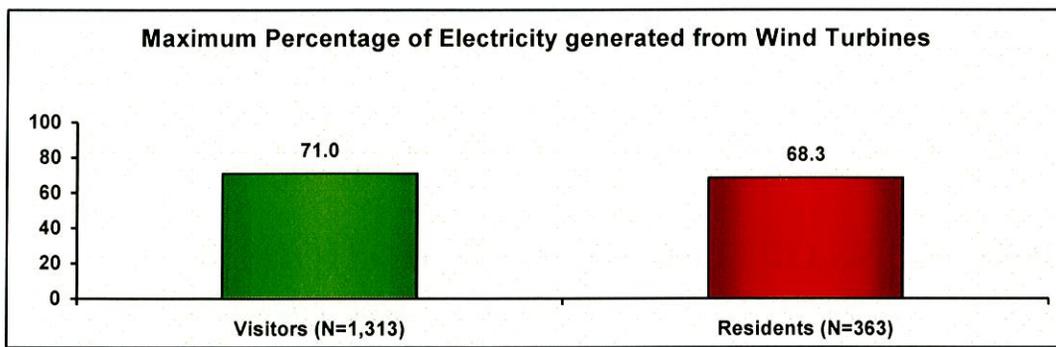
Q: Wind turbines are one way to generate electricity. What words come to mind when you think about wind turbines as an electricity generation method?

The verbatim responses to this question are provided in Appendix C. Note that there are 19 pages of responses divided into three columns. By far the most common responses are clean, renewable, unlimited, safe, and environmentally friendly. A review of the comments in the Appendix makes it clear that the vast majority of the respondents to the survey have very positive opinions of wind as a method to generate electricity. However, there are some negative comments, particularly from residents. These comments primarily concern issues surrounding the perceived negative effects of power distribution, noise, reliability, the “ugly” appearance of wind turbines, the lack of land for wind farms, the high cost, and bird kills.

10. PERCENTAGE OF ELECTRICITY GENERATED FROM WIND TURBINES

Q: As you may be aware, PEI has started to use wind turbines to generate a significant amount of electricity. What is the maximum percentage of electricity that PEI should generate using wind turbines?

The chart provides the average response to this question. Also provided in the table is the minimum, maximum, and median response, as well as the standard deviation of the responses. The results indicate that visitors and residents both have very similar views regarding this issue. Both feel that roughly 70% of the electricity on PEI should be generated by using the wind. In addition, for both types of respondents, the median is even higher at 75%.

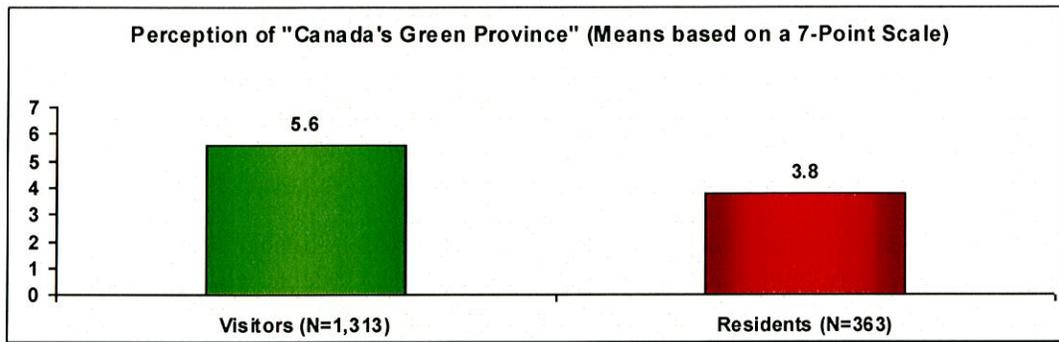


	Visitors (N = 1,313)	Residents (N = 363)	Total (N = 1,676)
Mean	71.00	68.31	70.47
Std. Deviation	25.49	27.83	25.89
Median	75.00	75.00	75.00
Minimum	2	10	2
Maximum	100	100	100

11. PERCEPTION OF PHRASE “CANADA’S GREEN PROVINCE”

Q: PEI has started to use the phrase “Canada’s Green Province” on license plates and in promotional material for the province. On a scale of 1 to 7, how accurately would you say this statement represents PEI?

Clearly, there is a major disconnect between residents and visitors regarding this issue. While over 83% of visitors feel this statement is either accurate or very accurate, only 30% of Islanders feel the same way. In addition, 37% of residents feel this statement is not accurate or not at all accurate. Only 7% of visitors feel this way.

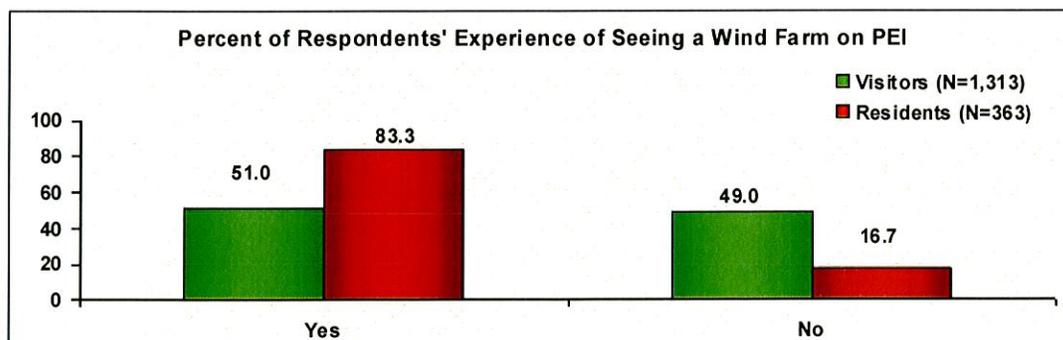


	Visitors (n=1,313)	Residents (n=363)
Not at all Accurate (1)	1.6%	10.2%
Not Accurate (2-3)	5.3%	26.8%
Somewhat Accurate (4)	9.9%	33.2%
Accurate (5-6)	53.3%	26.5%
Very Accurate (7)	29.8%	3.4%

12. SEEING A WIND FARM ON PEI

Q: Wind turbines are usually grouped to create wind turbine "farms". These wind farms may have 15 to 20 turbines spread over 40 acres of land. Have you ever seen a wind farm on PEI?

As was suggested in the discussion in Section 3.3, only a slim majority of visitors have seen a wind farm on PEI. In contrast, over 83% of residents have seen a wind farm. A follow-up question asked where the respondent saw the wind farm; Appendix C provides the verbatim responses. Most respondents correctly highlight North Cape as one of the locations of a wind farm. Many other respondents also correctly stated either East Point or West Cape.



13. ATTITUDES TOWARD WIND FARMS ON PEI

Q: Here are some pictures of wind farms on PEI. After reviewing these pictures and thinking of any wind farms that you may have seen on PEI or elsewhere, please provide your level of agreement or disagreement with each of the following statements. Note that 1 is strongly disagree, and 7 is strongly agree.

There is a great deal of consistency between the answers of residents and visitors to these statements. Note the very high percentage of both sets of respondents who strongly agree with statements d through g. Also, the highest mean response for residents is to statement g, "There should be more wind farms on PEI." For visitors, this is the fourth highest rated item; however, the mean response to statements d, e, f, and g are all very comparable. Based on the responses to statements a and c it can also be concluded that while respondents do not feel that "a wind farm adds to the attractiveness of the area it is based", they also think that wind farms do not "ruin the view in the areas they are based." Finally, over 80% of both sets residents and visitors strongly disagree with the statement that "wind farms are a poor use of PEI's land base."

Attitudes toward Wind Farms on PEI

	Visitors (n=1,313)						Residents (n=363)					
	1	2	3	4	5	Mean	1	2	3	4	5	Mean
a. I feel a wind farm adds to the attractiveness of the area it is based.	8.8%	20.6%	25.9%	31.9%	12.9%	4.29	10.1%	17.5%	27.9%	32.2%	12.3%	4.30
b. I feel wind farms should be "off-the-beaten track," well away from areas where people would generally visit.	17.1%	33.8%	17.6%	21.5%	10.0%	3.58	13.4%	29.0%	21.3%	20.7%	15.5%	3.96
c. Wind farms ruin the view in the areas they are located.	23.3%	39.8%	16.4%	15.4%	5.1%	3.04	24.2%	38.0%	15.3%	16.6%	5.8%	3.12
d. The PEI Provincial government should encourage the development of wind farms by providing permits to developers.	2.4%	4.3%	8.9%	41.8%	42.7%	5.82	6.1%	3.9%	12.3%	42.9%	34.8%	5.51
e. Wind farms put PEI on the forefront of the green energy movement.	1.5%	2.8%	9.3%	45.7%	40.8%	5.88	3.4%	7.8%	13.8%	46.9%	28.1%	5.40
f. The PEI Provincial government should financially support the development of wind farms.	1.8%	4.5%	9.6%	39.8%	44.3%	5.88	6.5%	8.0%	11.4%	39.8%	34.3%	5.36
g. There should be more wind farms on PEI.	2.5%	4.3%	10.7%	41.5%	41.0%	5.77	5.0%	3.7%	11.2%	43.3%	36.8%	5.63
h. Wind turbines are too noisy and should not be situated close to housing.	15.4%	30.2%	15.7%	26.1%	12.6%	3.84	11.0%	25.1%	19.8%	29.3%	14.8%	4.19
i. Wind farms are an attraction for visitors to PEI.	7.3%	18.0%	17.8%	38.6%	18.2%	4.64	4.9%	11.0%	13.3%	47.2%	23.6%	5.09
j. Wind farms are an inefficient way to generate electricity when compared to conventional means.	30.6%	28.9%	8.3%	16.7%	15.5%	3.35	26.0%	33.3%	13.2%	14.9%	12.5%	3.29
k. Wind farms are a poor use of PEI's land base.	42.1%	39.7%	8.1%	6.5%	3.5%	2.26	36.4%	44.2%	12.1%	3.1%	4.0%	2.34

Note: 1 = strongly disagree (1); 2 = disagree (2-3); 3 = neither disagree nor agree (4); 4 = agree (5-6); 5 = strongly agree (7)

14. REQUEST FOR COMMENTS

The final item on the survey was a request for comments concerning wind turbines or wind farms on PEI. The verbatim responses to this question are provided in Appendix E. Note that there are 52 pages of responses with many people taking the time to write very lengthy comments. While there is no easy way to summarize all of these comments, the general conclusion that could be drawn after reading these is that many people strongly support and actively encourage the construction of more wind turbines. However, some residents and visitors do have concerns about wind farm developments on PEI.

15. CONCLUSION

The wind energy survey was implemented to capture perceptions of wind energy production and wind farms, and their perceived effects on the landscape. Do wind farms “fit” with “The Gentle Island” brand for visitors, and support the attempt to label PEI as a “Green Province?”

Overall, the report demonstrates support from both Islanders and visitors for the development of energy through renewable sources, particularly wind energy. Support for wind energy was also evident when respondents were asked what words came to mind when thinking about wind as a means to generate electricity with many respondents using words such as clean, renewable, unlimited, safe, and environmentally friendly. There is some disagreement between visitors and Islanders as to PEI’s position as “Canada’s Green Province”. While over 83% of visitors feel this statement is either accurate or very accurate, only 30% of Islanders feel the same way. In addition, 37% of residents feel this statement is not accurate or not at all accurate. Only 7% of visitors feel this way.

Attitudes towards wind farms on PEI are quite consistent among visitors and Islanders. A very significant 82.5% of visitors and 80.1% of residents either agreed or strongly agreed that there should be more wind farms on PEI. In addition, there was strong support voiced for Provincial government support for wind farms. Overall, it appears that residents and Islanders want the province to take advantage of the opportunity to diversify the sources of the electricity used on PEI.

In conclusion, both visitors and residents support wind energy and the current focus on wind energy production on PEI. In addition, there is strong support for further development of wind energy production on PEI. Based on this research, it appears that wind farms “fit” with “The Gentle Island” brand for visitors, and support the attempt to label PEI as a “Green Province,” at least among visitors. However, there is a minority that express apprehension over wind farms, specifically their production of noise, effects on bird migration patterns, turbines being an eyesore, their perceived effects on health, their impact on land use, and other concerns.

WIND ENERGY REPORT:

APPENDICES A - E

Prepared by:

The Tourism Research Centre
School of Business
University of PEI



Date: September 4, 2008

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APPENDIX A

The Tourism Research Centre at the University of PEI is conducting this survey to determine visitors' and Islanders' views on the use of wind energy. The information you provide will be used to understand the influence wind turbines have on tourism on PEI. This is an excellent opportunity to voice your opinions. We would appreciate it if you could take 10 minutes of your time to complete this questionnaire. Any information you provide will be kept strictly confidential. Thank you for your participation in this survey!

The Tourism Research Centre

1. Where do you live, *your usual place of residence*?
Provide City and Province, State, and Country.

a. City: _____

b. Province/State/Country: _____

c. Post/Zip Code: _____

2. How many people, including yourself, are in your travelling party? Your travelling party is 1) either yourself (if travelling alone); OR 2) yourself and any family members or friends travelling with you.

➔ (_____) people

3. Please indicate the ages and gender of the people in your travelling party (including yourself). The answer in Question 2 and the sum of the travellers in Question 3 should equal.

Age group ➔	Male	Female
0 – 8 ➔		
9 – 17 ➔		
18 – 24 ➔		
25 – 34 ➔		
35 – 44 ➔		
45 – 54 ➔		
55 – 64 ➔		
65 – 74 ➔		
75 and over ➔		

If you are a visitor to PEI, please answer all remaining questions. Residents of PEI can skip ahead to question 7.

4.a) If you are a visitor to PEI, when did you arrive?

Day Month Year

b) When are you planning to depart PEI?

Day Month Year

5. If you are a visitor to PEI, is this your first visit to PEI?

(1) Yes

(2) No ➔ What year was your last visit? (_____)

➔ How many times have you visited PEI in the past five years? (_____)

6. If you are a visitor to PEI, which of the following areas of PEI did/will you visit during this trip? Select all that apply.

(1) Charlottetown

(2) Summerside

(3) North Cape Coastal Drive (e.g., Tignish, Alberton, Mill River, O'Leary, West Point, North Cape, Tyne Valley, Mont Carmel, Miscouche, Abram-Village)

(4) Anne's Land (e.g., Cavendish, Kensington, Stanley Bridge, Stanhope, Darnley, New London, Dalvay)

(5) South Shore (e.g., Borden-Carleton (Gateway Village), Victoria-by-the-Sea, Cornwall, Fort Amherst, Kinkora)

(6) Points East Coastal Drive (e.g., Brudenell, Georgetown, Montague, Murray River, Wood Islands, Mount Stewart, Morell, Crowbush, Souris, St. Peter's, East Point, Greenwich)

7. When you travel, do you normally take driving tours to view the scenery and to see the destination?

Yes No

8. There are various methods used to generate electricity. What percentage of your province's or state's or country's electricity would you like to see generated from sources such as coal, gas, oil, or diesel?

➔ (_____ %)

9. If it were possible in your province, state, or country, which of the following would you like to see increased as a method to generate electricity?

Energy Source	Increased use of this Source
Coal	
Oil or diesel fuel	
Natural gas	
Hydro	
Wind	
Nuclear	
Solar	
Other – <i>please specify</i>	

10. If in your province/state/country, the price of electricity generated by traditional methods was 10 cents per kwh, how much would you be willing to pay for electricity generated from the following renewable sources of power?

Hydro ➔ _____ ¢ / kwh

Wind ➔ _____ ¢ / kwh

Solar ➔ _____ ¢ / kwh

11. Using fossil-based fuels (e.g., coal, gas, oil) is one way to generate electricity. What words come to mind when you think about fossil-based fuels as an electricity generation method?

12. Wind turbines are one way to generate electricity. What words come to mind when you think about wind turbines as an electricity generation method?

13. As you may be aware, PEI has started to use wind turbines to generate a significant amount of electricity. What is the maximum percentage of electricity that PEI should generate using wind turbines?

➔ (_____) %

14. PEI has started to use the phrase "Canada's Green Province" on license plates and in promotional material for the province. On a scale of 1 to 7, how accurately would you say this statement represents PEI?

Not Accurate		Somewhat Accurate			Very Accurate		Don't Know
①	②	③	④	⑤	⑥	⑦	⑧

15. Wind turbines are usually grouped to create wind turbine "farms". These wind farms may have 15 to 20 turbines spread over 40 acres of land. Have you ever seen a wind farm on PEI?

Yes ➔ Where? (_____)
 No

16. Here are some pictures of wind farms on PEI. After reviewing these pictures and thinking of any wind farms that you may have seen on PEI or elsewhere, please provide your level of agreement or disagreement with each of the following statements. Note that 1 is strongly disagree, and 7 is strongly agree.

	Strongly Disagree					Strongly Agree		Don't Know
	①	②	③	④	⑤	⑥	⑦	⑧
a. I feel a wind farm adds to the attractiveness of the area it is based.	①	②	③	④	⑤	⑥	⑦	⑧
b. I feel wind farms should be "off-the-beaten track," well away from areas where people would generally visit.	①	②	③	④	⑤	⑥	⑦	⑧
c. Wind farms ruin the view in the areas they are located.	①	②	③	④	⑤	⑥	⑦	⑧
d. The PEI Provincial government should encourage the development of wind farms by providing permits to developers.	①	②	③	④	⑤	⑥	⑦	⑧
e. Wind farms put PEI on the forefront of the green energy movement.	①	②	③	④	⑤	⑥	⑦	⑧
f. The PEI Provincial government should financially support the development of wind farms.	①	②	③	④	⑤	⑥	⑦	⑧
g. There should be more wind farms on PEI.	①	②	③	④	⑤	⑥	⑦	⑧
h. Wind turbines are too noisy and should not be situated close to housing.	①	②	③	④	⑤	⑥	⑦	⑧
i. Wind farms are an attraction for visitors to PEI.	①	②	③	④	⑤	⑥	⑦	⑧
j. Wind farms are an inefficient way to generate electricity when compared to conventional means.	①	②	③	④	⑤	⑥	⑦	⑧
k. Wind farms are a poor use of PEI's land base.	①	②	③	④	⑤	⑥	⑦	⑧

ABOUT YOURSELF:

17. Are you?

- (1) Male (2) Female

18. What is your current marital status?

- (1) Married / living common-law
 (2) Single (never married)
 (3) Widow/widower
 (4) Divorced or separated
 (5) Other

19. Thinking about the **children living in your household**, please indicate the number of children in each age group below:

a) 17 years and younger ➔ number of children

b) 18 years and older ➔ number of children

20. What is your current age? Please select the relevant range.

- (1) 18 to 24 (5) 55 to 64
 (2) 25 to 34 (6) 65 to 74
 (3) 35 to 44 (7) 75 and over
 (4) 45 to 54

21. What is your present employment status?

- | | |
|---|--|
| <input type="checkbox"/> (1) Working full time | <input type="checkbox"/> (6) Homemaker |
| <input type="checkbox"/> (2) Working part time | <input type="checkbox"/> (7) Retraining or upgrading |
| <input type="checkbox"/> (3) Working seasonally | <input type="checkbox"/> (8) Unemployed |
| <input type="checkbox"/> (4) Student | <input type="checkbox"/> (9) Other |
| <input type="checkbox"/> (5) Retired | |

22. What is the highest level of education that you have completed?

- | | |
|--|--|
| <input type="checkbox"/> (1) Less than High School | <input type="checkbox"/> (4) Graduated community / technical college |
| <input type="checkbox"/> (2) Graduated High School | <input type="checkbox"/> (5) Graduated university (undergraduate) |
| <input type="checkbox"/> (3) Some university / college | <input type="checkbox"/> (6) Post graduate degree/Professional designation |

23. In Canadian dollars, what was your total household income, before taxes and deductions, in 2007?

- | | |
|---|---|
| <input type="checkbox"/> (1) Under \$20,000 | <input type="checkbox"/> (8) \$150,000 - \$174,999 |
| <input type="checkbox"/> (2) \$20,000 to \$39,999 | <input type="checkbox"/> (9) \$175,000 - \$199,999 |
| <input type="checkbox"/> (3) \$40,000 to \$59,999 | <input type="checkbox"/> (10) \$200,000 - \$224,999 |
| <input type="checkbox"/> (4) \$60,000 to \$79,999 | <input type="checkbox"/> (11) \$225,000 - \$249,999 |
| <input type="checkbox"/> (5) \$80,000 to \$99,999 | <input type="checkbox"/> (12) \$250,000 or more |
| <input type="checkbox"/> (6) \$100,000 to \$124,999 | <input type="checkbox"/> (13) rather not say. |
| <input type="checkbox"/> (7) \$125,000 - \$149,999 | |

Keep in touch with us regularly through the **Traveller's Voice**, an online community of visitors to PEI. **To join the Forum, include your name and e-mail address below.** As a thank-you for joining, you will be eligible to win **one of three \$200 cash prizes!**

Name:	
Email:	

COMMENTS:

We welcome your comments you may have regarding the use of wind turbines or wind farms on PEI.

Thank you for completing this survey. Your participation is highly valued.

APPENDIX B

"Using fossil-based fuels (e.g., coal, gas, oil) is one way to generate electricity. What words come to mind when you think about fossil-based fuels as an electricity generation method?"

Residents' Responses

<p>Dirty, old fashioned Dirty, pollution, Co2,oil spills, strip mining, smog, disgusting etc. Greenhouse gasses Environmentally unfriendly, limited resources, costly Environmentally poor shit, Osama Wasteful, scary, limited time, pollution oil, coal, natural gas Environment concerns Pollution The environment...pollution...lack of resources Fumes, smog Reliable dirty, unfriendly, expensive expensive dirty, pollution, over-used Expensive and greedy oil producers. air pollution non renewable dirty pollution dirty air pollution Depleted Why? If we have to use the coal, oil anyway, then why not use it directly Global warming, non-renewable resource Takes a long time to produce and is becoming increasingly expensive old fashioned, generally not very clean (in a pollution sense), unhealthy Limited supply Old school Depletion Inefficient. Dirty. Harmful</p>	<p>Running out, wasteful, ridiculously short-sighted, greedy Emissions, costly, wasteful Old...exhaustible Finite supply, green house gases dirty Pollution Pollution expensive Greenhouse gas emissions Jobs in western Canada to produce these fuels great for Canada High prices Pollution Pollution, non-renewable spills. mess. expensive, non environmentally friendly possibly loosing the resource, coal is dirty and pollutes CHEAPER RATES Costly, outdated, and environmentally unfriendly dirty, wasteful, non-renewable, polluting, dangerous, carbon emitting, harmful pollution Traditional unsure Fumes, Smog, Dust, Dirt Pollution, Global warming, and contamination of water and soil. Global warming Pollution Smoke pollution Pollution, running out of fuels, disturbance of the balance of nature Cost and Resources Pollution Expensive, inefficient, environmental unsound Dirty Expensive, Depleting</p>	<p>I think fossil-based fuels are fine when there are no other resources, but it would be great to see other resources used instead. MORE SAFE THEN WIND necessary, convenient, cost effective Pollution, non-renewable resource expensive smoke limited supply dangerous to the environment not environmental friendly Expensive and dirty. carbon emissions global warming pollution Not sustainable, ancient, pollution old An unhealthy environment for future generations renewable resource environment pollution, expensive, profit traditional, smoke, cheap - Expensive Dirty Pollution Dirty, pollution Pollution Pollution Pollution Expensive No Pollution Inefficent Walleful Climate Change Strategically Unsound Pollution Dirty Expensive Cost Pollution Bad, Environmentally Unfriendly Pollution Pollution</p>
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<p>Greenhouse gases Smoke and air particulate Pollution Expensive, waste of resources, why don't more people use solar? Dependency expensive pollution non-renewable global warming expensive, smelly, messy coal - smokey, dirty non-renewable fossil based fuels are bad for the environment. With today's technology there is no need to pollute the air, water and soil any more we will run out some day!!! non renewable pollution diminishing resource Pollution Global warming Pollution pollution, smog, global warming smog, Big Oil Billions, environment impact Expensive and polluting Expensive, non-renewable, heavy footprint Dirty pollution old efficient dirty pollution cost wasteful, costly Don't know. Limited Resources pollution old method waste non-renewable expensive, not available on the island (gas heating anyway), pollution, did I say expensive? Limited resource and Global Warming not sustainable, carbon producing Very expensive or Too expensive Pollution, diminishing commodity, non-renewable resource. eventual scarcity environmentally damaging</p>	<p>Non-renewable, Polluting Limited resource Limited resources Limited resources back-up method dirty cheap monopoly Unsustainable, drain on the economy, easy but perilous Unreasonable prices. Environmental assassination. Pollution, smog Dirty, bad air Limited resource not clean Dirty, more expensive Air pollution, shortage of product, expensive TOO EXPENSIVE. DEPLETING OUR NATURAL RESOURCES, SHOULD BE SPREAD OUT MORE. Pollution Imported, emission byproducts. Reliable, tested, expensive Dirty, polluting, waste Expensive Carbon, pollution, disease, Pollution Dirty, uncertain Green house gases Efficient, greenhouse gases Pollution Dirty, less available Waste expense Dirty Dirty, wasteful, unsustainable, and archaic Pollution greenhouse Expensive Limited supply and dirty Pollution Smoke, pollution Short supply? Resource depleting, pollution, war, greed Dirty Good Fossil based fuels have been the driving engine for the</p>	<p>Dirty Water Wind Expensive Source Resource Non-Renewable Ferns Expensive Not green harmful to environment Big business generated Pollution, diminishing resources, increased cost, politics Environment, respiratory Dinosaurs, cheaper Dinosaurs, green Pollution Short term gain Long term pain We have to change the way we do things. Destroying ozone Fish Water - Decreasing - Increase in price - Too expensive Amaint animal remain - Pollution - Non-renewable - Non-renewable products - Getting more and more expensive Pollution Smoke Dirty - Dirty Stupid - Dirty Expensive Money! Non-Renewable Pollutants Limited in quantity Harmful to the environment Too expensive Coal Pollution Money Oxygen Pollution Non-Renewable Dirty Alberta Money Price driven by commodities, market/fair not by supply and demand Pollution Ozone pollution dirty consistent</p>
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<p>inefficient COSTLY, WASTEFUL OF RESOURCES Expensive and unclean global warming pollution non-sustainable Expensive, scarce 19th century expensive unsustainable global warming pollution cartels war non-renewable, jobs, raping the earth unrenewable dirty out-of-date exhausted, expensive High cost and pollution. limited, expensive, non-renewable, environmentally harmful pollution, greenhouse gases, expensive, dirty old-fashioned effective reliable pollution dirty long wait shortage dirty, smog, exhaust, asphyxiation, non-renewable, expensive, Cheap Pollution pollution, non-renewable wasting resource carbon footprint global warming Too much money Gas is Ok Oil is polluting and expensive Coal is very polluting but readily available war, money dirty, climate change Environment issues Dirty, expensive pollution, environmental degradation, unsustainable, waste, cul-de-sac, short-sighted politics, no future Non-renewable Expensive Pollution</p>	<p>development of western civilization. Expensive, non-renewable, polluting Nonrenewable, unsustainable, dirty Pollution Non renewable Smog, Asthma Dirty, expensive, bad for the environment Ending soon Pollution, industrial age, environmental damage, sickness, non-sustainable Expensive, pollution, greenhouse effect Global warming, smoke stacks, dirty, not necessary, non-renewable Harmful emissions that cause damage to the environment, detrimental to our health, global warming Wood Too pricey, not a clean source, also is a fuel source that is depleting OIL Lungs Old fashioned Money Finite pollution Oil Expensive trapped by the oil owners Costly, non-renewable, dirty dirty expensive limited expensive Revenue (CA & AB) International competitiveness in oil Canada-US relations Economic growth Canadian economy Pollution necessary at present finite dirty Greenhouse gas Pollution dirty, polluting, non-</p>	<p>expensive Pollution Dirty energy Depletion Pollution Environmentally costly, antiquated, limited Gluttony, pollution, poisoned air Dirty, pollution, green house gases Limited and expensive Wasteful Carbon Expensive! Finite, dirty Dirty - Unsustainable - pollution Exothermic, inefficient, pollution Cost is rising Non renewable Limited, costly Dirty, smoky, costly Dirty Ozone depletion Non-renewable, selling to the US too cheap Expensive, non-renewable Pollution, natural resources that will some day run out, high costs Poor planning for the future and the lack of easily accessed fuel bases results in never ending increases in fuel costs. Pollution Pollution (natural resources depletion) Non renewable, expensive, short sighted Non-renewable, wasteful, dirty, destructive Fuels of the past Dirty air; waste, large amount of clean up efforts Harmful to the environment, Pricey, Limited Supply Detrimental to our environment POLLUTION</p>
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<p>Scientific, old, archeology Expensive, polluting, risky Pollution, environment Expensive, polluting, inefficient High priced POLLUTION, EXPENSIVE, RELIANCE ON OTHER COUNTRIES/PROVINCES Pollution Expensive, not renewable Oil Dirty, expensive, limited supply Methods need refining to get full potential out of coal. Nuclear way better, less pollution.</p>	<p>sustainable, bad for the environment, volatile pricing, lack of security, dependence on mainland sources cheap, non-renewable pollution non-renewable carbon Pollution, Greenhouse gasses, CO2 fluctuates when they are deemed to becoming scarce - at whose discretion we don't seem to know! running out pollution dependent on world markets Air pollution Health problems antiquated Dirty polluting carbon footprint, carbon dioxide, pollution, resource depletion</p>	<p>Unhealthy, pollution, Ozone Dirty, lacking, messy, unreliable long term. Dirty Pollution, there will be no more - non renewable Unclean Soot Fumes Loud Centralized traditional generation and transmission. Owned by large companies whose shareholders benefit by increased sales. Dirty power, increased GHG emissions and air pollution.</p>
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Visitors' Responses

<p>pollution "smoke, CO2, SO2" dirty messy dirty dirty, ruin the land, ruin habitat for many animals, affect migration wind pollution pollution high cost on the way out bad for environment non-sustainable Non-renewable; unhealthy; bad for environment; expensive & waste of \$; climate change , expensive, pollution onzone depleting green house gas polluting, dirty Not very green</p>	<p>NECESSARY safe, trusted, reliable NOT CLEAN pollution limited, not ecological, dead-end Dirty....cost....time left with these fuels non renewable Pollution, poor air quality pollution green house gases pollution depleted sea bad air dirty and expensive shortage/depletion/global warming expensive Concern that they are depleting and dependent on other countries. expensive, pollution</p>	<p>More research needed to reduce the use of fossil fuels. expensive. dependant non-renewable; environmentally damaging; contributing to global warming; pollutants non-renewable pollution clean wasteful, pollutants, costly, I'm not sure. "Pollution Dirt" Getting to be too expensive. POLLUTION Inefficient; dirty; difficult to supply pollution, non renewable, dirty pollution, smog, smell Yea right don't know</p>
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<p>None renewable resources Running out soon Air pollution pollution Dirty pollution Air pollution processing plants smell pollution damage to environment dirty, polluting the air pollution smog not environmental not sustainable, not cost effective base load always there generators, not intermittent wind, Air pollution SMOKEY, DIRTY non-renewable, polluters "dirty , wasteful , expensive" pollution, ozone layer, expensive, messy, wasteful global warming expensive non renewable resource pollution dirty, wasteful, unimaginative, warmongering cost, air quality Pollution, high cost, inefficient expensive. how long will the supplies last When I think of fossil fuels, I think about words like pollution, global warming, dependence on the whims of multinational oil companies, and foreign oil cartels. Hard on the environment pollution & carbon emission Pollution Not clean. coal dirty, expensive, dangerous to the environment</p>	<p>pollution coal expensive limited sources, pollution, being dependent on other countries Only to handle peak loads old bones environmentally non-friendly not environmentally friendly, monopoly run or collusion and price fixing pollution more efficient not all are environmentally friendly more expensive, not environmentally friendly dirty and outdated dirty, not environmentally friendly, old school thinking pollution Dated destruction of the planet pollution Environment pollution coal Dirty, Environmentally poor, dependant on other countries for some supply pollution will expire! Jobs in the coal mines - dirty - pollution expensive poor preservation of the earth dirty dirty dirty expensive, increased greenhouse gases pollution old fashioned USING FISSIL BASED FUELS FOR ELECTRICITY IS NOT GOOD STEWRDSHIP OF OUR ECONMOMY AND IS NOT SUSTAINABLE WITH AN EVER GROWING</p>	<p>not environment friendly pollution, global warming, non-reusable pollution, unclean, archaic, wasteful, expensive Sure NONE no comment expensive, pollution, don't know quality of the air we breathe Non-renewal resource, large carbon foot print, poor air quality Pollution pollution, expensive How they are running out as well as the high cost of gas. I think about coal natural, resources, renewable, cost, environment Their is better ways out there that would not polut the earth so much pollution heavey it sucks Pollution and depleting resource we depend to much on these methods.....to the oil barons much more reliable that wind but not as cheap as Nuclear expensive, non renewable, damage to environment Dirty, non-renewable, expensive old dirty, non renewable, harmful, environmently unfriendly coal "more pollution, not renewable on a rapid basis, more cost" pollution, war, increase, primitive heat dirty, running out, nonrenewable pollution, climate change</p>
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<p>Pollution NOT SURE Dirty fossil fuels can be used and burned cleaner than they are today stupid Smog, Non Renewable, Dirty, Wasteful smog, global warming coal and oil pollutants coal dirty, polluting, non-renewable, non-sustainable Limited supply, cost dirty expensive pollution, non-renewable finite, pollution limited, non-renewable, rising costs pollution pollution, finite, efficient fossil fuels will run out someday DIRT AND SOOT AND DEPLETION OF RESOURCES dirty ok pollution ozone-dirty-expensive-availability global warming, stink, pollution, depletion of finite resources Dirty, non renewable Dirty air dirty uncertain Wasteful, polluting, In the case of coal...Lower power rates, stable supply, jobs & scrubbers, pollution Pollution, acid rain, contributing to the green house effect etc. n/a pollution pollution, smog, high cost, availability</p>	<p>POPULATION. very expensive Dirty, polluting, carcinogenic environmentally friendly waste pollution, environment, cost cheap pollution, unsustainable, dependant Non-renewable, dirty I think that its crap for the environment and we cant rely on it forever as its going to run out. Also if we don't start the transition to renewables sooner then later the bite is going to hurt that much more when an oil crisis does come. PEI does not have a whole lot of oil and gas kicking around (none) and importing the stuff gets a bit pricy. So having less dependence on oil(any fossil fuel) is a major step ahead! "Expensive, Coal/Pollutant/Dirty" bad for the environment, bad habits if the past, dirty None non renewable, pollution too expensive Emissions, smoke, smog "good source, less expensive, abundant supply" ECONOMICAL pollution efficient non-green non-sustainable Expensive, dirty Pollution and depletion of our resources Dirty, smog generating expensive Adding to pollution n/a vool they may be running out "pollution, climate change, smog"</p>	<p>expensive cheaper SMOG SOOT POLLUTION (AND I LIVE IN NOVA SCOTIA WHERE WE WERE DUMB ENOUGH TO SELL OUR UTILITY COMPANY TO AN AMERICAN FIRM SO "BAD MANAGEMENT" ALSO COMES TO MIND) pollution dirty, not efficient pollution, global warming none Green house gases, carbon emissions, global warming, energy crisis, higher tax dollars Expensive, causes pollution Pollution and increased consumption of fossil fuels Pollution, cost A dwindling source, we need to explore other options more thoroughly "Polluting. Scarce. Non-renewable. There is a fossil-fuel shortage looming. Other methods need to be implemented." pollution pollution carbon, dirty, hard on the environment Not efficient pollutants; inefficient expensive, pollution, global warming Going to run out Dirty non-renewable non-renewable, polluting, increasingly expensive It costs to much and won't last geo thermal Wasteful, inefficient, polluting I really don't know non-renewable, polluting, expensive</p>
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<p>"expensive, non-renewable, polluting, dirty" dirty--pollution-- air pollution hard on the environment costly Clean burning, efficient, economical, reliable expensive, pollution, old fashioned over priced, pollution , not renewable -- green house gas Coal dust, smog, choking. pollution; non renewable pollution pollution none Global warming, pollution, carbon dioxide dirty, running out Dirty, out of date not too clean budget breaking, and hard on the environment Cost is too much, big oil is making huge profits and it is not a clean, efficient means of producing power. We are trying to get a wind farm built in Buzzards Bay at Cape Cod but big business is deadly against it as they will lose huge profits.</p> <p>carbon footprint Waste, expensive, not good for the environment. expensive wasteful environmentally unsound Expensive, dirty costly nothing non-renewable, polluting, harmful pollution dirty, non-renewable carbon emissions, nonrenewable, nonsustainable, pollution, finite supply dirty</p>	<p>n/a dirty, polluted Question if it is environmentally friendly. Pollution coal non renewable, dirty, inefficient pollution Pollution and Greenhouse effect Pollution Pollution; carbon footprint; non-renewable. It needs to be reduced or come to an end. "Oil= expensive, dirty, unpredictable prices, soil contamination, air pollutants, dependance on imports. gas= comparatively cleaner than oil, less costly, less importing, less pollution than oil. coal= cheap, dirty, air pollution" oil imports non-renewable polluting unsafe hazardous waste pollution, depletion, expensive expensive, non-renewable smog Harmful to the environment. Increasingly expensive. Too supportive of foreign sources. pollution expense and how are we to get it. pollution ending dirty redundant-we are using one fuel to produce another and once it's gone...that's it! Need to focus on renewable resources "the good old days" pollution expensive</p> <p>Fossil-based fuels are finite and all have significant side-effects that are deleterious to the environment. pollution</p>	<p>"pollution, cost" pollutants costly necessary Pollution, foreign dependency, global warming Expensive global warming, air pollution Global warming; greenhouse effect expensive pollutants dirty Standard, Thieving government WE ARE RUNNING OUT OF THEM Pollution limited pollution, scarce resources, gouging pollution, dust, unhealthy air non-renewable, carbon footprint, dirty This is a finite method of energy production, and has great impact on the enviroment and the world's political arena. The sun shines and the wind blows on us all. Antiquated, polluting, global warming, George Bush is a war criminal and a disaster to mankind traditional "price is too high, non-renewable, unstable sources of oil" strange survey, especially for tourists dependant on foreign sources, energy saving USA needs to use more wind turbines. pollution pollution, high environmental and social costs, depleted resources dirty imported oil</p>
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<p>dirty, nonrenewable pollution, scarcity, climate change, particulates CarbonExp air pollution, green house gases, climate change, extinction. climate change Not Sure bones waste of energy that could be put aside for emergencies such as power failures etc. non renewal by products, with limited resource. Pollution, limited resources, dependencies waste dirty efficient, a good natural way which we are rich in shortage. non renewable pollution pollution Depletion of resources, global warming, price increase dirty environment dirty, pollution, heavy, expensive - non renewable pollution, smog, money, greed, war Mining pollution, overuse, shortage non-renewable resources; costly to extract/retrieve; POLLUTING AND WASTEFUL Pollution pollution dirty, unhealthy, unsafe dirty, expensive, pollution. Economics Pollution, expensive pollution, acid raid, non- renewable NOT A GOOD WAY BECAUSE OF POLLUTION dirty, polluting, non-renewable, non-sustainable pollution</p>	<p>ok expensive pollution not clean expensive dirty, fumes. a waste of natural resources old technology pollution, waste, high cost archaic, limited supply, dead- end, toxic cheap are these fuels found local. how clean are they. how is the environment effected. carbon emissions, dirty, corporate greed Great pollution. Enormous expense. finite, depleting Earth's resources, polluting. dirty, toxic, expensive getting to costly global warming, pollution Pollution I'm no expert on the subject, but what comes to mind is the old steel mill towns in Pittsburgh, PA finish the resources Wasting energy dirty bad environmentally unfriendly pollution, finite resource, emissions, expensive wind DIRTY pollution, expensive pollution Finite source of energy, pollution, research global warming, non renewable resource, pollution Global warming fossil fuel Pollution, global warming, acid rain mining pollution, big companies, money world pollution</p>	<p>could use something else need to do more offshore drilling "limited , finite, pollution" Inefficient high prices pollution carbon, acid rain The tank in nearing EMPTY dirty, expensive, limited resources greenhouse effects "expense pollution" ecologically unsound It's the energy of the past. non sustainable pollution no longer necessary, environmentally damaging Non-renewable Possibly cheaper, more economical. dirty, air pollution expensive, non renewable ? waste of resources old outdated pollution, dirty, transporting reliable, consistent conventional, reasonably efficient, relatively cost effective "Coal is efficient but dirty and harmful to the ozone layer Gas and oil are also efficient and less harmful" work Pollution smoke non- renewable finite wasteful acid rain unsightly dirty, costly, outdated, dependant Getting more expensive - we will not be ale to afford some of them - will eventually run out of them limited resources. Pollution. Inefficient.</p>
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<p>pollution, greenhouse gases, non-renewable resources, energy crisis air pollution non renewable costly and worsen pollution pollution smog, pollution Cost and availability pollution running out and dirty expense, supply not clean expensive....costly....continued increased cost pollution Pollution, One-track, Dependant pollution dirty non renewable "Dirty Bad for environment" Destroying our planet. dirty, stinky Reduction, pollution pollution, not eternal dirty, old-fashioned, 20th century NATURAL SOURCES Dirty, smelly Getting old and not green for the environment. Running lower daily and price hike smog, disease, allergies, grayness, non renewable, expensive, dirty contamination of air and land finite pollution Air Pollution. pollution Non-renewable resources dirty "Pollution of the environment. My family has spent approximately \$25000.00 to convert our home and farm to geothermal heating and cooling. We need more incentives for people to do this and stop the</p>	<p>depleting, pollution, high prices limited supply dirty! Pollution! environmental waste, global warming Pollution from fossil-based fuels black, pipeline the usual Dirty, Bad for the Environment non-renewable, environmentally unfriendly pollution costly, and high gas emissions not good dirty, non-renewable I don't know dirty, polluting, irresponsible pollution, smells, fire, increased price. pollution sludge, pollution, smog Limited resource, polluting greenhouse effect, global warming non-renewable expensive and using up valuable resources not renewable we are going to exhaust our non renewable resource. dirty, expensive, non-renewable Needs more research for cleaner ways to use "nonrenewable, pollution" dirty, inefficient, expensive, non renewable Inefficient, polluting, non-renewable method. MONEY SAVINGS Pollution and expensive source of power I don't know pollution "Depletion of resources for future generations. There is a reason global warming is at the point it is." dirty, black, harmful inefficient, costly (economically</p>	<p>not a good idea Dirty, short-lived, precarious, dependency pollution, poor planning, old technology, shortsightedness ??? reliable, efficient, timely, inexpensive, problematic fragile "pollution, time's running out" dirty, smelly, hard to breath pollution ---but, so far, ready available dirty, pollution, non renewable resource grime Polluting unrenewable expensive dirty old fashioned technology environmental issues Traditional archaic, wasteful, polluting CO2 Limited supply, increasing demand equals increasing prices. Not sustainable. dirty Limited, dirty, cancer, short-sighted. "olden days, pioneers, going back to basics, radiators" pollution, oil price pollution, depletion Expensive, pollution air pollution, global warming, financing terror pollution, will one day run out POLLUTION Pollution, old technology, not necessary Exhaustable Too expensive! Pollution, expensive, and that we're running out. dirty, costly, old-fashioned bad for the environment, pollution, smog</p>
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<p>pollution of our environment." clean, efficient, plentiful Pollution depleting resource, polluting, inefficient Non-renewable and polluting. They are not renewable resources. pollution expensive, pollution pollution pollution environment old pollution, expensive, harmful to the environment, depleting sources of energy don't think it is clean dirty pollution, non renewable Global warming, non-renewable, pollution greenhouse gas emissions sparse dependent, dirty Too expensive expensive, limited, wasteful Pollution, Not renewable, very expensive...reduced availability increased cost. pollution wasting resources for future generations. emissions, pollution pollution; non-renewable pollution ancient, dirty, carbon producing, nonrenewable resources, costly dirty, wasteful, pollution, greenhouse gases, global warming antiquated polluting non- ecological Dirty price increasing EXPENSIVE air pollution, smoke, high cost of fossil-based fuels dirty, limited</p>	<p>and environmentally), OPEC ripoffs n/a Pollution & non-renewable pollution carbon emissions Not renewable. pollution not good can run out clean emissions the greenhouse gases that get emitted and pollute the atmosphere Dirty, unrenewable source; very bad for the environment smoke pollution pollution, carbon gases For the future we need to change this for the new generation. pollution CO2 pollution short-sighted, polluting, smog. CO² greenhouse effect pollution, messy, dirty pollution Green house gases pollution - cancer pollution, costly pollution, oil spills, black smoke used up "dirty non-renewable bad for the environment pollution" "coal dirty" Decrease in supplies dirty environment We have used these fuels for decades and will continue to need to use them. We can learn to use them more efficiently and to supplement their use with other sources of energy. ecocide waste, pollution, expense Pollution, global warming,</p>	<p>awful inexpensive, plentiful, efficient, proven technology smog creating, asthma expensive, running out, expensive, dwindling, unclean pollution, greenhouse gases, unsustainable Fumes, smog, pollution, heat, mining, high costs pollution, climate change will run out in a generation or two Environment Dirty - killing the earth unsustainable, pollution, end of oil, cars "pollution, shortened supplies" pollution and global warming dwindling resources "Greenhouse gasses, Dirty, Destructive to produce" Pollution bad for the planet Running out Air pollution and atmospheric carbon dioxide buildup and resulting global warming. production, maintenance, repairs, pollution Pollution, limited resource that will get expensive. pollution with some, dirty, sometimes expensive Polluting. pollution not renewable nothing pollution clean cette méthode est dépassée. (old time) POLLUTION Pollution green house gases pollution Pollution, acid rain, smog, "Waste, Pollution"</p>
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<p>Non-Renewable, Dirty, Expensive dependable but dirty efficient expensive, non-renewable, dirty running out shortly need to prepare for the future pollution, shortages, expensive non-renewable source of energy outdated- Middle east- devastating- dirty- smog- health problems pollution, limited resource unclean pollution, green house gases, Environmental issues. Expensive expensive Expensive, dirty, pollution Good for oil rich provinces, but hard on the environment Pollution, hi-cost pollution Dirty and non-sustainable Global Warming, non-renewable, dirty, pollution, short-term why do we need to get fuels from arab countries? shop local wow "non-renewable resource. environmental waste. difficult and expensive extraction methods." dirty, climate-change "I fear that one day these resources will run out and we won't be ready with alternatives. As with most things these days prices continue to climb, making such things as heat and electricity hard to afford for many families. This shouldn't be an issue in our country." Reliable but may run out in the future. traditional method shortage acid rain, pollution Pollution, global warming,</p>	<p>severe health hazards pollution, limited resource costly Pollution pollution expensive, unhealthy available, steady Wasteful to the environment, and inefficient foreign dependency anf pollution bad for environment Not entirely the answer to current energy problems on North America Yesterday, the past! pollution It's too expensive GLOBAL WARMING Pollution, expensive antiquated; selfish non-renewable smog, acid rain, CO2, bad for the earth n/a destruction of the land running out, dirty Non-renewable, dirty lack of energy independence pollution, non-renewable resources too expensive Dirty, costly, wasteful Dirty Pollution Controlled Expensive not going to last, not renewable cleaner air old-fashioned, dirty, Smoke, pollution, non-renewable resources it will run out Global warming, air pollution, acid rain, non-renewable available, plentiful (coal, gas), CO2 producer, acid rain, business as usual, environmental impacts, vulnerable supplies (oil), foreign imports (oil) pollution not good</p>	<p>cost and mostly pollution "I am not stereotyped by words like greenhouse gases emissions. You could rephrase your sentence because coal is very different from gas or oil. The word they would make me think of is: fossil" bad POLLUTION smog, pollution, illness. They are not renewable, pollution causing, and not forward thinking. Unsustainable pollution, dwindling resource limited source, harmful emissions non renewable if these are easily accessible and cheaper we would be all for it archaic, non renewable Dirty, hard on the environment. wasteful & pollution old technology, finite source, pollution it will come to an end wasteful, dirty, expensive, running out Dirty, CO2 generator, NOX generator, not very efficient, poor government control of CO2 & NOX from these power plants gas I believe it is a stop gap today as we now recognize that it is a limited resource and we need to replace it 100%. Green House Gas emissions, SO2, NOX, particulate, health concerns, Non renewable, pollution, global warming oil coal "pollution non-renewable</p>
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<p>efficient pollution Old fashioned, pollution, messy, traditional, cronies, old white men dirty, pollution, Middle East, dependency acid rain, ozone depletion, pollution, green house effect and global warming, carbon dioxide ones that are easily and quickly used up Excess by-products. wind smoke, smog, haze. expensive, dependent furnace turbines pollution pollution "Wasted resource, Foreign ownership of resource, Pollution (ozone layer), Limited resource, Non renewable, Reliable, global warming, Jobs" expensive, costly to produce, decreasing, unsafe becoming more and more scarce and expensive Dirty, costly, inefficient. dirty, smelly, unhealthy, not safe Expensive, non-renewable, pollutant Non-renewable resource dirty pollution expensive pollution Arabia, Russland Depleted resources, dirt, pollution, climate change, not sustainable, acid rain, harming the environment, smelly out-dated, expensive non-renewable, pollution, dirty, expensive, invasive pollution, costly distroying our environment and non renewable. has been thought to be the best source in the past. current</p>	<p>Very costly; polluting, waste products Dirty but unfortunately necessary "air pollution carbon emissions" EXPENSIVE expensive, diminishing, non-sustainable expensive Depleting, irreplaceable, pollutes, necessary for current living standards. pollution, high price, non-renewable resource coal Short-sighted, finite and pollution. dirty, expensive, dwindling and unreliable! increased greenhouse gasses non-renewable non-renewable environment waste dirty, air pollutants, nonrenewable. pollution Dirty wasteful Ecological damage, carbon footprint, inefficient, running out, dirty pollution One would think that by this century, generating electricity by using fossil fuels would be obsolete. Our governments (both Federal and Provincial) should have been pushing energy producers to investigate and experiment with alternatives for the past couple of decades. European countries are far ahead of us in this regard. Only a few of the cleanest natural gas and coal fired plants should be maintained as reserve or back-up systems. inefficient, dirty, unhealthy</p>	<p>dirty" usual method expensive outdated. Coal, gas pollution dirty, earth-destroying, old fashioned Pollution. Green house gases. Global Warming. dirty air, not environmentally friendly, non-renewable pollution; greenhouse gases dirty, running out, expensive depleting, non renewable resource, rising cost Expensive and pollution "non-renewable expensive environmentally unfriendly" Non-renewable, polluting and a source of greenhouse-gas emissions. dirty smog; global warming; acid rain It is not a very clean way to produce electricity and it wont last for ever. And on top of that, for years and years now, it has generate so many wars. I live in Quebec, most of our electricity is hydro, and now some wind turbines hurting the ozone pollution Greenhouse gases smoke, stink, dirty air Great idea. expensive, bad for the environment pollution pollution oil inefficient, enviromental diaster. wasteful "clean coal use false information and hype from some enviornmentalists</p>
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<p>knowledge says its no longer so dirty, particulate matter generated smog, environment destructive expensive, dirty, destroys the environment emmission gasses dirty, underpaid miners, big business cheaper but dirtier to the environment DIRTY Pollution conserve dirty, non-renewable, ending, dirty...unhealthy "limited, pollution" Pollution, non-renewable resource pollution I don't know dirty pollution it good to have it. a tradinall way pollution current DEPLETING pollution; damaging to the environment pollution pollution new energy time for a change time to modernize Non-renewable Of the fossil fuels, natural gas is one of the more efficient in terms of power generation. However, we need to reduce our carbon footprint and explore more alternative renewable sources. pollution Global warming coal we are running out! pollution Pollution expensive, time consuming, extensive dirty & wasteful use of resources</p>	<p>expensive Non-renewable. dirty, pollution, non fixed cost. pollution, waste natural way of heating underground non-renewable, air pollution, increasingly costly, hardships for the low and fixed income earners and seniors. peak oil expensive; finite; not eco-friendly "expensive dirty unsustainable" "Limited, Unrenewable, Dirty" Pollution, destruction of ecosystems, abuse, waste, shameful profits...shall I go on? :) "not renewable, wasteful, soon won't be" ?? Limited, short sighted, harmful dirty, costly, relies on others dirty old old school pollution, non renewable not long lasting ? dirty, smelly, residue smog, pollution, environment, green, natural gas, conservation pollution nothing THAT SOONER OR LATER THE WORLD WILL RUN OUT OF THESE PRODUCTS Fossil based do create havoc with the earth, but electricity can be very, very expensive. gas unsustainable, non-renewable, wasteful, pollution, smog, damaging ecosystems, greedy, selfish, war, greenhouse gases, global warming, greenhouse effect, climate change, oils spills</p>	<p>groups" pollution, global warming, non-renewable, energy crisis Polluting. expensive Lack of sustainability, pollution, illness non-renewable/anti-environment Outdated, expensive, damaging to the environment pollution non renewable Pollution Non renewable sand pollution dirty running out Prices are fixed. Greed rules. Supplies are limited. Dirty Pollution generated from burning unrenueable source of energy. Non-renewable, dirty. Pollution depletion Pollution "Smog Greenhouse gases nonrenewable resources" waste of a natural resources to0 expensive A natural resource that will eventually be depleted at the current price and demand. pollution "Environment non renewable" non renewable resources, dirty, killing th eplanet, clostly and running out non-renewable NOT GOOD. BAD. POLLUTION. GREEN HOUSE GASES. smoke Limited supply - Hard on the</p>
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<p>pollution Dirty, becoming more and more expensive coal non-renewable, expensive, dirty, limited Fossil-based fuels would probably be better used for transportation(cars, planes)and home heating oil, than for electricity. dirty no tanks outdated but necessary dirty. carbon footprint. greenhouse effect Efficient "non-renewable expensive polluting" popular more heat pollution, dependency on other countries, expensive, what about the future of the planet and its inhabitants sparingly pollution dirty, pollution, smog, smelly, earth gone in 1000 years Killing our earth short sighted, dangerous for the enviroment, wasteful of a finite resource dirty non-renewable; dirty; expensive Expensive, imported, non-renewable Necessary Traditional CLEAN "shortage pollution dirty hard to get" expensive, taxes, pollution non-renewable, polluting, costly pollution non-sustainable; polluting</p>	<p>I have no idea natural resources not necessarily environmental friendly DIRTY running out....expense hard on the environment mine closures pollution-expense-supply-non-renewable expensive. archaic Tried and true costly, dangerous pollution, non renewable resource, global warming, habitat destruction dirty bad for environment dirty, expensive, enviromentally unfriendly,unions CATASTROPHE coal pollution, usage of non-renewable resourses short-sighted Polluting, contributing to global warming, imports bad for balance of payments, fast-diminishing supply It is a method that needs to be replaced. In the NWT our electricity is mostly generated by the burning of desil fuel. pollution good for its time. air pollution usual more cost efficient pollution smog expenses pas écologique, onéreux, dépend du prix du carburant smkoe, smog, air pollution undesirable method pollution cars pollution Dirty, expensive and choke hold by a small number of industries over a greater propotion of the</p>	<p>environment. Pollution, Dirty, Expensive Air polluting outdated, not progressive, dirty, not positive for environment or health. expensive, non-renuable old time Too darn expensive. pollution enviroment dirty obsolete and way too expensive, any way, we will have to let those methods go! pollution, greenhouse gasses, ozone layer, sulfides, and lots more nasty stuff! pollution, job creation short term and expensive "non-renewable hard on the earth's health" dirty, limited resources unsustainable, polluting, cheap future disaster limited resources, waste gas and products, dependency on world-economy pollution green house gases. pollution Provides employment and uses natural resources pollution "outdated expensive environmentally unsound" Environmentally unsound contributes to pollution & global warming pollution, global warming, diminishing resources, dependency on other countries, steadily increasing costs Expensive, dirty, diminishing air pollution, global warming, dependence foolish Global warming and Middle East dependence</p>
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<p>unrenewable, dirty limited resource availability, cost of import, self sufficiency dirty archaic limited amounts waste and pollution unclean, expensive, nonrenewable efficient Greenhouse gases, depletion of reserves that could be used elsewhere pollution, finite fumes dirty expensive waste Fossil based fuels are not eco- friendly although they do provide employment for people. oil Non-renewable dirty non renrnable carbon footprint, pollution, non- renewable Pollution not renewable, dirty "chinmeys smoke" NOT SURE "green house gases Non-renewable sources bad for the environment side effects" WASTEFUL A costly uneducated choice that eventually runs out and does nothing but help to poison our climate. prehistoric afterall we have people in space and cures for most anything good if they work expensive, non-renewable bones Green house gases Global warming, destruction of all life as we know it. old aged pollution; shortage; smell reliable</p>	<p>population. Efficient, cheap, reliable expensive efficient, common, tried and true, plentiful, economical, controllable Accessible limited, non-renewable, expensive, marketplace gas "Non sustainable pollution" non-renewable resources dirty, wasteful, nonrenewable, none Dirt and clay air pollution non-renewable; dirty; wasteful pollution smoke, smog, grime, air/water pollution, non-renewable resource. Dirty, wasteful and non- renewable. expensive expensive scarce bad & dirty dirty, pollution oil expensive environment jobs for our miners. in the past destroying our world's resources "Note: Previous question 10....I don't know how much I pay now so I just picked that amount to show that it should all be the same price. Depletion of existing sources...dirty....pollutant...." Not very good for the planet dirty, hazardous, pollution, expensive, unrenewable dirty old old methods, kind of antique and economics Pollution. High Shipping Costs. pollution "harmful greenhouses gases"</p>	<p>expensive not renewable limited global warming, air pollution Depletion, over consumption, over dependence expensive and non-renewable Going to run out some day. expensive, detrimental to the environment finite, polluting, politically controlled old and tired expensive, dirty Air pollution, inefficiency expensive, pollution, waste, dependence on foreign oil "nonrenewable dependant on foreign sources dirty" High cost, largely imported fuel sources, environmental damage from high levels of CO2 \$\$\$\$\$\$\$\$\$\$\$\$ air pollution Depleting, Exhausted, Polluting, Non-renewable oil oil Not inexhaustible. Pollution. Need energy to make it usable. none this is much too bad for us It is polluting to much. But and for the time being, we need to use gas for cars Stop air pollution Unfortunately, I has become very expensive. We need to find other methods, that are not polluting as much also... pollution importing foreign oil at great expense and harming the environment pollution gaspille</p>
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<p>"We are going to run out! We need to find alternatives now. Don't know much about this but I would think that other methods of production would be cleaner for the environment"</p> <p>not the best</p> <p>Dirty, Climate Change</p> <p>"burn</p> <p>black</p> <p>deplete"</p> <p>"Harmful to the environment</p> <p>Non-replenishing</p> <p>Dirty"</p> <p>Old</p> <p>expensive</p> <p>pollution and non-renewable resources</p> <p>limited resource, pollution generating</p> <p>Sustainability and the environment.</p> <p>expensive</p> <p>smog</p> <p>pollution</p> <p>Non renewable, expensive, dirty.</p> <p>dirty, pollution, expensive</p> <p>Pollution Green house gases</p> <p>wasteful, pollution, ineffecient, dirty, running out, expensive</p> <p>Pollution</p> <p>dirty, polluting,unhealthy</p> <p>dirty, air pollution, health risks, not renewable</p> <p>natural resources</p> <p>non-renewable</p> <p>Increased damage to the enviroment, poor air quality, sizeable increases in prices.</p> <p>waste and pollution</p> <p>unhealthy</p> <p>Consumable. Unable to reuse for many years. Dwindling. Unclean.</p> <p>old</p> <p>Ecology</p> <p>Global warming</p> <p>I don't know enough about this topic to make a common on...</p> <p>"wasteful</p>	<p>Gas</p> <p>would rather have wind turbines</p> <p>environment</p> <p>Unnecessary depletion of resources, environmentally unfriendly, costly to consumers</p> <p>I'm not sure</p> <p>pollution</p> <p>global warming, higher gas prices at the pumps</p> <p>pollution</p> <p>non-renewable, pollution, cost increases, dirty</p> <p>Non-renewable, polluting, expensive.</p> <p>"Stupid. There are so many other, less harmful ways, to create power.</p> <p>All the green buildings being built proves how easy it can be done"</p> <p>Dirty</p> <p>stupidity</p> <p>"Clean. I responded with 000 in the cost per KW previous question, because I have no opinion on this... thought it a weird question.. Did you mean how much MORE we were willing to pay than what we are now?? or just how much?? since I have no idea what we pay now// I couldn;t do a ""how much more"" and since I have no idea what this would translate to as regards to my cost... I still have no reply!!!"</p> <p>They are 'dirty' methods of producing fuel and contribute greatly to the problem of global warming.</p> <p>co2</p> <p>Expensive, pollution, toxic gases, dangerous work at the plant</p> <p>expensive</p> <p>expensive, pollution, corruption</p> <p>pollution</p> <p>old</p> <p>smog, pollution, waste</p> <p>out-dated thinking, dirty, costly</p>	<p>Natural</p> <p>Pollution</p> <p>climate</p> <p>dirty, dust, inefficient way of producing energy</p> <p>dirty</p> <p>expensive, dirty</p> <p>pollution</p> <p>none</p> <p>smog pollution</p> <p>dirty, bad for the environment</p> <p>non-renewable, finite, expensive, dirty, unhealthy</p> <p>pollution, global warming</p> <p>Dirty, disappearing, pollution</p> <p>harmful to the environment</p> <p>non renewable</p> <p>"non renewable</p> <p>smog/smoke</p> <p>air pollution</p> <p>increased pricing"</p> <p>pollution, use of an</p> <p>unrenewable resource.</p> <p>"Too bad.</p> <p>Expensive.</p> <p>Polluting.</p> <p>Must develop better sources IF and WHEN possible."</p> <p>energy, waste, dirt</p> <p>pollution, sulfide dioxide, acid rain,</p> <p>oil</p> <p>I am sorry i know nothing about this</p> <p>unsustainable peak oil</p> <p>polluting</p> <p>Out of date, Corporations feeding government pockets</p> <p>old</p> <p>dirty, global warming, non-renewable</p> <p>non-renewable dirty pollution</p> <p>pollution dirt in atmosphere</p> <p>dirty running out</p> <p>Pollution, smog, o-zone</p> <p>pollution, expensive</p> <p>coal</p> <p>dirty, pollution</p> <p>pollution. Greenhouse gas</p>
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<p>hazardous dirty" Dirty old school Terrible - Waste - Emissions - Pollution - Limited supply - non-sustainable - Dirty - Short view - Expensive - Big bucks - Dirty - Expensive Running Out Cost and Maintenance Pollution Pollution Expensive Non-Renewable Non-Renewable Greenhouse Gas Oil=A danger to the environment Wasteful Expensive Dirty, smoky, non-renewable, user pay Depletion of resources Dirty bad for environment Obsolete Pollution Limited Supply Expensive Depleting Expensive Non-renewable Environment Dirty non-renewable, pollution, global warming, dirty, capitalistic oil companies, exploitation, Middle East, oil Pollution CO² Toxic Dirty Old technology - Supply - Expense of processing - Fuel wasted to collect these fuels - Only so much - Depleting - Pollution - Global warming - Thermal pollution - Limited Source - Dirty - Expensive (subsidies) - Smog</p>	<p>pollution Pollution of the air we breathe and diminishment of a non-regenerating source of energy. pollution great source of energy our environment, our dependancy on foreign countries. nothing really comes to mind Dirty, Non Renewable "fading, unsustainable, dirty" "Pollution, Depletetion, Disasters" dirty costly am not sure Clean. Zero carbon emission. There must be a way of burning coal completely clean and sequestering all the carbon. We have a lot of coal to burn and there is no other good use for it. Until we figure out how to contain fusion, we should be using up the coal. We need to burn the coal at the source in a clean way and add something close to super-conducting to get the power where it is needed. There needs to be more research money and prizes for these goals. Short term, expensive High level of pollution Pollution Pollution Dirty - Reduce them - Pollution - Dirty - Pollution - Smoke - Smog - Dirty - Pollution - Coal - Pollution Pollution - Dirty - Pollution Pollution</p>	<p>emissions Non renewable. Expensive. Irreversible contribution to global warming. pollution limited resource, climate change, pollution Bad for the environment dirty poor No global warming non-renewable unsustainable Non-renewable coal/pollution/smog Nothing Costly Pollution Pollution, non-renewable Pollution, depletion of resources, limited We are going to run out. Horrid for the environment. Not good, prosperity Waste, dirty Oil is okay, coal is dirty and stinky Non renewable, polluting Pollution Carbon footprint Smog Pollution, expensive, non-renewable Expensive Dirty Pollution Expensive dirty -going to run out of oil - coal is dirty Pollution Pollution Asthma Polar bears (dead) electric cars - Would be fine if they could do it clean - More fossil fuels than other</p>
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APPENDIX C

Q12

"Wind turbines are one way to generate electricity. What words come to mind when you think about wind turbines as an electricity generation method?"

Residents' Responses

<p>clean quiet renewable clean, graceful, quiet, sustainable, peaceful, environmentally friendly. Green, environmentally friendly. clean can be excellent if placed well environment good, natural clean, non storeable efficient natural renewable resource better for the environment...cleaner..good use of a natural resource Clean air Cheaper, endless resourceful, healthy, natural curious safe, environmentally friendly, future We have lots of wind. clean renewable eco friendly natural clean good idea have the resources, should use them Clean, Efficient, What if there is no wind, or not enough to power the house clean, mimimum environmental impact Electricity only available when wind is blowing dead birds and bats, eye sore on the landscape, renewable source of energy Limited capacity on PEI potential renewable Clean. Renewable. Forward- thinking. clean</p>	<p>unlimited resources free, unlimited clean truly renewable large initial cost Unproven, full of potential, not elegant Music to my ears. noisy clean efficient ugly looks good on paper. Will always need back up system clean.. environmentally friendly, economical EXCELLANT NATURAL RESOURCE THAT HERE ON PEI SHOULD BE UTILIZED MORE BY ITS RESIDENTS. IT DOESN'T HARM THE ENVIRONMENT, SO WHY ISN'T IT MORE ACCESSABLE TO HOME OWNERS, ETC. natural clean, natural unreliable, untested, costly clean, renewable, variable Renewable environmental safe energy source safe clean readily available environmentally friendly clean, inefficient, noisy healthy for environment clean, lots of supply environmentally friendly natural resource necessity Clean, safe, sustainable, independent power cheap safe clean, safe, natural</p>	<p>clean, renewable, free great for environment environmentally friendly always available turbines can be loud useful Affordable and green. noisy clean bird kills Effective at what they do but an eye sore and not enough room on PEI to erect enough to reach the numbers the government wants new clean, crisp, unlimited resource environment clean renewable energy, giant towers, clean, limited - Cheap Green Clean Clean air Cheaper Eco-friendly Saving Beneficial to Environment and Farmers High Wind Perterel Emerging Clean Expensive Inconsistant, Requires Conventional Back-Up Clean Healthy Reuseable Unlimited Money Savings Natural Use Great Idea! Would like more info, how expensive? ? Clean Clean Income Clean Install away from people's homes Healthier Affordable</p>
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<p>noise renewable Better than fossil-based fuels not as good as solar clean and accessible environmental ample supply (PEI) too many = ugly new, modern, clean, efficient, energy-conscious clean, natural Cleaner air, don't worry about the noise, just thankful that we're trying to get off terrorist country's oil supply unreliable renewable clean noisy large Environmentally friendly Sustainable Noise clean, renewable, never ending, noisy, advanced noise, environmentally friendly, not a reliable source Clean, Green clean new safe expensive clean renewable supply thoughtful, costly, Safe, efficient and cheap energy. Environmentally Responsible clean new friendly renewable clean, new, possibilities, unsure, need more information Unlimited, clean clean energy, renewable a reasonable price for electricity Environmentally friendly. inconsistent supply unappealing windmills clean environment COSTLY, CLEAN Expensive start up cost, but cheap in the long run Clean clean feasible sustainable Clean, available 21st century environment friendly</p>	<p>renewable and price controllable clean uncertainty cheaper clean, environmentally benign, capable of serving needs expensive better good luck -- it reeks of subsidization renewable, cleaner, availability clean energy, renewable going green free Future, green clean, great for the enviro future Clean, renewable, sustainable reliable clean cool clean, environmentally friendly, interesting to look at, totally renewable non-polluting, eco friendly, lot of opportunity for generating power through wind, a good investment effective green energy wind is always there, alot cleaner for the earth environmentally friendly renewable GREAT friendly cancer from the power lines such as in tignish pei. the lines should be burryed. the way of the future Big sustainable storage farm wind option renewable innovative, environmentally-friendly clean large scale cheap environment friendly As yet unreliable Probably always less reliable than oil</p>	<p>Field Mill Windy Clean Efficient Green, but noisy, so location is everything Natural Clean, renewable resource, unknown effects of the wind mills to nearby residents Birds, sound, vibration (sonar) Good Excellent Cheaper, natural, healthy Wind, cool, nature, healthy Wind / PEI Saving money Grossly under-utilized Environmentally friendly Wind Energy Windmill - Efficient - Cost effective - Clean Natural - Smart use of a renewable resource - Simple, wind is free - Under-used, will never run out! Renewable energy Free Clean Big - Lots of maintenance, but a great idea Smart - Clean Expand this is Islanders, Allow choices !!! Excellent! Clean Efficient Foward-thinking Better then burning fossil fuels. Towers More cost efficient Noise Cleaner for the environment Cheap Clean engery Healthy Renewable Belgium Visually appealing Futuristic Logical Clean air Clean New Inconsistent Energy saving Environmentally</p>
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<p>sustainable still expensive visible renewable, free, clean, less disruption to the earth renewable natural clean new environment friendly, affordable cheap. cost effective, green, environmentally friendly revolutionary, efficient, clean, green, Inexpensive constant clean wind air clean, green, renewable Expensive Minimal Pollution nothing clean renewable resource clean power lower monthly bill environmentally ok Not attractive on the landscape ?? about transmission lines ?? uncertainty of supply green, safe clean renewable a noisy and costly way swoosh noise, huge renewable energy, progress, sustainability, negative visual impact, poor aesthetic design renewable environmentally friendly Good idea but noisy natural clean renewal safe green clean air good for the environment renewable clean machinery breakdowns noise? should be used entirely here on PEI and not shipped off-Island unless we are self sufficient green CLEAN, RENEWABLE natural clean, large cheaper electricity bills</p>	<p>Visions of North Cape Beautiful wind farms on landscape New opportunity Untapped resource Something new to integrate into PEI future towering harmful to birds sometimes noisy Clean re-newable Cleaner for the environment clean energy, green, PEI, WEICan, R&D, energy security, good for the environment, sustainable expensive, intermittent clean fields, big, buzzing clean, noise, ugly on landscape constant source of power - once harnessed price should not have to fluctuate noise bird and bat kills neighbours upset unreliable Visual pollution, transmission lines Dangers of EMF noisy clean bird migration patterns clean, harmful to bats and other migratory animals, noise potential Clean Quiet Unintrusive Clean energy. Can be developed on a large scale and owned by foreign companies or developed by local communities, farmers, co-ops, First Nations etc depending on the policy mechanisms supporting renewable energy development. Also has the potential to earn royalties for the Province which can be reinvested in energy efficiency programs or used to help finance community energy projects. clean & natural renewable ineffective not reliable not</p>	<p>friendly Invasive... and no monetary impacts on our electricity bills. We can tolerate change if we can feel the benefits .. we know we need cleaner energy but not at a cost to our peaceful serene landscape , and not without any impact on our electricity bills .It seems Islanders are being used for corporate experimentation and profit. Your next question (3) is not a fair question .. I cannot answer the generation aspect of the question in absence of the percentage of energy consumption that will saved for Islanders by going with wind energy. environmentally friendly! Clean air cost of setup, clean, non polluting majestic clean clean Using a natural source Home Models clean nature, efficient clean Useful Cheap Environmentally responsible Renewable Clean I believe the wind turbines are great, but do not understand why all the power we are generating here on PEI is going to the United States. Us Islanders are not benefiting from the whole scheme of things happening here. I believe that the decisions about the wind turbines here in PEI was a political move which is not benefiting the residents of PEI one bit. E M F HEALTH PROBLEMS</p>
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<p>sporadic, clean, reasonable price Costly, ineffective, subject to high maintenance costs. Green Renewable Logical clean, renewable, sustainable, smart, natural, wise, research, leading-edge, mother earth, gentle energy of the future wise, thoughtful, why not use a resource we have loads of, I actually think they are incredible to watch in action High initial cost but more cost effective in the long run, Green Energy Not-in-my-backyard Clean clean - sustainable - green - gentle weather dependent output maintenance renewable free, available, clean Clean renewable unlimited ...new technology smart renewable resource clean cheap energy Big, expensive but important and will one day be necessary clean, renewable, never ending supply</p>	<p>enough wind clean, environmental, ugly clean there will always be winds - renewable no pollution ugly but effective valuable n/a clean, renewable, costly clean environmentally friendly very practical did it , liked it cheaper greener plentiful environmentally friendly, tapping into a resource that already exists and isn't going anywhere Beautiful, graceful, clean, renewable, Good Future Planning green Pollution free, excellent source of energy. Using a renewable power source that will always be there. powerful government mismanagement, EMF's, lack of scientific data, residential damage very high maintenance to operate</p>	<p>quiet, efficient, limitless supply, intermittent Clean method of generating electricity Noisy (?) Readily available on PEI Clean, renewable ecological pure, clean, free Noise- clean CHEAPER RATES Interesting, new and worth exploring. clean, renewable, non-polluting, safe, non-carbon emitting, environmental energy efficient DANGEROUS - TO THOSE WHO LIVE BY THE POWER LINES THAT PUT OUT EXCESSIVE VOLTAGE!! CANCER!! MISCARRIAGES!! SCARY!! DISAPPOINTING! non-obtrusive gentle clean clean renewable noisy and unreliable renewable clean, renewable</p>
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Visitors' Responses

<p>good; concern for the birds "Quiet Reliable Zero Pollution" sustainable beautiful, effective, prgressive unsightly beautiful to look at, limitless, renewable pollution free clean air clean</p>	<p>smart, natural, clean, peaceful clean air ongoing resource Free supply, renewable, pollution free after the initial cost it would be chepper in the long run,and there is wind most times enviromentally friendly noise new age A big expense that generates very little power and that small</p>	<p>clean, natural I was so proud of PEI when I saw how the use of windmills had expanded since my last trip to the North Cape. Someone is thinking ahead, and working to keep the island the beautiful place that it is. progressive, clean renewable "constantly renewable non-threatening (as opposed to</p>
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<p>smart way to go next best beutiful safe worth developing but also need to study long term effects Clean; renewable resource; never-ending; less \$; need somesway to keep birds from being killed by blades cost effective , renewal, quiet non polluting reduced climate change clean, natural Better then the above for a greener planet Renewable, clean, enviromentaly friendly Renewable but needing back up. High capital. Noisy "possible noise in area of wind farm sustainable source" BIG clean, available, new technology CLEAN natural and clean ecological, economical, renewable na Clean...un-touched/taped...free renewable Environmentally friendly, natural source of energy noise saving the planet clean air clean method powerful if not to close to residents property ,Perfect clean cheap,after start up efficent no pollution/no global warming cleaner Noisy and very invasive if living near a turbine sight. Eneryg emitted by these sight can be harmful to the people living in the area.</p>	<p>amount is not reliable. Wind power is likely a viable option for PEI because the wind blows constantly and very little electricity is consumed in PEI. PEI is also quite distant from its main sources of electricity, which are "off Island". wise alternative method Expensive to set up, clean and environmentally friendly to run, non-invasive to the landscape awesome idea inexpensive There will always be wind. While the machinery to generate electricity is expensive initially, the natural resource, wind is not. awesome we need more there is lots of wind here in the maritimes clean earth friendly Very clean. Excellent clean, efficent, cheap, safe Natural-environment friendly GREAT METHOD Clean long over due perfect Clean, Renewable, Vibration, Noise, Natural clean, expensive, unsightly n/a big size clean,renewable, cost effective pei sustainable, free Sporadic,cost,noise clean clean clean, renewable noise progressive, renewable, enlightened, non-polluting Windmills dependent upon weather,environment friendly,</p>	<p>nuclear for instance) no threat to the environment" "why don't you just ask if tourists would be upset with ""windmills,"" wind turbines these answers I have given are mere guesses, and you should rely on your citizens, not tourists" readily available, quiet clean clean, insufficient, intermittant sensible, cost-effective clear air Clean. Sustainable. Expensive to install - but, long term inexpensive. Problematic to the landscape for some. clear and clean a cheaper way to go and it is not unsightly clean non resource depleting energy endless Wind energy is a very unlimited source of pure, non poluting energy. All power should be produced this way. sensible eyesore (but a necessary evil) expensive to get into-productive for certain areas noise clean, cheaper, efficient free power Wind and solar needs more use in USA. clean Clean, environmentally friendly, picturesque clean free very good idea ugly structures that ruin the landscape renewable North Cape! Absolutely beautiful to look at; would love to see lots more of</p>
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<p>clean, inexpensive clean; easy; environmentally friendly; noisy green clean "renewable; cost efficient Part of our trip was to North cape to visit the windmill farm since here in Albert County, New brunswick we are building a wind farm at Kent Hills." way to go practical cost effective, available, green i'm not sure. "Clean Fresh" All natural!!! NATURAL efficient; new age; electricity always available clean fields, quiet, clean I think it is a great idea. When we were in PEI we saw some. charge a clean alternatic clean, natural, non-polluting, environmentally friendly clean, environmentally friendly, efficient, natural efficiency MIGHT BE GOOD a fantastic idea clean, reliable, non-polluting, unending supply source loud , environmentally friendly clean and natural Big, loud, cheaper, cleaner alternative to fossil fuels, Environmentally friendly green, reusable, here for us to use Wind will not run out or create greenhouse gas They would be alot cleaner for our envirnment. Wind is very available. natural, resources, availability,</p>	<p>requires land clean and efficient renewable, cheap, environmentally friendly clean clean, renewable. we have lots clean, natural I think they are a very important part of any mix but you cannot have 100% unless you store the energy somewhere ... not much hydro kicking around in PEI or a place to pump it high enough to make any useful energy with, so hydro storage is out. I think PEI should bring as much wind enegy online as possible as its a good example for other provinces and I personally think they are beatiful. Canada has a vast wind resource and if PEI took a lead you could be the leader in the energy shift over the next 10 years. Also i see you have a progrm at your college for turbine maintenance tech, or something along those lines. This was a very very good idea and those graduates will be very valuable once done. Clean/Efficient/Renewable smarter, cleaner, healthier cheaper NOISY, RENEWABLE good for enviroment clean, noisy?? enviroment friendly, noise may be a problem noisy, look terrible on the landscape, interfere with natural habitat such as animals, landscape, etc. Do not look natural on flat surfaces, almost fictional. renewable natural energy source, no emmissions Clean, renewable Clean energy "economical</p>	<p>them all over the provinces and here in Maine. environmentally friendly cheap, clean, quiet much cheaper Wind turbines are non-polluting. Their primary constraint is that the wind at any location doesn't blow constantly. So wind power production must be integrated with other forms, e.g., hydro, solar, and, yes, some fossil fueled facilities. economical in long terms great expensive good for the environment clean not harmful to the environment clean, noisy, very big. "unlimited clean environmentally friendly free" ecologically friendly windmill using nature naturally- no pollution clean, unsteady Sweet quiet, restful, interesting to watch, renewable resource better for the enviroment beauty BIG, sustainable, clean, fast & loud, birds ok5? noise At least it doesn't rely on fossil-based fuels. cheap in the long run quiet clean, efficient, no GHG emissions Renewable resource low noise, from the propellers pretty, clean clean, efficient environment friendly none in particular Clean and noise</p>
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<p>environment, cost, new This would be a very good way to generate electricity Not enough research done yet to see if they do have a positive impact on the environment. efficient, environmentally safe, smart cleab cheaper and cleaner awesome good idea but any downsides to local inhabitants and wildlife need to be considered Good as long as they are far enough away from housing dutch effective, renewable resource, environmentally friendly Awesome, Beautiful to see in operation, Renewable Energy, Environmentally firendly, the wave of the future. green less money and better for the enviroment Cost effective, always readily available. no polution Renewablw energy clean Energy Efficient wind mills large clean efficient, non polluting vibration free -- not really free but it will always be there cheap to run and good for enviroment clean ego friendly proactive, less pollution fresh air Good idea awesome, great for the environment not a nice scenery but ecologic Smart</p>	<p>need more information" great source, a little noisy, North Cape Clean. Should install more windmills. Maritimes have lots of wind! clean air clean cheaper, plentiful, cleaner,easier on the environment clean efficient; environmentally friendly; carbon-neutral cheap, clean, less expensive. A Renewable source Clean less expensive CLEAN AND EFFICIENT AND BEAUTIFUL good idea good clean clean- cheap -sustainable-healthy clean air,controversy effective, pretty Clean air loud cleaner Clean, safe, non-polluting, renewable Low impact, nice to look at. In harmony with the land clean and always available (in most areas) n/a Clean air noisy, clean, efficient I think this is a good source to energy. Windmills; "The wind is there anyway so why not use it? Less expensive source of energy" SENSIBLE, ECONOMICAL clean green noisy Noisy, overpowering view</p>	<p>It seems like a very clean method, and more cost effective. Once the systems are designed and built it may not take too long to recover the money back due to the fact that you do not have to purchase the product. not effective enviromentally friendly clean good gentle giants, comforting, clean intriguing, opportunity, variable wind NOISY BUT EFFICIENT mar the landscape, constant low level noise, illness sound it is cheap way to produce ecectricity and very clean heavily used in southern alberta, where wind is incredibly strong clean good clean way to produce electricity Efficient, environmentally-friendly, quiet renewable, clean smart, clean, environmentally friendly clean, free Dependent on nature. clean, safe, interesting constant renewable resource; start-up costs are high but worth the initial investment RRNEWABLE AND CLEAN Ecology clean clean, everlasting, healthy, safe, clean, never-ending supply, less expensive in the long run. Ugly, scenery destroyer clean, noisy clean, renewable, efficient GREAT WAY TO GO clean, green, renewable, sustainable cool view</p>
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<p>sensible, renewable, clean mills available anywhere, clean energy safe clean - should be cheaper clean efficient and environmental healthy, reliable, sustainable, green they have a place, but can never be base load on a system noise pollution CLEAN clean, readily available, less expensive noisy clean, efficient, enviro-friendly, convene, smart, earth friendly clean energy after initial setup almost free other than maintenance. clean energy efficient pure fresher air i love it Clean, self sufficiency great and increase this to whatever Nice to look at but in the real world only 33% of the time will wind generate electricity to the grid. Wind has to be backed up with some othe source of dependable power. Like tidal power the wind does not blow all the time and people are not willing to shut down and wait for the wind. As PEI is attached to NB Power via undersea cables, when the wind stops the load is shifted to the NB grid. If PEI wants to disconnect from the grid then run on Wind, PE Islanders it see the true power or lack of power from the wind. PEI does not generate it's own power except for the wind turbines and the odd time that the Borden Jets run for security</p>	<p>New and exciting - better for the environment. not resource based Renewable, clean, common-sense, low maintenance It's always there clean but noise polution practical, green, renewable same as above renewable, expensive to do at present, clean. "quiet non-pollution renewable" clean for the environment but noisy Weshould have been doing this years ago small cost effcient clean and wind readily available in PEI and NS "clean nature power earth friendly" clean-environmentally friendly--noisy enviro friendly a bit of an eye sore but definately cleaner energy better for the environment Clean efficient but tend to be on the noisy side eco-friendly, new age, green, worthwhile, well used renewable, green energy, they don't always look great if placed in a scenic spot clean forward thinking Clean, graceful, improvment clean; renewable resourse green noise none graceful, efficient, farm big, windy Clean</p>	<p>clean, noisy? expensive? unreliable? clean, renewable renewable Excellent idea, even the big turbine look nice in a big huge field... great clean More enviromently friendly clean Fine - but not in my back-yard. Out of sight then I love them. cost effective natural clean, efficient, and hopefully less costly clean Clean, Renewable, Prudent green environmentally efficient on going, clean, noisy We're saving the planet!! Cheaper electricity!! clean, natural quite, efficient, renewable clean modern, efficient, clean CHEAPER ELECTRICITY Ugly on the landscape, depending where they are situated Using natural sources, Better for our economy and health clean, quiet, efficient, eternal. alternative an excellent clean efficient method infinite less pollution, natural, less expensive New landscap with lots of wind turbines (kind of visual pollution) but less disturbing than air pollution. awesome While wind is a "renewable" resourse, the return on capital</p>
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<p>and the thermal plant in Charlottetown is fired up. efficient Clean, constant supply but noisy noisy natural, always there, clean, non harmful great source "cleaner air windmills sustainable" efficient,smart,future,enviro friendly,cost effective wind noisy,efficient ECO FRIENDLY cheap sort noise, clean sensible great idea!! great method none clean clean fresh air clean, renewable sustainable expensive, environmentally friendly renewed clean, smart, efficient noise expensive, potential noise problem efficient impressive enviromentally clean, cheap,efficient renewable, cost-effective, upsetting to ecosystem expensive wind is part of nature use it sustainable, clean Renewal method to infinite. There will always have wind eco-friendly, can be noisy but overall good clean, inexpensive clean air, non-expensive.</p>	<p>Clean noisy - possibly a little cheaper Cleaner,cheaper electricity na col cheap and efficient "clean natural" n/a "noisy electro magnetic waves" need more of them Environmentally Friendly Clean noise energy efficiency, renewable, pretty, proud some noise and green Environmentally Sound and Cheaper Beautiful renewable; clean; Great use of renewable energy. common sense to use, clean hopefully less costly than alternatives good renewable energy clean, renewable Wonderful, Clean, noise, visual impact on environment renewable; non-polluting smart cheap ugly clean renewable In certain areas, not all. WONDERFUL Clean renewable efficient, non-polluting, careful siting clean,smart renewable clean & inexpensive amazing- harnessabale It is a clean non polluting and renewable energy resource clean, readily available Noisy Ugly "renewable</p>	<p>investment is not particularly attractive at this point in time. noisy While this is a non polluting type of energy source, why do you not use more tidal turbines to generate power as well as wind turbines. The wind turbines spoil the look of the landscape and are very expensive in relation to the power produced. dumb Environmentally friendly quiet, resourceful, non polluting, abundant source Renewable, safe, clean, beautiful to look at. Very efficient. The bad thing with the windmills is, that they are disturbing the landscape. That's what we already have in Germany on a lot of hills (Black Forrest). It would be better maybe somewhere out in the Ocean. clean energy new great source of power interesting, fascinating, mesmerizing, relaxing quiet, none polluters, eyesore in the landscape noise pollution; health hazards due to exposure to constant noise of windmills; noise wears immune systems down and causes constant headaches etc "clean renewable no-pollution crowded" "clean natural source" clean natural nice to look at forward thinking, progressive, renewable & SUSTAINABLE!! clean ; visually obtrusive , not consistent</p>
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<p>clean Not always consistent Windmills "costly in the beginning , but so are power dams, we know they are paid over a long period of time. but big business wants profits before the projects get on to their feet. Energy projects should be long term and we know that the profits are there....a start would be in WASTE management, not in cut backs used in the same name.." alternate source , with limited land source to construct these turbines with changing the economic structure for the use of the land. If the turbines are built on presently farm land , what economic effect it will have on the production of farm goods from the turbines. Unlimited resource, reliable in places, reduced dependencies. clean clean low environmental impact, expensive, inefficient "no pollution intelligent method less expensive" underused unreliable, part-time expensive, dangerous to birdlife, unattractive, consumes large land area Wind turbines are a good source of energy however they are unsightly and more studies must be done to determine if they can be put off shore or if that would be injurious to marine life, in particular large mammals. genius renewable green clean non invasive beautiful fascinating</p>	<p>clean affordable" Positive Right track thinking cost effective expensive GREAT! as long as it does not create too much damage to the environment designated for the installation of the turbine; as in would it displace some breeding grounds? etc. clean, free, renewable source clean clean air, natural, good for the environment clean natural, good environment, inexpensive view pollution serene, clean clean new eco-friendly, progressive, inexpensive better for the environment clean smart, cool to look at big, birds, efficient renewable, expensive clean, simple, smart. clean great idea limitless, economical, resourceful, natural Renewable, clean logic cleaner, greener way of producing energy, however, unsightly cool, innovative, renewable, obvious choice, smart thinking clean; renewable renewable resource modern, clean, ugly turbines clean, smooth, beautiful modern, noisy, non-polluting, potential for ecosystem disruption Clean</p>	<p>limited capacity to generate power, clean renewable energy, possible noise concern for neighbours power not always available this would be an energy source we could use if it was cheaper for the consumer green, progressive Safe, clean, renewable. clean, quite new technology, clean, non-depletable source it will last as there is always wind intelligent, clean more economical clean, cheap, smart, efficient, Denmark for its high account of wind generation gigantic I wonder how easy it will be for smaller, remote communities to go off the grid by pooling personal financial resources to purchase a turbine and go off the grid. I wonder if smaller communities will actually lead the way for major metropolitan centres. Clean, renewable, environmental friendly fresh air, healthy environment, noisy "large awesome clean new" practical conservation, inexpensive good for the future. environment green clean, smart, forward-looking "Free use of Natural Resources (Having seen the 1,000s of wind mills in use in California on 2006 month long Vacation trip. Also in Southern Alberta.</p>
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<p>green, re-useable, clean, independent will they be able to supply all of our electricity needs? unlimited resource. Developing technology gradually improving efficiency. Not nice to look at or live near. excellent idea clean, not unattractive, quiet smart, free, environmentally friendly, far sighted ???</p> <p>problematic, somewhat reliable, clean, unsightly, expensive free! (sort of) "clean you need wind! people say they are noisy" beautiful to watch, soft sound when turning noise, which bothers some people free, readily available, clean /clutter Bulky but efficient harnessing nature's power natural clean, big, cool new non oil reliant technology sustainable, clean, will not harm the environment New ancient but modern, non-polluting, Clean, depend on weather Clean energy, re-newable and sustainable. I think they are pretty/fascinating to look at. clean Smart, clean, healthy, vision. "modern less expensive ecofriendly" natural, interesting, old natural, non-polluting, environmentally friendly inefficient for larger communities, environmental</p>	<p>Finally ! BETTER FOR ENVIRONMENT, HOPEFULLY CHEAPER clean, renewable, emission-free, no cost for fuel unlimited, clean Clean, Renewable it isn't always windy efficient, non polluting, renewable expensive, clean, big & ugly quiet eco friendly safe clean, unfamiliar ecological, non-disturbing source of energy silent-clean-natural-low cost- clean, unlimited resource clean noise, no pollution, eye sores Cleaner air. A good alternative "safe efficient cheaper" Clean, Environmentally friendly, quiet Eco-friendly clean, noisy, preferable to fossil-based fuels cost efficient, less pollution Much cleaner than fossil fuels. Wind energy, in an area with good wind, can be a constant source of energy where solar is only good during the day. Windmills, even new ones, tend to bring out a sense of nostalgia if properly placed. Hope, renewable clean, natural, smart very interesting using our local resources in what ever way we can wow "efficient. effective. renewable resource." natural, cheaper, danger to birds</p>	<p>(We have several photo's of Cal Windmills we could send by E-mail if you wish.)" clean air, environmentally friendly, renewable clean, quiet big, limited, cheap renewable resource Overdue natural, earth-friendly, efficient, available, less expensive Elegant, even beautiful but an inconsistent source of power. (Wind does not blow all the time.) clean noisy; sustainable; clean Clean, a little bit of noise but i am sure it can be reduce in the future. So many place to put them without damaging the nature. Limited in scope clean big Could be used to supplement our dependency on fossil-based fuels. sane sustainable cleanliness, serenity, beauty, peace Clean, unreliable windmill, clean, pretty quiet Free clean innovative, environmental Clean, cheaper, environmentally friendly Natural inexpensive clean substitute for fossil fuels, clean i think it is a wonderful idea. we saw the wind turbines in PEI what an awesome sight elegant, entrepreneurial, Windmills, dead birds, cement. Windmills can be made to look attractive. clean and abundant</p>
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<p>eyesore free, noise clean and PEI. We've visited the west end of the Island and were very impressed CLEAN AIR Environmentally friendly, new technology, the way of the future Free and long term solution efficient use of a naturally generated source. Clean and safe. big, strong clean, green free, generate no pollution dreamy, expensive, unsightly, of limited capability free, plentiful economical after the initial cost to build, the wind is free and seems to be getting stronger all the time, I think it would be a very good way to generate power. Clean, renewable, unlimited supply of wind. Clean, renewable method. SAME AS ABOVE Less expensive and non polluting operation but could modify the scenery i don't no clean "Resourceful Environmentally Friendly" clean, unattractive, environmentally friendly elegant, quiet, efficient, economical n/a efficient, non-polluting, goes on forever clean environment clean, renewable Very efficient. we saw the turbines on the north shore when we were there in 2003 great clean and green</p>	<p>We have a LOT of wind in the Maritimes and we should be tapping into this readily available resource and using it to our advantage! Unlike fossil fuels it is not likely to run out on us. After seeing the wind turbines in PEI, we think it is an excellent idea. The downside, of course, is that if you live somewhere where there is not a lot of wind, this source doesn't work well. new and unproven technology huge efficient, good for environment, appearance may cause problems environmentally-friendly, inefficient environmental innovative, sexy, useful, surprisingly consistent Holland, T. Boone Pickens, wooden shoes ugly fixtures, clean energy peaceful, white, clean, efficient Clean, environment friendly. towers clean, free, cheaper, self-reliance quiet free clean clean, quiet, expensive "renewable Non polluting to ozone layer possible leakage to soil in area of regeneration???? Pollute the scenic views Noise to locals Costly Pollute environment after life span or costly to remove Expensive to build" green, safe, everlasting better for environment, Good. Renewable. Only downside is the effects on birds maybe? smart, clean safer Renewable, clean, ugly</p>	<p>Clean but somewhat unattractive and noisy. clean power, more costly at present, potentially endless supply, locally produced, visual impacts, impacts to birds, not practical at every location clean energy expensive sight pollution, limited accessibility due to area needing wind Clean but not readily available renewable energy Wonderful for areas that have a lot of wind! no-brainer, great idea, natural, forward-thinking efficient Exciting, beautiful, practical, renewable, clean. We loved the beautiful wind turbines when we were there. Took photos and videos of them. clean, cut down on carbon footprint, renewable income for landowners Clean, silent, costly. clean, prairie provinces ,easy access and environmentally friendly! clean, but must be close to the consumer giant sized wind mills inconsistent landscape good clean, fresh, renewable. Clean Clean and quiet cheap clean, renewable, limited efficient, There are several wind farms popping up here in Ontario. The wind turbines appear to be graceful looking enough, but I'm sure there is more to learn about their impact on our environment.</p>
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<p>new, green, expensive, infinite source, green, noisy, renewable Impractical wind global friendly, minimal impact to the ecosystem but need to be aware of animal habitats. natural peaceful, ecologic, free avenir natural, spectatular, will come down in price "noisy completely destroy the wilderness" Very very cool! clean efficient, non polluting. clean, environmentally friendly landscape awareness clean, silence On the big island of Hawaii, they were creepy, the sound that was made from them was eerie and they were huge, they broke the skyline and it almost seemed like a dead zone" Clean. Plentiful safe, good for the environment unsightly clean air, low emissions good clean, sustainable, way of the future That's natural!! clean, responsible white towers, humming, turning, no smoke or odours. sustainable Clean, silent, beautiful Clean, relatively free of cost after start-up big not stable Excellent idea, and besides, we enjoy seeing them at work way to go economical and environmentally friendly</p>	<p>"Sounds like a good idea Wind is free and is always there. It will however cost significant amounts of money to purchase and set up wind turbines and there there has to a significant infastructure to store and deliver the energy produced to customers" efficient beau paysage environment friendly ugly cheap Clean, own large, quiet, sustainable, using natural power, few open-minded exciting, optimistic, clean, affects view of the landscape, can affect birds, sustainable clean, renewable resources green, good looking, renewable Much more is needed Clean Beautiful sustainable, visually attractive/interesting, pollution-free good great! earth friendly "Clean Decentralized Possibly noisy" Clean energy noise fine but not nice for the scenery Clean, non polluting. Clean, repairs/upkeep, dead calm/no power Clean energy but must be installed in areas of low density and with the respect of the landscape, nature and wildlife. I did find that if I lived close to them in PEI, I would not like them obstructing the view, but in New Brunswick, I didn't mind</p>	<p>With all this water around us, Tidal Turbines should also be investigated. renewable, clean a good idea "Efficient, high initial cost for facility, a possible eyesore(but something you can become used to), does not use a non renewable energy source." clean, renewable cost less money for customers despite the giant steps forward in past 10 years in wind turbine development, still not a cost effective way to generate electricity. Destruction of vast numbers of migrating birds when built in their flight path. "natural and view spoiler" great source of energy; inexpensive; non-polluting "noisy, unsightly, environmentally sounder" "Noisy, Ugly on landscape, Unreasonable hype VS REDUCTION strategies!!! Industry-drive greed, not people-driven" safe, cheap,will never run out of wind ugly free energy Cleaner air N/A Clean, efficient, green clean; easy renewable, cheap green, clean, great right now the turbines on my ridge where I live is going to another state. So I'm not too happy about that. better way and healthy way of generating electicity good idea, clean Renewable, clean, somewhat noisy</p>
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<p>The North Cape says it all See The Dessert in California! noise/are the birds safe Environmentally safe Clean Some noise done by the propellers. Better use of renewable energy. Healthier environment. Majestic Ecologic continuous Nature, less green gas emissions, powerful, majestic "green, Clean, birdkillers" what a great idea cleaner more natural sources of electricity Space - dependable - convenience clean "cleaner, renewable, safe" "- renewable resource, quite quiet and unobtrusive. -put 1 in my backyard." renewable energy GOOD. CLEAN. RESOURCEFUL. SMART. ECONOMICAL IN THE LONG RUN. SUSTAINABLE. clean air Environmentally friendly, clean, picturesque, peaceful. Natural, Non-pollution, Clean Clean, graceful Effective, beautiful, quiet, green. efficient, use of natural resources don't know if they can produce enough It's there, we should use it. clear better environment efficient Natural resources, eco- development, protection of ecosystems, but also regulations and laws to make sure companies do not abuse the</p>	<p>seeing them as the province is big and they were on a hill top out from a major city. In my province they would be great I think, I don't know much about them or the cost difference...wind is wind and it doesn't cause pollution using them I would think. Clean, source available at all times. natural clean air Wish I could have one in my backyard to produce my own electricity and not depend on other commercial sources big more natural, less pollution really clean it's a very good way ECOLOGY FRIENDLY loud renewable green noise non pollutant and easy to obtain and cheaper to build Clean, tall, renewable, not constant "Renewable Less pollution" noise clean but expensive good VISUAL POLLUTION IF THERE ARE TOO MANY TURBINES This is a good idea like a solar energy. ecological Pollution free and they're quite nice. We went to Cape North and really enjoyed the view. free, natural, green, Don Quijote pollution free, relaxing, costly, efficient environmentally friendly No pollution sensible wind mills Renewable resource, However</p>	<p>it works in other parts of the world; why not here? clean, unlimited would probably be more inexpensive peaceful hum, clean, fresh Excellent suggestion. inexpensive, good for the environment environment, protests (because of visual aspect) great idea great idea smart, clean, less expensive innovative expensive to start up a wind farm green, ugly, sustainable, unpredictable, ruining the horizon Great but still too little yield. noisy but efficient sustainable, efficient, environmentally responsible, healthy renewable/clean/available Modern, efficient, green. clean renewable, sustainable Clean Renewable energy windmill clean free clean endless Smart environmentally friendly green, environmentally friendly, clean and sustainable CLEAN Environmentally friendly conserve clean, renewable, never ending, great... its about time "attractive, ecologically sensible, unlimited" Clean, non-polluting, the future of power generation alternate source ways to make energy cheaper</p>
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<p>communities excellent, almost free , always there ?? Elegant, sensible, European clean, safe, reliable clean interesting fun new technology clean air, renewable needs to be used more Holland clean, natural, resourceful, better for the environment natural resource, renewable resource, large structures clean air - renewable resource nothing EXCELLENT WAY TO GENERATE A PRODUCTS AND IT IS ALWAYS WINDY UGLY good tall clean cost efficient, however, would probably need an alternate source using something that we have and it should be cheaper for consumers and better for the environment is it really more efficient. how much fossil fuel is used to operate the systems (ie in manufacturing parts, transportation of systems and energy clean efficient majestic natural smart clean, environmentally friendly (cost efficient?) clean, non-polluting, unlimited, cost effective environmentally friendly clean BUT very much an eyesore in the natural environment of PEI clean, pure, natural noise</p>	<p>interferes with ATC type radars which is a major drawback kinda cool A totally renewable, non-polluting energy source, potentially cheap once the initial investment is made While I am not very familiar with the technology it seems logical to use a renewable resource to generate power such as wind. It is readily available and does not need to be transported. "clean air Whirling sounds" unsightly Quiet not accepted yet part time electricity clean no pollutants cheaper natural écologique, sans bruit, énergie verte, sans production de GES clean "good use of a natural & renewable resource. Q # 13 the answer below is based on little knowledge of the visual impact of wind turbines" earth friendly smart clean Large windmills in the middle of nowhere inefficient, unreliable, expensive, intermittent smart clean, new technology, off and on depending on conditions, great potential, Economical natural, free, original, complementary windmill Green clean smart, clean, very do-able efficient</p>	<p>and more reasonable. Netherlands efficient quiet way to produce electricity nice but unattractive clean NOISY Clean; environmentally friendly clean, renewable resource, lots to go around !!! clean energy less cost on a long term, efficient, possible Noisy renewable I have seen impressive wind turbines in the portion of southwest Alberta where chinooks occur. Unfortunately, our opportunities for use of wind turbines here in Florida are limited. If only we could harness the power of hurricanes. ASIDE: In looking ahead to Question 13 below, I don't think it is my place as a visitor to PEI to comment on the province's energy policy; however, I respect PEI for using wind turbines to generate electricity. efficient, clean, no pollution renewable windmills excellent, but the technology needs more work good environmentally Clean, Safe smooth, cheaper, natural lovely clean Clean, expensive upfront cost, good smart clean, efficient, improving, affordable That it is clean, that it is renewable, and that it is not subject to the whim of foreign, unstable regimes that hate</p>
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<p>natural resource, ecologically friendly "clean, worry about bird kill" clean. renewable great idea for high wind areas clean modern, lovely to see, good not to live too near, renewable, inexpensive wind mills Clean, higher startup costs, ideal location responsible, majestic, realistic natural clean free Safe & economical. green, open fields large installations clean environmental friendly clean, quiet, renewable Green environment great use of already existing natural element, quiet, clean "scenery dominance, noise" NOT SURE "- no emissions - virtually very little manpower/maintenance - is not bad for the environment - nice to look at - Almost always windy" ECONOMICAL A clean and healthy alternative for our climate. open spaces should be filled with these good if they work great!! windmill eco friendly, noisier Unreliable. newer age clean; efficient use of natural environment; available Some may not like the look of the countryside with all the windmills but if the area is suitable, go for it. good, smart, lets get on with it Clean</p>	<p>windmills noisy renewable natural resource; somewhat noisy; exciting; intriguing clean clean air, clean water supplies, renewable resource. "Clean and readily available. But I wouldn't want to live near one-too noisy. Makes sense for PEI as costs are so high." cheaper cost effective smart natural resources plentiful clean & endless pretty, renewable, different wind farms cheaper clean/cheap great use of our mother natures wind. future clean energy "Clean (unless you're a flock of migratory birds). Eyesore but unless we're prepared to revisit how we utilize (waste) our fossil fuels..I'm okay with them. Not too sure about the sones they emit...black noise???" Good for the planet clean, renewable, possibly expensive to set up and maintain clean economic methods, and I think that a lot of people like my self do not know enough about that kind of economics electricity No Pollution, Can be noisy. Cheap, no shipping costs great "clean quiet green" ENVIRONMENT great idea saving of environment "Logical - wind is most often readily available and the turbines can store energy when</p>	<p>us("us" being the USA). I have a highly favorable opinion of it, but it is not(at least under current technological standards)feasible in all places. Developing methods to store the electricity generated by wind power would be a major advance. graceful wonderful progressive clean, renewable, Noisy and ugly "probably expensive to setup, lots of wind in this area, should be used extensively" risky quiet, renewable, sustainable, free, unlimited resource, clean, clean air, safe This is a traditional way to produce electricity renewable resource great idea, environmental friendly VERY PRETTY TO WATCH, THEY ENERATE TOO MUCH NOISE THOUGH wind farms.....not just 1 for show like we have environmentally friendly brilliant clean-expensive-in-efficient expensive to construct. Environmentally unattractive undependable clean energy, less cost, wonderful for the environment ecologically friendly, renewable resource clean peaceful, majestic, clean PAIX pollution free free, clean, injured birds? innovative Clean, not attractive</p>
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<p>"quiet gentle natural renewable" "Environmentally friendly Clean" modern noisy and no birds environmentally friendly and renewable resources renewable resource, non- polluting Unfortunately they are greatly underutilized. Not enough funding. Visual impact on the landscape. efficient clean PEI Cleaner, Price ? Possible eyesore. clean, attractive Big and ugly clean, natural, efficient, expensive clean clean, desirable clean, big, take up a lot of room, potentially disturbing to neighbourhood, cheap, renewable propeller renewable clean air, minimal damage to the environment. noisy but efficient - use the wind. You have enough of it. interesting Constant source. Clean. Efficient. new Nature powered Earth friendly, green I think it would be something I would like to try myself. Is it efficient enough? "free clean" Future</p>	<p>it is not. Environmentally friendly Sensible Resourceful" It's awesome clean, renewable cleaner air, wind quiet, clean, renewable Clean, smart. "Smart. Why would you not want to use wind to create power... wind is always there and doesn't harm anyone" Clean smart "Clean and renewable constantly.. we get a lot of wind hear in the east coast... I have traveled to Europe ..and Holland generates a lot of their electricity with wind turbines... first of all I don't know why the ones I have been near here are so noisy!! The ones in Europe are not that loud!!" Clean, efficient, quiet noisy clean, resourceful, smart more natural fresh, environmentally friendly, inexpensive non-pollutant green windmills, towers clean, crisp, common-sense noisy / non polluting / Efficient, pollution free use of a self-replenishing source of energy generation. environment friendly use mother nature as our source clean, less expensive, very healthy. peaceful Clean "noisy renewable clean" "Nice on the eyes Safe Non evasive Cost effective" clean ugly</p>	<p>free not dependable slow, large renewable energy, clean Long-term economical, self- sustaining, potentially hard on ecology immediatly surrounding turbines (birds, etc) clean and efficient Good way to generate power but not very nice to look at (wind farms) clean Brilliant, renewable and under- utilized a new breath of fresh air clean, less expensive Clean air, efficient use of natural resource, Interesting landscape efficient, interesting, attractive, useful Clean Clean, attractive, economically competitive, can create manufacturing and service jobs in North America, off shore in great lakes would be attractive, need to harmonize local laws and regulations so that one set of standards applies. Renewable, pollution free cool! but inconsistent Low maintenance, renewable, inexpensive largerbine farms windmill clean, renewable, sort of ugly and beautiful at the same time, responsible, green Ugly. Unreliable. Dangerous to birds and bats. Unreliable but clean and inexpensive clean energy. No pollution free of pollution Efficient, not to much costly but destroy the scenery Green free pollution</p>
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<p>"in California you see them all grouped in a fields very cool. In Quebec they are a litle every where not pretty an not running all the time"</p> <p>PEI has plenty and can lead the world in R and D. Kids stick the turbines under the confederation bridge...I promise you the power generated will supply the Island...all you have to do is avoid the frost in winter.</p> <p>Way to go and they are nice to see, we have some in Québec and they generate tourism in their region.</p> <p>Large arrays, offshore installations, prop noise, clean, low maintenance, etc... natural resource they don't make as much noise as you would think and they are nice to look at.</p> <p>"renewable resource, visually beautiful, clean source of energy, environmentally sound" clean, free sustainable, clean, under-utilized good method given by nature, but the wind power plants do not prettify the landscape clean air clean, renewable Noisy when in close proximity to housing development clean air and progress "cost effective, environmentally friendly, wave of the future" Most efficient and probably longest lasting. Unfortunately in the US many think they are ugly & the wind is not reliable unlike the Maritimes. Connecticut will be testing small more wind efficient windmills. Connecticut electricity is 18.5 cents per kilowatt and due to go up! endless and renewable source of</p>	<p>i think it a good idea. we need more of them . very good thing to used than? great idea, intelligent use of nature, good for environment It is a relatively clean resource, what effect does it have on areas close by. Should used at all times... Most economically safe and sound for the country windmills good use of wind power, clean, good for the environment great idea sensible clean smart; renewable; clean Natural Not reliable in our province Clean SAFE,CLEAN brilliant clean, available I am sure there are places where wind turbines can be installed without damaging too much the environment. Let's make sure that people on whose land the turbines are installed are (very)propely compensated. Big developers should not be the ones making a buck : land owners and the Province should be in the front row at the bank." clean pollution free, tourist attraction, green energy windmills windmills sustainable renewable low environmental impact good long term investment Clean, natural, common sense new,small, clean, costly, renewble, unreliable renewable sustainable green</p>	<p>Cap-Chat, here in Quebec Province. Some people in my home-town have their own. It is, I guess, a very good way to generate electricity, although some people say they are noisy. We should see more of those. We saw one wind turbine (a Canada research center) on route 15, between Charlottetown and Brackley Beach, but it never was in operation every time we passed. Why???</p> <p>brake landscape and scenery Good. I like to see them as they do not harm the environment. no waste, pure but takes a lot of field. inventif Noise noisy but safe economy energy low cost little use of resources other than material needed for the machines pristine, clean, attractive inexpensive, clean clean free CLEAN ,THE WAY OF THE FUTURE clean clean, renewable, infinite noise pollution, mental health hazard according to proximity, damage to nearby wildlife Environmentally-friendly excellent source we get lots of wind ! "natural, economical, way of the future" Clean, free wind, good supply, it works in Europe (Denmark). "GREAT (even if some think it pollutes the scenery.)</p> <p>- Clean - Clean - Clean Clean</p>
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<p>energy, is it efficient, how is the electricity stored, well worth researching, good idea Clean air Clean, available in area Birds scare, clean, unlimited, quiet A great idea. Bird deaths, clean Clean, nice sound Different Clean, maybe a bit noisy Noise (minimal) Intermittent Clean Green North Cape, clean Clean Noise nice, pretty, neat - positive Clean energy beautiful self reliance load dead birds money (expensive) - Ambivalent, don't think you can do it - n/a - Free source - Clean - Continuous source - Quick construction - Provides jobs - Clean Clean, free - Clean</p>	<p>progressive clean clean future Fantastic, cheap to operate, no pollution clean, cheap windmills environmentally friendly clean energy, renewable energy Clean Enviro Friendly Expensive. Intermittent. Require other back up sources. preserving nature clean, interesting, clever Clean energy clean fresh is it possible renewable sustainable Unlimited supply fresh/healthy/clean Way to go Cheap Natural, Wind, Netherlands Clean Expensive Natural clean, noisy Clean and renewable Cool environmentally-friendly The future Green Natural Sustainable Europe Limited</p>	<p>- Noisy - efficient - not less pollution Clean Clean Clean Space age Clean Slow Ecology Green - Innovative - Clean - start-up cost - Saving the Earth's fossil fuel - Cost effective?? - Smart - Clean - Silent - Clean - Better cost - Northern Europe - Noisy - Under utilized - Efficient - Very cool - Make kids happy - Great - Pretty Clean Very Efficient Clean Clean, Bird Deaths, Cheaper Electricity Renewable Inconsistent Bird Hazard Wind is a valuable energy source. Great Clean, Renewable, Quiet - Quiet - Clean - Clean - Experimental</p>
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APPENDIX D

Q15

"Where have you seen a wind farm on PEI?"

Residents' Responses

<p>North Cape West Point North Cape, West Cape west point north cape, east point west east and west point western and eastern PEI western PEI East Point North Cape down east Tignish North Cape upwest and down east North Cape I know there is one here but I haven't driven to it yet. East Point North Cape north-west tip North Cape Tignish and East Point North Cape north cape north cape north cape, east point Elmira North Cape, East Point North Cape North Cape Just a little of it. North Cape north cape, east point North Cape West Prince North Cape east point and the one up west North Cape and East Point North Cape west end north cape west point north point</p>	<p>NORTH CAPE PEI North Cape West Cape West Prince County Up West Tignish North Cape North Cape, North Lake, West Point East Point North Cape North Cape, West Cape, Norway West and East North Cape, Ch'town North Cape, East Point Tignish area, Souris area Souris North Cape North Cape North Cape West Cape North Cape East Point West Cape East Point North Cape North Cape and East Point West Cape North Cape and East Point North Cape, West Point, East Point West Point, North Cape Tignish area West Point North Cape West Point North Cape North Cape North Lake North Cape East Point/North Cape Souris West west part of PEI</p>	<p>East point Oleary Western PEI North Cape Eastern PEI East and West PEI north cape North Cape North Cape and East Point West Cape & North Cape Employed by Vestas Canadian Wind Technology (We install these turbine farms) North Cape, West Cape North Cape West Point and North Cape north cape, east point, west cape North Cape and East Point North Cape and West Cape East Point, West Cape, North Cape North Cape, West Point... And there are going to be ALOT more than 15-20 by the time they are finished. They have over that amount now and are planning on 50 more in North Cape. It's ludicrous!!!!!!!!!!!!!!!!!!!! North Cape East Point, North Cape, Norway, West Cape Elmira North Cape yes - one of the capes, can't remember the name - up west West Point, o'leary North Cape, East point East point wind farms and west point wind farm West Point, North Cape east point, North cape, west point north cape Tignish O'Leary</p>
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<p>East Point North Cape Western PEI West Point & North Cape West Cape and Tignish North Cape North Cape NORTH CAPE West Coast North Cape North Cape North Cape North Cape North Cape North Cape I can't remember- maybe by the airport? North Cape East point of the island North Cape west point north cape East and West North Cape and West Cape Eastpoint north lake west end north cape West & East Eastern Kings elmira West Cape North Point north cape and elmira East & West Eastern PEI north island North Cape and east Point North cape north cape western PEI and also in eastern PEI North Cape, East Point Seen all of them North Cape north cape, west cape West Cape, North Cape and East Point Norway, North Point Up West</p>	<p>North Cape North Cape Elmira PE West Cape North Cape, eastern end of Island East Point North Cape, East Point, West Point West Point East Cape North Cape and East Point East Point North Cape and East Kings Western PEI Western end of the Island West Cape North Cape East Point North Lake North Cape North Cape East Point North Cape East Point East Point tignish north cape pei beautiful spot east point West cape and Tignish North Cape West point East Point north cape, west cape tignish Prince County Souris and Borden West Point & North Cape & Elmira west North Cape Western PEI North Cape WEICan, North Cape north cape North Cape north cape North Cape, Cape Wolf (outside of O'leary) West Prince North Cape</p>	<p>North Cape North cape, east point and west point eastern and western PEI EASTERN PEI, WEST CAPE, NORTH CAPE North Cape West Point, North Cape elmira and north cape North Cape and West Point West Cape & East Cape & West Point west pt. Eastern PEI North Cape North Cape North Cape North Cape From the highway North cape, souris North Cape, Souris area North Cape, Souris area east point, north cape North North Cape East Point Seen them all on PEI, Quebec on St.Laurence shores Souris area, & Tignish Area West Cape NORTH CAPE & EAST POINT West Cape, North Cape, Norway, Eastern Kings North Cape East Point WEST point North Lake North Cape, West Point north cape North Cape, East Point up west east point, north cape, west cape, norway north cape East Point and North Cape North Lake - Tignish Eastern PEI, West Point and North Cape</p>
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North Cape East Point North Cape North cape east point, west cape North Cape, west of O'Leary, down east North Cape	North Cape, West Point East & West Point North Cape, O'Leary area North Cape Eastern PEI east point West Point North Cape NORTH CAPE, WEST POINT	north cape North Cape East Point , Norway , West Point North Cape and Eastern PEI north cape and east point North Cape north cape and east point West Point East and West
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Visitors' Responses

at the point North Cape sorry, can't remember EastPoint North Cape area not sure but on one of our drives Charlottetown Cavendish Northern area Stratford North Cape?? i cant remember the name of the village North Cape North Cape Do not remember the name of location cant remember North Cape North Cape cape wolfe North Cape north cape North cape does not recal On the noth end of the Island North Cape When we were on our way to Skinner pond. don't remember North Cape also many areas in Western PEI I forget Brackley north cape on the western end north shore	not sure of the name Don't recall. North Cape Can't remember North Cape North Cape North Cape North Cape North Cape, East Coast North cape Near Tignish North Cape NORTH CAPE WEST POINT AREA North Cape Cant remember the town but think it was by the north shore. O'Leary area North Cape North Cape North Cape North Light At the testing center, North Cape north cape, east cape The north western corner of PEI the north Shore North Cape I do not know if you would call it a wind farm but we did visit North Cape Wind Turbine Towers North Cape and travelling from O'Leary to West Point Lighthouse north west corner of the province North Cape	Sorry don't remember "west cape north point" NORTH SHORE can't remember North Cape and near East Point North Cape east point In the East Point but I don't remember the name of the place. I think it was close to the eastern tip of the island. North end North Cape area North shore North Cape north cape North Cape North Cape can't quite remember I believe it was at North Cape all along from West Point to North Cape thru photos only North Cape North Point of PEI, I think it was the wind turbine farm can't remember North Cape, West Point North Cape north cape i think North Cape, East Point, and somewhere near Skinner's Pond North Coast North cape North Cape
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<p>North Cape south tip of the island. we visited there north coastal drive Tignish; O'Leary North Cape Western Tip - we visited the University of New Brunswick test site in 1999. We were very impressed can't remember North Cape north cape Don't know name of community by a mall in Charlottetown heading to Cavendish from bridge I'm not sure where it was npt seen them close but will see them close one day North Cape North Cape north cape North point North Cape Charlottetown north cape- I'm sad to say that I was very disappointed with admission charge compared to Nova Scotia Tidal Plant center which is free, only costs to enter into the plant itself-do you think you can use wind energy as base load? NORTH CAPE North Cape North Cape northwest area north end of the island on the way from Summerside to Cavendish west point not sure what the name is North Cape north lake North Cape North cape North Cape Near O'Leary and at Noth Cape</p>	<p>North Cape Tignish/Norway West Cape On the west and east coasts of PEI. both points North point North West North Cape, East Point North Cape and drove by the wind farm near the East Cape North Cape Really can't remember, sorry. West Cape, North Cape north cape Out near Tignish North Coastal Tour, Richmond, East Point west North Cape near Tignish I think it was North cape. had beautiful views out to the ocean, with a nice restraunt North Cape North/West short (drive from West Point to North Point) not sure near the light house in the east I don't remember the area Northwesternmost point North Cape and West Point North Cape not sure, mid-island somewhere North and east point north cape North Cape North coast on the North Coast not sure of the area but we made the statment trust our beloved PEI to use nature for energy North Cape, East Point Near East Point I believe it was on the north-eastern shore Northwest coast Cannot remember Near Tignish cavendish</p>	<p>Different places, don't remember exactly where since this was a year ago. North cape, north east part of province north east at the end of the Confederation Trail From West Point to North Cape POINTS EAST COASTAL DRIVE We drove the North Cape Route during our visit and saw one of the wind farms at that time. North Cape North Cape north cape? east point North Cape East Point NORTH CAPE 2001 north point,around charlottetown area North Cape North Cape North Cape North Cape North shore North Cape Experimental Research Farm Tignish Can't remember actually but my girls pointed out as we were driving to Cavendish North Cape North Cape I think it was called North Cape, it also had a tourist display explaining the use of turbines, and it was a fabulous place to visit. West of tignish and at the east point of the island "North Cape (Tignish) Near O'Leary" On the Northwestern tip of the island North near Cape North & Tignish?</p>
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<p>North Cape On promotional television ads north shore? don't remember cape north cape north Not sure Not sure not far from crossing the confederation bridge, not sure of the name of the area Souris area north coast Can NOT REMEMBER don't remember location North Cape north west pei north cape and down along the shore from northcape to west point In the Souris area Near North Cape North Cape and West Cape Do not recall the location. North Cape north cape On the northwest shore. North Cape Nova Scotia North cape North Cape I CAN'T ACTUALLY RECALL North Cape tignish North Cape and the scenic drive along the west coast Northern part of PEI North cape forget West Point West Point - Tignish can't remember the name North Cape near souris west Cape North Don't know the name of the place but we drove past them.</p>	<p>East Point and West Point not sure where - touring around North Cape & Elmira when driving to East Point Lighthouse, and then when going to North Cape in 2005. northern most point east shore West end north cape North western tip of PEI before you come to the lighthouse. (north point lighthouse) north eastern shore I believe it was the North Cape Must have been Charlottown. north cape North Lake & North West Cape North Cape and the trip up the west shore to North Cape NORTH CAPE northern part between summerside and charlottetown North Cape not sure exactly north cape and also in the West Cape area they had many up and were in the process of erecting many while we were there. north on the north coastal drive, just after the east coastal drive - it was quite a site to behold. North Cape by the elephant rock Drive from Charlottetown to Cavendish O'Leary NE corner and far east area of province the North Western tip of PEI Near Westpoint North Cape north cape North end North Cape I think between the bridge and Charlottetown or between there</p>	<p>north cape North Cape north cape, east point North Cape around the points east coastal drive North Cape North west area north east coast east cape between souris & shipwreck bay? I think it was on the west coast, near one of those tip to tip lighthouses north cape North coast North West corner of the island. There was a research station there. not sure north cape Can't remember. drive to charlotteville North Cape noth cape don't remember the name but the soil was really red!North???? north cape & on the way there (past bottle house...forget the name) not sure, but I have a picture of one North cape not sure, from a coach tour bus I'm not sure where we saw it, we did a lot of driving on our last visit on the north west coast East & West tips of the island the demonstration farm at the cape West Cape don't remember... maybe while driving on the north coastal drive West tip of the island I believe it was in the northern part of the island</p>
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<p>North Point I think it was. Can't remember, but have seen them North Point "North Cape West Cape East Point" Near the north east shore, above Montague. Cape North Tignish north cape Not sure where it was- just in passing North cape north cape North Cape Not sure what the area was but I do recall seeing wind turbines on our vacation there. eastern end north cape I do not remember Tignish North Cape north lake North Cape West Point one near North Point and another near East Point north cape We visited the farm at North Cape. North Cape, East Point, West Cape west end Not sure West Point, North Cape Norway-Christofor Cross-Seacow Pond North Cape North Cape, North Lake, along the road to the shore at O'Leary North Shore "North Lake North Cape" North Cape (in 2003) and near East Point (in 2008). across from the railway museum North cape</p>	<p>and Montague. North Cape, Tignish From New Brunswick shore North Cape Coastal Drive north west and east points north cape North Cape North Cape can't remember, we just were in awe of how big they were Can't remember west end North Cape East Point on our north shore drive I can't remember where but I remember seeing them. Western point of province. North cape & near East point. both points in PEI North Cape north point CANT REMEMBER north west North Cape north cape North Cape North shore north cape north cape Southern Alberta - Lethbridge area North Coast EAST POINT AND THE NORTH CAPE. Charlottetown and Western Tip "East Point/Souris area North Cape" north east coast On the north point of western PEI, four years ago with my family. West Point, North Cape North Cape North Cape and West Coast Western tip of the Island North Cape on the coastal drive North Cape</p>	<p>North East area ? North Cape North Cape North Cape north cape North Cape At the far western tip Tignish up north around tignish I think - not sure...bad memory for details North Cape East Point? Not sure of area. Farm was on the northeast coast. west coast west and east on 2 scenic routes. I can't remember which, but we visited a light house near each. North Cape, East Point North Cape North Point Only saw one here in MN. in the US. Will look for one there next time we're there. East Side of the island all over North Cape North Cape not sure of town West Cape cannot remember exactly where it was North Cape North Cape North Cape and the new ones in the eastern part of island Tignish North Cape - the test site East end of island eastern north cape North Cape not sure where it was it was awhile ago North Point and East Point North Cape, West Point, East</p>
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<p>Wolfe Cape - West Point area</p> <p>I don't remember</p> <p>At the North Cape</p> <p>North Cape</p> <p>North Cape</p> <p>north cape</p> <p>north west</p>	<p>Up north</p> <p>north cape and east point</p> <p>North Cape</p> <p>North Cape</p> <p>Summerside</p> <p>North East Lighthouse</p> <p>North Cape</p>	<p>Point.</p> <p>north cape</p> <p>North Cape</p> <p>Experimental farm in Tidnish.</p> <p>North Cape, Elmira</p> <p>From Bouctouche NB we saw</p> <p>the wind turbine farm north east</p> <p>North Cape Drive</p>
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APPENDIX E

Residents' Comments

Wind turbines are essential in a windy province, but also they are ugly, noisy, and should be kept away from peoples' homes if they don't want them. For Tourism, developing an Island that supports green technologies makes a lot of sense. This should include better development of the Confederation Trail (the average cyclist &/or walker has a urinary bladder, yet there are no washrooms provided), new cycling paths and lanes that are located away from fast-moving vehicles, lots of places to park bicycles, and cleaning of road edges, so that bicycles don't have to drive in the gravel and broken glass.

I do like the idea of seeing "the green province" on Island license plates, but I think we are very far from that because of the farming techniques currently being used. That said our rivers and waterways are very "green" with sea lettuce due to farming the land and the sea .

We need to continue producing energy from other resources besides fossil fuels, and Wind Turbines are a great start.

I agree completely with wind generation, however I do believe that there should be more emphasis on getting it into all island homes. I do not believe that it should cost any more than what we pay now, as we have to import our electricity now therefore if it is generated on the island shouldn't it be less expensive?

I would like to see the use of wind turbines increased in Prince Edward Island.

Wind farms are one way of using the wind to generate electricity: I would like the government to develop and implement incentives to support integration of smaller individual wind generators into the grid.

The problem with putting wind farms in more isolated areas is that these tend to be areas of greater natural beauty, and less disturbed wild life - so the fact that humans can't see them doesn't help really. Wind generated energy is a good concept, but there has to be a better way of designing the windmills.

They must select the proper areas and also not overdue it, we should use a number of different methods, personally I think hydrogen generated electricity would be the best, but that won't be happening too soon.

Wind is a public resource and as such the government should not be providing licences to private corporations. These developments should be for the benefit of all. Perhaps using a P3 format would determine the most economic development in the fastest time period however all developments should revert to the ownership of the government after a reasonable period of private ownership. I note you did not ask any questions about wood burning and other biomass. You also asked no questions about energy conservation. Nothing about hydrogen. You also did not ask about the creation of wind farms for the sole purpose of energy export. As the equipment is not manufactured here, and the maintenance requirements are of minimal benefit to PEI, then the export of power for the pure benefit of private individuals and companies should not be permitted.

I support solar energy more than wind energy and a combination of both would be great. Currently we have solar panels heating our domestic water supply as a supplement to our electric water heater. They work even in cloudy conditions and when they turn on, I know we are saving money.

I know of people who want to build their own wind turbine to provide themselves with power and possibly sell any extra to ME. Apparently ME does not want this to happen. I think government should support any efforts to energy self sufficiency and reducing our dependance on oil. It is not in ME's best interests but it is in the best interests of Islanders.

I love visiting the wind farm at North Cape, and believe that with the rising costs of oil, gas, and similar fossil fuels, added to the need to protect our environment, we need to start looking at alternate sources of energy, such as wind farms and solar power.

Wind farms in some instances take away from the beautiful viewscapes in PEI however, it is not a reason to not have strategic wind farm development. I do not think wind farms are an attraction for visitors. They do not motivate travel, most countries, states and provinces have wind energy now, it is not unique.

We should be looking at more wind farms. Geothermal systems for heating and cooling homes. Lots and lots of solar systems. Every house on Prince Edward Island should go geothermal and solar. New laws/regulations should be put in place for contractors of any building, house, business or industry that solar and geothermal are to be used. There is no need to pollute when we have this technology. There is one business downtown and one in Winsloe that is run on geothermal and solar. So let's talk more about these options. The Canadian Government needs to write a new code of standards for building homes and other buildings so we don't have to buy oil from these terrorist countries.

From what my limited knowledge is, I think wind farms are good for the Island!! Thanks

I visited the wind turbine sanctuary for the first time on Aug. 9, 2008. I was totally amazed and excited. This makes me proud; as Islanders we are leading the way in renewable energy technology. As fossil fuels increase in price and add significantly to the downslide of our environment and its unsustainability being a concern. The turbines provide an alternative; thus, decreasing acid rain, greenhouse gas and climate change. I read somewhere a tag line which sums up the use of renewable energy. "Power That Doesn't Destroy".

To be honest, I'd like to see more information made readily available about wind turbines and wind power in general. I think there are many people who like the idea of having a "greener" energy source than oil but may not know enough about wind energy to take it seriously. Furthermore, I think the main focal point for energy services on the Island should be cost efficiency. There are far to many families that are having to make a choice between buying food and paying their oil bills. This shouldn't be. Regardless of oil's harmful effects on our environment, its price tag is clearly not a viable option for many Islanders. The government MUST make changes that will be better for both the environment and the cost of living for Island families.

I support wind energy & signed on early to the voluntary monthly increased payment on my electrical bill to support development of wind energy.

Wind energy is going in the right direction for alternative energy but should have been put on the water. The best source of alternative energy is still solar and I believe solar will prove to be the cheapest alternative energy for our future.

I believe issues like this one are important. I hope to see more surveys like this one regarding a Greener Environment

From my visits to the wind farm in North Cape, I did not find that the turbines were overly noisy. However, as Eastern Kings residents have voiced their concerns about the noise emanating from the wind turbines, there may need to be further studies conducted on long-term health effects prior to approval for more and/or larger wind farms being granted.

Thank you very much for conducting this survey. I hope you get lots of participation!

Go Green!

My only concern is with respect to food - are the wind farms generally on land that is better used for growing crops? NFLD and NB have a lot of space that is not allocated to crops, so would they in fact be better places for the wind farms? I have no research to support the theory - just asking the question really.

I think wind energy is a wonderful thing. I have seen wind farms in other countries, and to me they are more attractive than power plants. It's a natural way to create power from an unlimited source, with litter or no damage to the environment. I do feel that they should not be near housing, only for safety reasons.

Government should not be directly involved, permits will be handed out due to political affiliations and government has proven in the past that the taxpayers money does not produce efficient returns compared to the private sector who has "skin in the game". As much as traditional energy (coal, gas, oil) is not "green", the new methods must be cost effective. I am not prepared to pay a premium for wind-generated power produced on PEI, if we can pay less to receive power from the Keswick grid. I can't emphasize enough - the province should NOT be thinking of using taxpayer's funds to build wind farms because it will save all Islanders down the road - they will not look out for the best interests of Islanders and piss the money away. "Why build only one, when you can build two for only twice as much?"

Have enough now. Minimal benefit to Island economy with the power being exported. Power lines to service the Wind Farms are the greatest blight that will also contribute to changing a pastoral setting.

I appreciate having my opinion count, even if very little. Completing the survey actually increased my interest in wind energy and renewed the want to make time to visit the turbines on Prince Edward Island. I also think the survey itself was well structured and allowed me to answer as honestly and accurately as possible.

I strongly hope that more aesthetically agreeable designs of wind turbines will be developed soon (the old-fashioned windmills were very pleasing, in contrast to the modern turbines which look like, and I believe have been, designed by military engineers)!

Being from smaller geographical areas can lead to identification of individuals on this survey when reviewed. ie., how many married men in georgetown who are working f/t have x # of kids this age and x # of kids that age? this could narrow the field - just something to ponder.

again, the Island should look to becoming self sufficient. Hearing that the wind energy from North cape is to be sold of Island is scandalous when we have to rely on other provinces to supply us with energy. If there was a way to convert my home to geo thermal, wind and solar, I would seriously look

into it if I had the resources to do so. However, raising 4 teenagers and sending one off to university while I do post graduate training leaves absolutely no financial resources to accomplish this task....

Additional wind farms would make PEI less reliant on power sources (oil, electricity) from other provinces/countries. We have become accustomed to seeing power poles and lines - are wind mills that different in nature? Perhaps we are just not used to seeing them. There is a single wind turbine in the north end of Charlottetown. I would be interested to know the impact it has on the owner's "purchased" power - and could individual, smaller turbines be incorporated into communities.

Put wind farms in the water. There is already a corridor where the fixed link is...fill it with wind mills to get an economy of scale. 36 windmills off the coast of the Netherlands are going to power over 120,000 houses.

I've head the electricity from wind farms is being sold to the US. I feel if the turbines are situated on PEI a large portion of the energy should be available to Islanders at reasonable rates so that in the long run Islanders are benefiting not just the owners of the turbines. Maybe this would be in lieu of the royalties NFLD & NS are getting from gas

I was very worried that the wind turbines would ruin the look of my favorite route on PEI, route 14 from West Point to Mimminegash, through West Cape, the shoreline that has captured my heart and mind since I was a little girl, and is the place I long for when I'm away. But now that the windmills are there, I love them. I love how beautiful and white and GIANT they are, and how gracefully they move through space. I find them serene, and positive, and REAL, which are all the things I'm looking for when I make a trip home and take a drive along my favorite coast.

Theses wind farms should be built by communities and on a similar basis as in Ontario. The profits from the wind farms should go into the development of the community where the wind farm is developed. Large off island private sector companies should not be allowed to develop wind farms on PEI and then ship the energy off island. They then control the development after they get permission to build and then do not put anything back into the community. This should not be allowed

I think wind energy is a great idea, but I am not so certain that it could be as consistent as oil/wood/ect.

I think it is about time to look at new energy sources. wind energy has proved to be successful and is the energy of the future.

concerned about power lines needed for these wind farms.

Wind turbines are the way of the future. They use a renewable, non polluting resource. In addition they are very attractive to tourist. PEI should be the leader in using renewable, non-polluting means for energy. Go PEI!!!! I very strongly believe in wind, hydro, and solar energy!!!!

I am a bit biased against the wind turbines, living on one of the roads affected by the first rounds of transmission wires and poles. I realize it is not all bad, but the underhanded way in which this project was slid by the early residents leaves me angry still. I recall looking out my window, and thinking that Maritime Electric was replacing old poles, having NO idea that they were high capacity transmission lines from the proposed turbines out in West Cape. More data is needed, and more input and cooperation between agencies and residents affected. Residents being affected by exposure to EMF's

for private company profit? How underhanded. I don't think you will find one resident on a road lined by transmission poles to be in favour of the turbines. Those in favour, are of the "not in my backyard, but fine elsewhere" mentality, and it is a shame. My rant of the day... Thanks for the opportunity, I will be looking forward to the results of the survey.

Any surplus wind-generated power should be used to manufacture hydrogen for alternate use as bus/car fuel; net-metering should not be cost prohibitive for smaller generators such as those used for residential purposes; and marginal farm land in many cases will better serve wind generation than agricultural production, and in the process prevent soil erosion by not breaking the soil annually. Thank you for my opportunity to pitch two cents' worth.

The western end of PEI seems to have been designated for wind energy development and while this is benefiting a few, most of us are not seeing the benefit. There are several wind farm proposals in the works along the shores of this area and with the large electrical sub stations and high voltage electrical lines passing by homes in this densely populated area, it is creating an unsafe environment for people. Many of the homes near the wind turbines are now up for sale and the rural landscape has been ruined. Wind energy development is needed but consideration must be given to those living here, not just the developers who are making profits by selling the energy to other jurisdictions. Wind is a natural resource, just as oil, coal and minerals are in other provinces and the population of PEI should be benefiting from its use if this is to become a wind generating mecca of the Maritimes. Regulations are needed.

With the rising cost of oil and the so-called limited world supply, it is a wise idea to develop alternate sources of electricity generation. We saw how difficult the days were last winter when ice storms felled all those electricity poles throughout PEI and people had to manage without electricity. Better to develop some of our own since the wind is free and we have lots of it.

We are a newly married couple who are wanting to start a family and live very close to the "wind farm" in North Cape. The lines pass by our driveway. In doing some research it seems that in many places, they only allow off-shore wind farms to avoid exposing residents to EMF's and the dangers that come with the turbines. I think it's absolutely unacceptable that our government is giving the go-ahead on this!! Yes, there may be some benefits to residents who are getting payed for the use of their land and to other provinces and even countries who are receiving electricity from OUR wind turbines, but come on people.... you can't just look at one side of the story. What about the harmful effects of these turbines. I often think of the movie Erin Brokovich.... it seems as though we are the suckers that are getting to exposed to extremely harmful "natural resources" because we are treated as "nobody"!! Our lives are not important enough to worry about. Well, try wanting to have children all your life, but not wanting to because you don't want them to be exposed to all of this. There are some children who are not allowed to play out in their yard because their parents were told by a government official that "he wouldn't let his kids play out in the yard" if he lived in that area. JUST IMAGINE HOW WE FEEL!! Thanks for taking the time to read this..

Wind Energy can be PEI's sustainable energy source for the future. The government of PEI should continue to support the development of wind energy and should specifically continue to build wind farms themselves (owned by the taxpayer).

It is just insane that electricity is so expensive here where there is free wind and sun and ocean currents where you could also harness electricity. In addition to being completely energy independent - with free electricity for all inhabitants, PEI should be a completely organic province. There is no reason it could not be - except that the potato industry is so catered to that you don't care what it costs to support

them and their disgusting polluting ways. Didn't the summer teach anyone anything? Rivers are so choked with crap that they aren't fit to swim in? Here???? For god's sake - get your heads out of your *** and do something constructive! And how about less cancer here if you did? What a concept! What's next - closing the lobster, oyster and mussel industries due to the pollutants from the farms killing or deforming them? It's not that hard - make this a green province - you'll get lots of help if you would make some right moves. And electricity should be free.

yes I think the Provincial government should support the development of wind farms and other forms of renewable energy resources (solar, geothermal). However, it's vital that the govt have a PLAN for the future development of this resource. Can I buy a windmill to generate my own household electricity - can I do this if I live in an urban setting - can I do it in a rural setting. Are these farms supplying the province's electrical needs before exporting it for sale elsewhere? We need a plan that Islanders can buy into (like the energy bonds) and that supplies our needs first. Where does the province stand on this issue? What is its policy? Where can Islanders go to find out? Did I mention that we need a PLAN!

I like to see wind farms used for People of P.E.I. and not to be sold of Island for big profit and greed. We are paying high light bill as is and high food cost why not make sure that P.E.I. people get the best rates that we can have on the Island.

I think it is a good idea but the way they decided to put the power lines throught is a piss pour set up. going accrost peoples land that don't want it.If you say no you don't want the power lines going accrost your land then a fuew days later you receive a letter from the lawyer saying they are taking your landfor this. I know people in ther eighties woriod to death over this. I will bet you money that older people will be dieing of heart attacts over this . stress at this age they don't need !!

Stop our dependancy on fossil fuels. Lets choose clean, cheap, renewable energy.

Other than I know there are a few wind farms on PEI and have been to see them there isn't really much more I know about them. How much energy to they produce, what is it used for, what is the cost of this energy is it different? What is the ROI of one windmill. Where would you find out this information? is there any PR about them? Maybe educate people about them.

I have already invested in them

I believe the provincial government should do more to encourage the development of all alternative energy sources but particularly wind through incentives to homeowners and businesses to use wind turbines, solar panels, geothermal, etc. The provincial government should also be collecting wind energy royalties from any company establishing wind farms and using that money to provide incentives to Island residents to use alternative energy sources. My perception is the government is not taking sufficient advantage of the opportunity our wind presents. Wind could be to PEI what oil is to Alberta and Newfoundland....we should not be giving it away. If Ventus and other companies want to come here and exploit this resource, the Island as a whole should be benefitting from it, not just sitting back and being pleased we are starting to generate some of our own electricity. There is a limit to the number of wind farms that can be established and before we reach that limit we should be making sure these companies are paying fair royalties for wind rights. This is an opportunity for PEI to establish its version of the Alberta Heritage Fund.

As I indicated earlier , Alternate energy production needs to be explored further , we need to do something ...However .. Wind "farms" are very invasive and should not be dotting our landscape like

they are beginning to ... Transmission lines need to be buried .. no other option is acceptable . And the last point ... If we were as a province to become self-sufficient with our energy production , and by that I mean that we would be able to see our electricity bills slashed .. Islanders MIGHT be better able to tolerate what is happening . At this moment , Islanders feel that they are being exploited by Government , and by corporations , to fill pockets that we will never be able to tap into . Thanks for the opportunity to say it .. Please make sure that someone listens !!

I would like to see assistance to home owners with property to be able to access private wind turbines and solar power for their own needs and sell excess power to the utility.

It would be great if Government would read and heed the thoughts of its people, both Federally and Provincially. Surveys like this are important in our present times when fossil fuel are to costly, to scarce and to harmful to our meer existence. They (Gov.) really need to wake up and act now.

I do believe in the concept of the wind farms, however, alot of consideration must be placed into where they are located in regards to people's homes and their environment.

Wind power development is a must for the overall betterman of our planet. The debate about it's impact on "it's ruining my view" should be avoided. It's more important to be able to see a blue sky up above and breathing without a mask.

This was a good survey to put out there. I hope the response is positive and we can find a way to use the wind we have on PEI.

I FEEL ON PEI WE HAVE THE ABLILITY TO PRODUCE A NATURAL SOURCE OF WIND ENERGY, HOWEVER I AM SOMEWHAT DISPLEASED WITH THE FACT THAT WE HAVE THIS ABILITY AND TO DATE IT HAS NOT LOWERED THE COST OF ENERGY SUPPLY FOR ISLANDERS. THIS SHOULD BE A DIRECT COST SAVINGS TO US AS A PROVINCE. IT SHOULD BE THE PEOPLE WHO BENEFIT NOT THE GOVERNMENT WE SIMPLY ARE'T SEEING THE BENEFITS. I RECOGNIZE THE COST OF THESE TURBINES, BUT THE PAYBACK SHOULD BE GREATER IN MY OPINION. BUT STILL THE COST OF ELECTRICITY TO ISLANDERS STILL INCREASES????

The electricity generated on PEI should not be sold off island.

Wind turbines would be better if more of the power stayed on pei and not shipped somewhere else.
Good idea for PEI to pursue

Further wind development should be done on the bases that it provides a return/benifit to the residents of PEI

great topic! thanks for the oppurtunity!

The question regarding percentage of wind power I would like to see used, is misleading in that there is only a maximum percentage, somewhere around 35%, that can be used because of capacity and availability.

Wind Power Blows!

Wind energy is good for PEI, I do think that there should be both private and provincially owned wind energy farms on PEI. PEI really needs to start to somehow make a way for itself to be more self sufficient - fully private energy interests does not provide for this.

The development of wind energy is an excellent one but good planning as to the placement of wind turbines has to be considered. A long term plan must be established and placement of wind turbines must be strategic and thoughtful to the landscape and to residents. The sea may be an option for the placement of wind turbines as well. All aspects of renewable energy should be investigated such as solar. Also, the consumer must become more conserving of resources, less wasteful and more considerate of the long term survival of the resources we enjoy. PEI has an opportunity to become a leader in good environmental practices and these ideas and practices could be showcased to the world. UPEI could be a centre for research and development in this area. PEI is a likely place to develop new ideas for the world to better conserve and preserve the planet for future generations given the manageable size of the province and the residents' interest and pride of place. It is a natural fit.

My only comments is this I think that the lines that are needed to carry this renewable energy(wind) should be buried instead of on poles that are too close to people and animals, also I think that we as a province are following in the foot steps of our sister provinces out west when we allow outsiders to setup these wind farms then take that energy to the USA instead of the province allowing either Islanders or at least Canadians to set these farms up and then sell this energy back to the province's

well the only thing i think is that they look great, but the down fall is the power lines i think they should be buried under the ground. feel free to send more surveys at rileypitre@hotmail.com and update me on this survey if possible.

More windmills for private owners on their home lots.

Although I agree that we should produce as much wind power, and other sustainable power generators as possible, it makes no sense to me that we sell it off-Island. I would strongly advocate that we meet our own needs Island wide, before we send it to other markets. Surely, since we pay 18%plus above New Brunswick rates, we would be our own best customers, if we were to keep the rates unchanged.

Wind energy may be challenging and less efficient than fossil fuels, but we may not have a choice if we are to obtain adequate energy for societal needs. The general public needs to know 1) how badly we need alternate sources, and 2) the relative efficiency of wind vs. other sources, i.e., practicality of wind. It may not be a major source but may nonetheless be an important component of an energy strategy.

It is a very bias designed survey!

Without question wind development is a good idea for PEI. The provincial government demonstrated the economic feasibility of wind generation before this was known for the region. It has had a tremendous benefit in putting the Island reputation as a leader in clean energy development worldwide. We currently have the highest penetration of wind into our electricity mix of any jurisdiction in North America. It provides a measure of self sufficiency, price stability and security. Caution should be given however on the siting of large wind farms. The future of wind in this province should also be directed at smaller community based energy projects with economic benefits flowing back to individual communities.

I believe that wind farms provide a good option for electric generation on PEI where we do not have many other natural options other than solar. I believe that it is extremely important to locate farms AND TRANSMISSION LINES as far away from populated areas as possible and not along the Trail System! It would be best to run transmission lines underground on PEI where it is densely populated and where the ground allows for easy digging. I would like to see government support study and implementation (if feasible) of geo-thermal heat sources as the price of heating with fossil fuels continues to rise and as a means of reducing greenhouse gas emissions.

I'd like my own wind machine ... Govt should strive to make that more possible. PEI needs a system of reverse metering for individuals generating their own power. This would make individual green sources more financially feasible as a major cost of most home systems is BATTERIES. By allowing the home-owners to feed surplus back onto the grid and draw when required, batteries are eliminated.

I'm in favour of using wind farms to generate more electricity in PEI; however, I don't know enough about the farms, their effect, their disadvantages, their effect on the environment and animals, nor about their aesthetic appearance, to say more than this. I welcome the opportunity to learn more about these things, and hope there will be better communication from researchers, experts, and uncommitted scientists on the topics associated with energy generation on the Island.

In further developing wind energy on PEI it will be important for the people here to demand this resource is developed in a way which results in the greatest benefits to them and the Island. This may be having the Provincial Government develop the resource and use the profits to reinvest in energy efficiency and to finance clean community energy projects. It may mean changing policy to support small to medium distributed generation so that communities and residents can be the owners and operators of generation as well as the primary benefactors. It will also be important for PEI to develop other renewable energy resources so as to diversify their energy portfolio. This means that areas where wind may not be appropriate for development can take advantage of their local renewable energy potential in other sectors.

I believe the wind farms are a great way of generating electricity. However, i strongly disagree with United States based companies using our PEI resources such as wind power, and all of the power generated is going to the US while our electric bills here on PEI are forever increasing. We are putting the lives of our residents at risk, creating noise pollution and unsightly landscapes. I would like to know how the residents of PEI are benefitting from the wind farms being built here. We describe our island as "going green", but are we really "going green" if our resources are being exported the the United States?

WE ARE GOING TO MAKE IT VERY SIMPLY THERE IS NOT ENOUGH RESEARCH DONE ON THE LONG TERM HEALTH PROBLEMS FOR THE PEOPLE LIVING ON PEI FULL TIME
THANK YOU

Wind energy is currently cost effective and is a valuable PEI resource. Should this change in the reasonably foreseeable future (say 25 years) wind turbines can be easily decommissioned with little or no lingering footprint. Until then, PEI should take advantage of this window of opportunity to harness this source of renewable energy. It makes perfect economic and ecological sense.

I think that the wind farms are a great idea..we can provide a cleaner solution and as well, we can sell it to other people and make money off of it :)

Diversify the strategy, wind cannot be the only method. Need to invest in other ways that can lessen our dependence on other provinces supplying us with energy

The wind always blows on PEI so why not take advantage of it. I say bring on the turbines!!

- Should be one in Bordan where the fabrication yard used to be - good source of wind!

Assist with development but not to give wind fall tax breaks and exemptions.

Wind energy is bogus

- They are needed - Should be located in the surrounding waters of the Island

Good way to kill time waiting for the plan to arrive! (survey)

Your survey assumes people know how to accurately estimate % of fuel sources used/wish to use. There are other factors to be considered when making these estimations, and I have no idea what is the current/what is the attainable in the future (wind currents, cost of equip, level of generation (kwh), the length of time to break even from purchase, and the effect on other energy source)

I do not know the negative impact of wind farms would have on nearby residents other than noise. I like the idea of wind energy if we were getting the energy.

Irrelevant questions

I would encourage the government to research the Pros and Cons before putting up too many more structures.

I think wind turbines could reduce the cost of electricity on the Island. More people could afford electric heat. Less dependency on oil!

Seasonal resident

Go for it!

Wonderful idea! I enjoy driving and seeing the wind turbines. Think they are interesting and a great way to generate electricity. The Island should definitely go for it!!

I believe that PEI is making hys bounds by installing turbines across the province. Within Canada, our province is "leading the way". I think this is so important, as we will not always have the option to rely on fossil fuels as an energy source. I am an ornithologist and am concerned with bird kills ~ wind energy is not as "green" as it first appears, however, with a careful environmental assessment and consultation period, I feel that further wind farm projects should be initiated.

I believe that wind energy would be a huge benefit to the Island, that being said, creating energy here and selling it to different countries is NOT a benefit to PEI. There should be only be wind turbines/increase in number of wind turbines IF the energy us reused on PEI and not as a resource for others to prosper from.

I don't have an issue with using oil, coal, ect. but alternatives must be developed. The price of oil/gas is a joke and driven by investors, not actually supply and demand. There is a massive opportunity to develop green energy practices, those who are forward thinking should and will be rewarded in the present and future.

Visitors' Comments

I think it is an updated method to deal with the concerns of energy and pollution; it is a wise use of a natural energy source. It is a means of broadening the base for income; it is an observational and thought-provoking example to be discussed and adapted and implemented into other places as is available and can be "honed" to specific areas, needs, availability, and population/environmentally friendly manner to be an alternative increase for the greater demand of energy - in a cleaner form.

wind turbines or wind farms are a wonderful way for PEI to show that PEI have sensitivity for environment and can be an example for other provinces.

I think it is very convenient and should be popularize but it is maybe a tourist attraction but should not be close to housing.

Way to go. Keep up the good work.

The turbines at East Point make a beautiful vista; they are so beautiful and add to the gentle nature of the island

Step in the right direction for the environment, for PEI and its residents. Smart move.

there are certain areas that should maintain the scenery as it was , with no wind farms etc such as Annes of green gables area and the beaches that bring the visitors. But als there should be koiskes set up to let visitors experince the wind farms and working , possibly as a tourism point of intrest. Have a small fan set up so people can blow at it and generate some electricy to light a small led explain the workings and how much power that does not have to imported and the fossil fuels that will not be burned etc another green toursism experince for visitors.

I have not talked to enough people to understand fully the implications of living close to a wind farm- I have heard that they are noisy though.

Provide repayable development support to companies but not to existing utilities

WIND FARMS SHOULD BE GOVERNMENT OWNED IF FINANCED BY GOVERNMENT

"I think it is great!! Why not use what mother nature gave us"

Good job...show the rest of Canada the way.

No comment

I think that it is unfortunate that PEI is not using all of its electricity generated by their wind farms for their own province. I think it is a mis-use of power that they are selling the energy to the USA and still using conventional methods to power their own province. What is the point of saying they are the

green province if they are going to sell the energy to their neighbours while their own citizens still pay an extremely high price for oil and electric to power and heat their homes.

there should be more wind farms in the country.

There pretty neat but should not be close to the road or houses

I see no reason why more provinces get involved in these farms. This was the reason we went to North Cape to visit. The farms not only produce clean power but helps Tourism. I wish my province (NB) would wake up.

I think PEI is doing a great thing with wind turbines other provinces should follow suit wat to go PEI Wind farms and wind turbines should not be located anywhere near where people live. The aggravating hum is like chalk being screeched across a blackboard. The energy emission are harmful to people living anywhere near these sight. I would not vacation anywhere near such a sight.

I think all province's should be looking into them

They are not unattractive, but to see them everywhere on the Island would not be pleasant. But as an Island, "Green" power is even more important than in other provinces.

I think more wind farms are the way to go.

i am completely in favor of wind farms. They are in use in europe and western USA. They are far form being a pain in these countries. I can not understand the ridiculeness of statements made by many canadians. There are many in Quebec. Certain areas ie the gaspe coast for exmaple most people are please with them. In others, mainly in the Mtl ans sourrounding areas, people fight against them mostly because they are ignorant of the situation. Governments should enforce regulations and promote clealiness, effectiveness, and renewabelity of the resourse (wind)

I am very very happy to see them used.

I'm sure on PEI they may work well, being an island there would probably be sufficient wind. I'm not sure they would work everywhere because of the weather.

I think it's a wonderful concept and should be used as much as possible. They are very impressive to view so are an added attraction for visitors.

When wind farms are brought into the publics eye, everyone seems to think of the turbines on high areas of land. I have to think that we (Canadians) should also view off-shore as a possible location for the farms.

I think in today's society we need to think of alternate methods for energy.I believe PEI is ahead of other Atlantic provinces.

I am in favour of the use of wind turbines, having seen them used extensively in southern California. We have taken visitors from Scotland to see the windfarm at North Cape, and are plased that a windfarm is currently being erected at Kent Hills, outside of Moncton, N.B. I think they windfarms should be more in use as a means of generating electricity and that we should decrease our dependence on fossil fuels.

It is better healthwise and cleaner.....

PEI seems like an ideal place for wind turbines. They could fit in quite nicely on regular farm land.

I think all provinces should have windfarms as well as looking at other options using the tides. Eventually fossil fuels will become scarce or so expensive, an average Canadian will not be able to keep up with power and heating bills

I guess I don't know much about the costs of using this type of energy for electricity, but I feel it's a great move for PEI. Wind is available, so why not use it efficiently?

I think it is great! We need to find alternatives to the energy sources we use currently

The wind farms were very impressive. They didn't seem to make much noise. The area around them was very neat and clean. I think every province should consider having them.

I think if people had a list of pros & cons (including an information sheet) on the use of wind farms that it would help them better understand this new means of electricity, and how it will affect them & their surroundings.

I am not so sure that they are a good source of power. Parts will still wear out and they disturb land where they are built. They can be noisy and take away from natural beauty in an area.

Bravo! Like to see NB and NS follow in your footsteps by using wind turbines. It is good for both the environment and the pocket book (if kept reasonably priced).

The Provincial Government is in the best position to look at PEI as a whole - to have a balanced view on how wind farms will affect various areas considered. It is NOT a good idea to hand over control of wind farms to private developers with no government input. Also, I've been hearing about ill effects on wildlife in the vicinity of the windmills. So while it's wonderful to think that we can "harness the wind" there is a balance needed in this, as in everything else. Look at the cons as well as the pros and above all don't let big business dictate what will happen.

It would be an added feature to allow tours of wind farms and perhaps a driving tour through the province... you may already have this --I have not yet checked into it for our next visit which will be in about a week but it is on my to do list

Thank you for the interest of other people.

I would think that you are limited in PEI because of land space available.

Anything you can do to reduce the use of fossil fuels and to clean up the environment is well worth it

I think wind farming is a must in this day and age, we've seen big wind farms outside of Lethbridge, Alberta, I'm sure they must be efficient or they wouldn't be so popular

"the wind farm should be more promoted and when visiting these farms there should be an guide to let the visitors know how they work, and maybe these visitors may ask their gov. to take action. in the visitors guide your gov.should put more pictures and more direction were to visit them.

THANK YOU FOR YOUR TIME."

I have seen many wind farms in Europe and at the time it was an unusual attraction....but now it should be common place in all Canadian Provinces.

The information we were able to access when we visited North Cape was very helpful. The visual demonstrations were of interest to our children, which only helps peak their interest and hopefully spawn a change for the future.

"wind turbines are nice, but the forward looking province and utility will be preparing for nuclear to meet our future energy needs- wind is not dependable, and needs many time the number id installed mw's to meet supply, and still there needs to be backup generation in the form of coal,oil,gas,nuclear- to be prepared, the NS and PEI need politicians to stand up and speak out in favor of nuclear studies, or when the wind stops blowing some night, the lights will go out, or coal/oil mw's will be much more expensive as this machinery must be kept there spinning waiting....

The future is nuclear, and only nuclear-----and PEI charging for access to the tourist center at north cape is ridiculous !"

i feel the wind farms are great and should be used to harness the natural wind found at pei

A great example of what the rest of the Canadian provinces should be striving towards.

"i wish i could afford to drive back to the island but gas cost too much so not bloody likely. only the rich can do that stuff!! have a good day! if the gas drops i may see you again someday :) maybe wind turbines could make the price of fuel drop in a competition or something."

I really like the way PEI is going. SMART...SMART. To bad all of Canada would not follow PEI footsteps.

"As I said before, when PEI can cut the tie to import power and can regulate it's own Frequency and supply all power requirements with wind, then you will have accomplished something. Until then you are only experimenting. NB Power is carrying PEI with regards to load regulation and the North American Power Grid is supplying your Frequency regulation. Drop the tie and see how well you system survives on wind."

Please continue to use this method. Studies have shown that this method works well and you are making an example. More provinces, states and countries should look into this method as well as other methods.

i think they would be a great source of energy

I think it's a sustainable way to create electricity. I'm not sure they are going to create "enough" but it's certainly doing more and becoming more accountable and sustainable. I think wind turbines are a good idea and as long as you don't wipe out half the island with them it's a good idea.

We have wind farms in the province that I live in. Although not very attractive to the eye and a bit noisy, still an excellent source of renewable energy that all provinces should be exploring.

I think it is a smart and futuristic approach to the future needs of islanders. My husband and I really enjoyed our visit to the wind farm.

we were quite surprised to see the number of wind farms on P.E.I. Good for you!!

I have not seen the wind farms on Prince Edward Island however I do want to visit the area (Tignish) to see them. I really like the turbines and do not find them repulsive at all.

Considering how much ground at the grassroots level that the green environmental movement is making, I think that PEI will set itself apart as not only a destination of choice for all it has to offer (the Charlottetown festival, Anne, etc), but a green destination that people will be more inclined to visit for that reason alone. Here at Kingfisher Landing Bed & Breakfast, we have always subscribed to the 'green program' in tourist accommodations (reducing, reusing and recycling 80% of our household consumer waste) and many of our guests have mentioned that one of the reasons they booked with us was because of our commitment to this program. It is a selling point for any tourist destination, whether Peggy's Cove or Prince Edward Island, and we are proud to be pro-active in this, continuing to promote a healthier environment for our children and grand-children.

A farmers field is a poor waste of space, having a wind turbine over it would hurt no one, and provide farmers with a little more income.

I think that careful study should be given on where to put the wind farms. I was on my way to Cape North last year to see the wind farm when my car broke down. It was definitely an attraction I am interested in. I have heard complaints about the noise from the turbines located in Charlottetown and Cavendish. It would be nice if they could be in out of the way areas, but then the cost of shipping power to urban centers would be increased. I suppose it will be like anything else. You will have supporters of wind power, and naysayers. Me, I'm for it.

Instead of just a wind farm I think agriculture should be an important part of the land use as well. Having farmers and windmills side by side would set a better image and in turn the land is not wasted.

I love the look of wind farms. They are beautiful and show that the province is committed to learning behind the best environment for our children. I would be more willing to spend my money in a province who is so forward-thinking.

I think this is an important contribution to the safe guarding of our environment. Wind turbines are located in several areas here in Cape Breton. I agree with their use and potential. However people have a right to quiet around their homes and the turbines should be in areas not heavily populated.

CONTINUE THE GREAT WORK. WE NEED TO CREATE OUR OWN ENERGY SOURCES !

It's a long drive to end up paying a fee.

Keep on trucking

I like the idea

In an age where we all should be watchful of using our resources more wisely, in my opinion the use of wind turbines is a resource that is renewable and cost effective, providing electricity without the

usual pollutions of other sources. We would all do the environment a large favour if each and every province and territory of this great country of ours was to put more into wind turbine generated electrical power.

I encourage, given the circumstances of PEI, including availability of wind.

"Of all the places I have visited, from Texas to Mexico, the Caribbean, Western Europe, Mediterranean, the Baltic States and Alaska (including all ten provinces of our great country), PEI is the most logical place to build a strong wind power economy.

What are u waiting for?"

In Mass, there are wind turbines actually located in the sea. This could also be an option for PEI.

I think they are a wonderful thing to be using!!!!!!

Fortunately Nova Scotia is now beginning to see the benefits of wind farms.

Unfortunately, there is opposition to these plans by vocal minority groups citing noise, destruction of esthetic beauty of the landscape etc: Hopefully, the government can overcome these obstacles and choose the obvious benefits of this alternate and renewable source of energy. Congratulations to PEI for being a leader in this area.

"Much to do about nothing. Green is a bunch of malarki. Global warming is the biggest hoax of this century. Jack Coffin"

p.e.i. has lots of room and wind, potatoes don't mind the noise.

Make sure you use very good quality pictures when showing people wind farms.

As a resident of Nova Scotia it is inappropriate for me to speak on behalf of the residents of PEI. It should be approached by the residents of PEI as it is their island. There is no question that the island would benefit as a whole. We need to place more important on alternative to to the current sources. In short a lot less talking and a lot more action.

I'm glad to see it. Nova Scotia is heading in this direction too which is long overdue. Something needs to be done. The environment is changes. We went to PEI 3 times this spring /summer and it was either cold and/or rainy and it's the same in NS. It's scary how Mother Nature is getting out of whack.

CAN WIND FARMS AND AGRICULTURAL FARMS CO-EXIST? IE. COULD YOU PLANT POTATOES AROUND THE TURBINES?

can be useful

I do not feel I have enough knowledge or expertise to comment on wind turbins. However I was to Europe (Denmark) four years ago and I saw lots nd lots of wind turbins. It was ratehr interesting to see so many of them in the Baltic Sea.

I think this is the wave (or the wind ;-) of the future. Having lived here briefly, and having family here to visit, I KNOW PEI has lots of wind- put it to use. The only thing i would caution is making it safe for wildlife, especially birds

PEI has long been in the forefront of environmental awareness and projects should be encouraged and used in the tourism for increased environmental education.

"I don't think most provinces/countries are moving fast enough to replace fossil fuels. I think that PEI in particular needs to become self-sufficient, generating its own electricity as opposed to buying it from other sources. If those other sources are producing electricity using fossil fuels, then the cost of PEI's electricity will go up as the cost of those fossil fuels go up or shortages take place. The slogan ""Canada's Green Province"", by the way, is okay, but I like ""The Gentle Island"" better."

continue the good work

I believe that if PEI is going to lead the way with wind farms, they should be placed more closure to the water where you can harness the wind alot more coming off the ocean then it would be in the middle of a farmers field or a housing project.

Keep up the good work

I believe in the alternate method of energy. The province is heading in the right direction. Keep up the viable heading, GOOD WORK.

Wind farms would not stop me from taking my annual visit to PEI nor encourage me to come to PEI more often. These questions should be asked of the electorate of PEI, not prospective tourists.

Go for it!

I think that all provinces, especially those that have strong winds, like PEI, NS, NB and NL should all be using wind power for the majority of their power

i don't know a lot about wind turbines however i have seen them in nova scotia and i see nothing wrong with them if they can help.

The wind farms are a reminder that there are more efficient and less damaging ways to produce energy. We are rapidly running out of fossil fuels and should be developing more and better ways to produce energy. Wind farming is certainly a better option than burning oil to produce electricity.

I'll be going to PEI next week and now plan on seeing a wind farm. I believe Canada's smallest province, can be the largest province in becoming "green". Way to go PEI!

Increase the wind turbines or wind farms on PEI

We all know that we require alternate sources of power. If they could only develop a turbine that is smaller, clear that does not take away from the natural beauty of the land. Reducing noise levels to have less impact also on the environment around them.

you do it in moderation so your landscape is not too spoiled

I'm impressed

I believe we are all missing the boat we should all be looking a tidal power as a means of cleaner, cheaper means of power. Lets face it it goes out and in daily. Maybe instead of an oil boom out west we in the atlantic provinces could have a tidal boom

a survey which I knew nothing about....please do not send me this type of survey again.....I agree to answer tourism questions but will not participate in another survey like this ever again

I would like to see more wind farms for cleaner energy

"I think each farm should be powered by wind turbines and I also feel PEI has the unique opportunity to become the totally organic farming province to lead the way for the rest of Canada - farmers should be supported and funded - there are way too many farms being closed and the younger generation are not farming. The wind turbine should be encouraged and supplemental funding available for farmers and manufacturing/processing facilities."

I wish NS would catch up with PEI in this area of electricity generation

Wind farms are very new and they would generate interest but would soon loose that interest as they become available elsewhere.

there should not be a cost increase, power producers already make way to much money. placing them in less noticeable area's would lessen the negative comments

They seem to be a clean way to generate electricity.

as a visitor to the province, I feel these questions should be asked to the residents of the province.

Don't know why you limit yourself with wind farms. In Denmark there are lots of turbines placed on borders between properties and along the edges of fields. Actually looks good from the air.

I think that wind turbines are attractive and if I could afford one I would have one.

I am all for alternate methods of generating power. I think we need to be willing to do what it takes to make it possible to make it happen. Perhaps there could be a secondary use for the land in and around wind turbine farms. Perhaps traditional farming could be employed on the land as well, so the vast expanses are not "wasted". Or perhaps educational uses for the land could be employed.. such as tours of the turbines, experimental farms for new crops..etc

Fine

Should be proud of being for front in clean electricity generation

again we need more

Keep up the good work in developing this "Natural" resource

go for it you have more wind than anyone...you should look for other ways to go green though.

Wind turbines/Farms are a small price to pay to keep PEI green and protect its environment. PEI provides an example to follow in the application ecologically sound solutions.

I wish the residents of Maine were not so opposed to establishing wind farms in Maine. I think they are a sensible, practical source of power and while they do change the landscape somewhat they are much more attractive than cell phone towers and certainly there isn't much opposition to putting those up everywhere! Ugh!

My family learned a great deal about wind energy generation from visiting the wind research facility at North Cape this past July. We are strong proponents of alternative energy sources and would like to see them become affordable for everyday citizens of any countries.

Some one more knowledgeable than I should determine where and how many wind farms should be built and where they should be placed.

Should be used off the beaten path or near landfills and not near homes. If ocean based, over the horizon to preserve the natural beauty. Some government subsidy but limited if a third party for profit company sells the electricity to consumers. There should be limited or no tax consequences to the residence or tax payers.

good idea, not done enough

Congratulations!

I think wind turbines are the way to go in the present and future.

It's something that should be considered. I know Nova Scotia is moving forward with the increase use of turbines and a wind farm was under consideration in the Pugwash area. I did have concerns over this with the impact on the worth of land I own and how it may impact regarding noise and view's from where I plan to live in a few years. As with anything there are pros and cons.

If it works for you, then do it. I would not support a movement to place these in an area purely on the speculation that the province needs the federal support money.

Electricity is way too expensive in PEI.....Wondering why PEI is selling all of it, use it.....

Many of the answers to your survey need to be accompanied by disclaimers that their specific location and context matters. Design as well as function and context will always be keys. I think it's a great resource and applaud the island for it's support. I would rather see a windmill than a tanker.

DO IT!

We thought that the North Cape area was beautiful and the Wind Tubines did not distract at all from the scenery

When I see wind turbines I am delighted because they represent a clean, renewable source of energy. In my opinion, they also represent a move away from dependence on fossil fuels which come from an unstable part of the world, which make a few people very wealthy and cause hardship to the rest of us, and which cost too much in terms of money and even lives. Wind is a capturable constant source available virtually anywhere.

"read earlier comments the questions about how much to pay, kilowatts, etc. are just not needed in this survey for tourists"

It is an alternative way of producing electricity and should be used to some extent

Although not a part of the natural scenery, the wind farms serve to remind us that green is good

My opinions certainly should not be weighed as heavily as a resident's.

"I live in Massachusetts - we have many opportunities to improve our energy resources and have been slow to do so in spite of having two US senators and 9 US congressman who support reducing our use of carbon energy resources. Several of them, including Senator Kennedy, have homes on or near the ocean and they want to preserve their precious view. I think this is hypocritical of them and they need to show some guts. The same group (except for Kennedy) showed no guts when they voted to send our troops to Iraq - they thought it was politically easier for themselves at the time. A very disappointing group of high paid beauracrats. With the issue being the use of energy resources, I don't think that we can look forward to any solutions soon.

I hope that the PEI government can move decisively to install wind farms; and, since I play a lot of golf each summer on PEI, I can vouch for the fact that there is plenty of wind. Sorry to bother you with my politics. Good luck."

We do not have these near us where we live in the states but seeing them in PEI I do not feel they would be offensive to live near.

Good survey

Wind Farms, set in a proper location could be a tourist attraction area, plus educational to show people how efficient, clean, and economical energy can be produced.

Have seen wind farms in Germany along side agriculture and am amazed at the participation. More profitable with government subsidies than farming which is too bad. The island has an abundance of wind and seems a shame not to take advantage of it and incorporate agriculture into the land planning of it. They seem to do beautifully side by side and would be a benefit to the larger populated areas of the island. Wouldn't necessarily hurt tourism-be a big boom to image.

The USA needs to copy your incentive. While some people think they are an eye-sore, we think they look more like art. It's also time to make use of wind and solar on a much larger level, for all of us. The electricity generated by PEI based wind farms should be used on the island, and not exported to the US!!! Your survey should include facts on the amount of energy being sent off-island... I love the wind turbines on PEI and wish the US had more like them. wind farms are great but if you had them everywhere would ruin the beauty. Next to housing would not be great. remote areas fine

If you have enough wind, why not use it.

I think wind farms are a great idea.

Originally an attraction at North Cape, but becoming an eyesore as more and more are appearing throughout the island. Why can't these be placed offshore out of sight.

Please continue with your wind farms!

We saw them when last visiting in October, 2007; they are really beautiful to look at. PEI is doing a fantastic job with this. Keep up the good work!! Can't wait to get back for a visit.

more wind farms

My body tingled when I saw the wind turbine farm in northwestern PEI. It made me resonate with the PEI culture even more. It truly is a gentle AND green island!

They fascinate me. I will never get over how huge they are when in close proximity. My guest this year, an engineer, was quite impressed as well.

All for it!!

wind farms are a great way to provide electric to Islanders. it would use a lot less oil, and some day maybe cut your dependancecy of forien oil.

Although we live in the United States, we own land near North Cape. We plan to eventually build a summer home on the Gulf of St. Lawrence. Part of the plan is to power the home with a wind turbine.

wind is good

I think that wind farms and solar are the best options for the generation of electricity. However, it is my understanding that most of the electricity generated by the PEI wind turbines is sold to the United States. To me that is not right. The electricity generated by the wind turbines should remain on the Island for the benefit of the Island's residents. We in the United States should not be looking to Canada to solve our electricity-generation problems. We need to resolve our own dilemma.

I agree that wind turbines should be used for energy, but it is my hope that they will be placed in such a way as to not invaid the beauty of the island

Do not change the beauty of nature

wind farms are great but should not be put in iconic pictuersque areas in PEI

I was sorry we didn't have the time to actually go out and see a wind farm while we were there.

"Just wanted to say I didn't have any idea what percentage to fill in for the percentage questions, but it wouldn't let me leave them blank. So please disregard my numeric answers if you can. As a tourist, I think wind farms would be interesting to see, though I don't think they should be near houses."

Although they are one excellent facet of the solution to finding sustainable energy sources, wind farms are also known to disrupt the ecosystems around them. They need to be balanced with other renewable energy sources in order to be a truly relevant form of "green energy" production.

As a MB resident that also has wind turbine farms I believe this is the way of the future as this method does not harm the environment. As for the noise created by the turbines I would think this level of noise is no different than the daily noise pollution we have from every day noise created by trains, planes, auto, industrial etc. However I do believe there needs to be more research into the long term effect of noise created by wind turbines. This method of creating energy is relatively new and seems to be the way of the future so I'd hope we would get it right and determine if the good outweighs the bad. As in everything there is good and there is bad.

We travelled to see the wind farm on the northweat coast of PEI...

As I don't actually live on PEI I cannot really comment. I would, however, like to see more wind turbines, wind farms, throughout Canada.

"As far as I'm concerned (Hydro Quebec employee) wind is free and technologies are expensive but the combination of both means it's possible to have both at the same price and the consumer is happy and so is the investor. The questions should be put towards the investors not persons or consumers who are always looking for the least expensive but towards our leaders whom we elect and big business and what will be the PROFIT LINE."

As prevalent as constant winds are in many PEI location, I believe it is imperative that wind energy be strongly considered as a major source of power.

My family would have been interested in getting closer to the wind turbines and are curious why we are not permitted to get closer.

The entire population of PEI is less than that of the district where I currently live in Beijing, China. (The entire population of Canada is less than that of the cities of Beijing and Shanghai!) With that in mind, surely PEI has the space available to take advantage of wind power in a way that does not interfere with tourism.

No additional comment, since I'm not really versed on the subject. At one point I looked into having wind energy on my property, but never followed through.

We were at a cottage on the ocean at North Lake. Wind turbines were directly across the road from us. We enjoyed watching them and listening to the sounds of the wind of the turbines at night.

We found the wind farms to be an attraction because they existed and were "new" to us. They do generate a significant amount of "white noise" and do detract somewhat to the landscape. It is a responsible and innovative way to generate power for a society that consumes so much of it.

I think there are better ways to generate electricity than wind farms. They destroy property values, there is a constant low level noise that causes illness and they are ugly.

Why not look at geothermal methods?

"I love going to PEI, and you have much land where is nobody around, so it is easy for you to have wind turbines nearly every where. The place is windy..."

I strongly agree with the building of wind turbines and only wish Ontario would construct more continue to lead the country in this renewable resource

Although our main reason for visiting North Cape is the Wind and Reef Restaurant, I love the wind test site there and enjoy the fact that every time I have been there, there are more wind turbines. I only wish that the US would follow suit. Keep up the great work!

PEI is such a beautiful province - why spoil its appearance with windmills? Have you seen the ones in Alberta - really spoils the scenery as far as I am concerned.

I think it is a good idea, and we should at least use them long enough to evaluate if they are more efficient or not.

It's too bad other provinces are not as progressive, forward thinking and as 'green' as PEI!

what a great alternative to fossil fuels. besides solar there is no other alternative at this time. One day we may be able to harness the energy from the ocean's tides, however that is well in the future.

I have to admit to a bias since I use wind and solar at my own home here in Ontario to generate all of my electricity. I was quite jealous of your wind on PEI and your wind turbines! You will always find someone who wants to stay stuck in the past but high time we began to use more renewable and sustainable methods to generate electricity!

"I would like to see PEI use wind power as much as possible. I didn't see any wind farms during my last visit, but I would much prefer to see a windfarm in the scenic landscape than a coal-firing power plant or a nuclear plant. I have heard the concerns of others who say wind turbines are noisy, hazardous to wildlife, and too unreliable. I hope the ""pros"" of wind turbines and wind farms are considered equally with the ""cons"" to serve the best interest of all those who live on PEI. As a tourist, I think they impressive and beautiful and I am impressed to see PEI looking forward to the future and embracing change."

Keep up the good work !!! Let's hope the planet will be covered of those !

Canada has all of wind available so why not harvest instead digging coal

Keep up the Green focus. We feel that wind turbines make you feel worm inside even at the cost of the view. Total green would encompass the impact on fossil powered fishing boats as well.

"It would be a pretty horrible thought to see PEI covered from end to end in wind turbines - I would like more info. on what they are doing to the bird populations - if any studies started yet - and the actual noise factor and how that effects people close to them - studies from Europe. Also would like to point out regarding PEI and the ""greenest"" province question. Never have I have seen as many people in any province leave their cars idling during the summer to keep the air conditioning effect (I presume) going and the heat going in the winter, as I do in PEI. They take their clean air for granted and I bet there is no penalty for leaving the engine running while in at the store. See it all the time when I am there and find it disappointing."

It is a pleasure to see PEI taking such strong and effective moves towards the green movement, not at all surprising however.

I think P.E.I. should be commended

Nice to see this progressing, but these farms should be kept in areas that do not detract from P.E.I. beauty. Construction should only be in only controlled areas away from prime farm land, tourist and populated areas. I am sure their is noise associated with the wind farms so the number of units per farm should be controlled. This type of energy should be fairly low cost in comparison to other kinds.

Wind turbines should be encouraged but their placement must be away from dwellings and not using good farm land.

I would like PEI to become more self sufficient so they do not have to rely on expensive electricity bought out of province.

I wish we had them in Ontario

I expect to see more wind farms on PEI. How about alcohol from all of those wasted potatoes?

I think that they are great and more provinces should be following the footsteps of Canada's smallest province. I have heard of how great they are, it's about time that someone starts making a difference in our environment!

Let's not see the government stand back with it's hands in it's pockets and pour money onto private developers who, come in, fuss around with paperwork, gather up the money and be AWOL all of a sudden. Seems to me it's become a way of life for some who see PEI as a cash cow waiting for the milking! I'd like to see a PEI Energy and Resources Department run like a private business with tight purse strings and an accountable management team, taking on the development of wind, wave, and solar power on PEI.

"You should make use of the fact that Wastewatch has helped PEI become the best recycler in Canada, if not North America.

I'm told New Brunswick used to supply much of PEI's Electricity, and wondered how this equation has changed.

My family and I enjoyed the wind/solar demonstration at Greenwich Park, and were left supposing the cost of this small-scale system prevents its use in Island homes & businesses. More info on the technical features of big wind farms and small systems, and their cost/benefit over their expected lives would be welcome. I think many visitors are wanting to know more and would be able to use this information where they live to make informed decisions. We are all energy consumers."

Just try to keep the beautiful Island you have ! Don't put to much of those wind turbines. We like to go in PEI because the landscape is very natural & extraordinary beautiful but it's a good way to make less air pollution. :-)

keep it up

We were pleasantly surprised to see the wind farm development on PEI. This puts you in the forefront of modern technology.

Perhaps grouping them together may be more aesthetically pleasing rather than having a single one every few miles or so, seeming to go on forever. The ones I have seen were clustered together somewhere in the US, in California, I think, and they looked cool. PEI is very beautiful, and some may not want to spoil the view, but coal, nuclear chimneys look worse.

None

Wind turbine farms are fascinating and very efficient for improving our way of life.

Wind farms are not necessarily ugly, but they make little sense technologically. They are something of a politically-correct sop to the green movement.

Wait until the technology becomes more mature and if it ever becomes economic go with it but off the beaten track.

I believe that this is an excellent method to study however, not enough is known about the impact on the environment, primarily humans, farm animals and marine life. I do not believe that they have no impact or are completely harmless.

"Here in Denmark we have a lot of windfarms, but many are placed in the water. I don't know if there's too much ice around PEI during the winter, but if not then that would be the ideal place to put some windfarms. In one of your questions (I think it was 13) you ask how much of the electricity on PEI should be generated from windfarms; You've just mentioned the possibility of Hydro and solar energy as well, so I said 30% a third of each. Perhaps the question should be "...if only windfarms are used"... Just my thoughts.."

The use of clean, renewable energy as a means of continuing to "green" up PEI is an excellent example for the rest of Canada and we should take note of your successes.

You've got the opportunity to be a world leader in this area, think ahead do it right and don't let money be the only driver. Don't ignore hydro, there were some nice small plants in the past like the Murray Power Plant in Breadalbane...capitalize wherever you can as the solution isn't one single method.

I wish PEI all the best in the development and implementation of wind farms - I am aware of how expensive it is to provide power to the Island.

Visiting North Cape is a highlight of my yearly visits to PEI largely due to the windmills that are there.

right now they are a novelty, eventually people will get used to them and then the novelty will have worn off and they will blend into the background.

Since my visit to PEI in 2007 I have realized how forward thinking the province is in terms of environmental industries and policies. I am in awe at the province's and its citizens' ability to seek out new means of sustainable energy sources. The recycling/compost program is top notch and I appreciate the province's dedication to keeping the island's integrity and heritage.

I applaud PEI for moving in this direction. I lived on the island, up West, in the early 1980's and remember visits to the North Cape Test Site. I was very impressed at the time and believed that wind would be a viable source of power, especially on PEI. Bravo!

"As a former land owner on PEI and now a tourist, I think wind farms are ugly and ruin the beautiful island landscape. For the amount of energy derived from wind farms, they are not worth while, especially if government money is being used to support them."

Wind farms, as a tourist attraction, would encourage the further development of wind energy and its efficiency. If there is no public knowledge, there will be no political will to develop this and other "green" technologies.

PEI could be such a strong leader to the rest of Canada. We heard that most of the power generated was sold to the States and not used in PEI. Is this true? Sad if it is.

My daughter and I thought that they were a great thing to see. Just this past weekend we were driving in south western Ontario and saw a wind farm and stopped to take pictures. We spoke about our trip to PEI and wished we had taken more pictures of the wind farm we saw there as we believe that they add to the scenery, not detract.

Jamie Balam Rules

I really agree with the use of the wind to generate electricity.

"I think wind farms show that PEI is in the forefront of the green energy movement. We need to find alternative sources of energy that don't rely on polluting and dwindling fossil fuels.

Keep up the good work! It's just another reason I dream of living on PEI."

We went to the North Cape on the tip-to-tip challenge our second trip to PEI. We were unaware of the wind farm and it was pretty neat actually. The sound was amazing to hear (not that I would want it over my house) and the facility there was very insightful on a powersource that was pretty new to market

I think it's a very good idea

A necessary evil until the development of efficient storage of solar energy. Whether or not the world is getting warmer, it is evident there is ample solar energy. (ONE acre of land in summer time receives an amount to equal the force of the atom bomb dropped on Hiroshima.) What seem insurmountable problems are frequently brilliant opportunities. But we squander our greatest resource - people - our future Alexander Graham Bells, Dr Charles Bantings, Sir Sanford Flemings, Alexander Flemings, George Westinghouses, Thomas Edisons to the Moloch of abortion.
very impressed with the island's use of wind energy

For P.E.I it is a necessary souce of energy. Its development should encouraged with Government controls as the location(specially if it is noisy, I don't know) and the standardization of the equipment used and the number of units in a particular area providing the areas for the installation are not limited.

I feel it's great to use alternative methods to generate energy and wind turbines make complete sense on PEI since it is the perfect place for lots of wind.

While I do not find wind turbines to be attractive, I believe that the benefits to them far outweigh their asthetic disadvantages. I also think that as they become more familiar in landscapes, they are becoming less visually offensive.

I would be interested in learning how to use wind turbines for generating electricity personal use - I would love to "be off the grid", so to speak, and do so in an environmentally responsible manner.

I love them

I wish Ontario would follow P.E.I.'s lead and encourage greater use of wind generation of power.

Because there is always wind in PEI, I see all the reasons to make PEI energy efficcet..

good idea, good leadership for the country

I remember seeing a report that wind turbines in the prairies were having an adverse effect on the local bat populations. I would hope that the reason for this been found and remedied before large scale wind farms are developed elsewhere.

Ongoing communication and education is needed in regards to alternative energy sources. I support the motion to move to other sources but still don't know the full impact to the environment and the eye appeal to the country. PEI is gorgeous and natural. This needs to be considered when improve the alternative energy source to your province.

Loved visiting the wind farm, found it fascinating, i think the turbines are very majestic looking, so they don't detract from the beauty of the land and i didn't hear any noise from them. I loved them!!! I think it is fantastic that wind farms are being used in PEI. I would love to visit one, I don't know if you have already have a wind farm as an attraction. It might be an idea.

The wind turbines should be located in the water off-shore at both extremeities of the island as in the norwegian countries

I wish I lived in PEI and had a wind turbine in my backyard.
I think that wind farms are a great alternative to conventional energy.

Due to the location of the island and the weather in which it receives of the Gulf of St. Lawrence and the Northumberland Strait, the wind turbines and wind farms are an excellent source of energy and keeps the environment clear of bad emissions.

I like them! I was just in Denmark, Sweden & Finland this summer and loved the look of the wind turbine farms they had just off the coast. I took lots of pictures as were other tourists because it looked cool.

This was one of the highlights of the trip to PEI!

Have seen wind-turbines in California and Scotland. Try to not spoil the beaches and scenery

We did go see them as it was listed as a tourist attraction, we found them very ugly and very noisy and cannot understand them being a tourist attraction. There must be other 'green' sources of power. I just read an article recently that there is new technology for 'greening' dirty fuels.

A smart, interesting idea to deal with the growing need for fuel. all provinces should get on the bandwagon and use wind power.

there must be a better choice

I find it wonderful that P.E.I. is taking the initiative to use wind energy, there is plenty of wind blowing on P.E.I.. Another step maybe to get electric cars on the island too. The people do not have that far to go, if one would stay on the Island that is. I would take the green initiative further and offer tax incentives to those drivers who chose to buy an electric car and drive around the island with that, instead of filling up at Petro Canada. Wouldn't that be great?

I think the wind farms are an excellent way to generate electricity!

If you put wind farm on PEI, it will destroy the beauty of the island

we have wind farms here in Southern Alberta where I live and I don't find them unsightly or noisy - I believe they, along with solar power, are a necessary step to generating other sources of power for the world...

they will be productive in the future.

We are getting used to the turbines and don't find them too ugly anymore, in fact we see them as part of the Island landscape.

we are having the same discussion in Scotland with regard to wind farms, however, the ones we have in our area spoil the natural beauty of the hillside. However, this is more agreeable than nuclear power or coal burning stations.

? 5 in the sub box which pops up if you answer no there is no way to answer the ?s so you have to put that it was your first visit to PEI to continue. It was in fact our 5th visit as a family to your beautiful Island and more before.

didn't find the wind turbines noisy, but they should not be placed near housing developments for safety reasons - placed in the right area they do not always detract from their surroundings. I was amazed at the first wind farms we saw as we had never seen any before up close - from Ont.

I love them! I didn't really know before coming to PEI that there were so many, but when I arrived and learned about the North Cape wind farm I made a special trip there! PEI is really setting the standard for this country with respect to wind farms - I only wish Ontario were that progressed!

Like the look of them from a distance in UK and elsewhere but suspect I would not like the sound of them from up close. From the plane saw a whole battery of them in a tidal flat off Ireland which would seem to be a good idea if it does not upset ecosystem

Do much more

keep going

Go for wind power and consider tidal power as well - you have lots of ocean shores!

PEI wind farms was half the reason we visited PEI!

"I think generally it very positive, however they take up a lot of land, and while interesting for the occasional tourist or local, are not that nice looking when you have 40 - 60 windmills (even behind the farms) in picturesque areas along the shoreline.

If the Island could eventually generate all their own power, Islanders should be getting the power for significantly less and sell the excess to others for profit. Perhaps the Province could back some of these wind farms by letting Islanders invest as opposed to just giving grants and then have these companies get all the profit.

I do think that land should be used carefully as agriculture is still so important to the Island. As a tourist it is discouraging when looking for fresh farm produce to find that in an area known for farming it is almost impossible to find anything other than some new potatoes - even at the farmers markets."

As an outsider, I don't think it's my place to express an opinion on whether PEI's provincial government should support the development of wind farms, or whether it's a poor use of land. That is for the residents of PEI to decide. It's their land, it's their taxes. But I did leave PEI with a positive impression of the province's efforts in all 'green' areas, including the wind farms.

You got wind use it! It is free breeze, enjoy it to power your buildings and sell the surplus next door where it could be wanted

Do NOT let these wind turbines ruin the scenery. The turbines are an attraction, but too many will ruin the landscape.

I think they are a great thing and more farms should be erected all across this country.

good initiative!!!

I did not see the windturbines in pei I saw them in New brunswick along the highway. I believe we need to study and encourage the use of wind and solar and value the electricity we use on a daily basis.

I think it's a great idea and a way into the future of sustainable living!

We think they were excellent. While they are a little noisy, it's no different than being in a flight path or living in suburbia where there is a lot of traffic, etc. It would be interesting to see them on a small scale so that you might be able to put one in your own backyard to produce some electricity for your home, similar to using solar power.

keep in mind, when reviewing my answers, that we reside in USA (Ohio) but would like to see more wind generation in our country.

We thought the wind farms were cool and we really enjoyed and have told lots of people about them who would also like to visit them someday.

I really enjoyed my visit to the wind farm at North Cape. I felt part of something bigger as we walked along the path and experienced the wind and the sun and the flora. Now there is a wind turbine being planted just outside of my office window here in Minnesota. I'm super excited to see it come through!

Your survey is flawed in that i haven't a clue what costs to attribute to any type of power. I just pay my bills and don't follow to the penny what the costs are. What I do follow is the disasters that my province, Manitoba, has made with hydro electricity. Our hydro e comes from mostly northern remote communities, so it reinforces the out of sight, out of mind mentality. It has flooded lands and created havoc for Aboriginal people's lands. Wind energy is usually placed on farmland where everyone can see and hear it. It won't work in the bush. PEI has an opportunity to be a world leader by standing up to the traditionalists and placing wind farms where tourists and locals can see them and can become curious about them, hopefully on side with the issue.

I wish they more cost effective for the average home owner to purchase and install themselves, being able to take themselves off the grid. Overall, it is an excellent way to harvest the natural power of wind to appease our modern society.

We made a special trip to Tignish to see the wind turbines. Enjoyed it very much. Love to visit PEI. Try to get back every year. Would love to live there but work can be a problem maybe we will get to retire there. Beautiful place!!!!

other provinces should follow the direction of P.E.I.

We drove all the way to see the windmills on the North Cape only to find that there was a charge for going to the museum promoting the technology. We did not go in out of principle. Tourists pay a lot of money to go to PEI. Our tax dollars (Gov't money) aided in the development of this technology - we should never have been charged a fee to see how the wind mills work. The value missed was our driving back to our home province with knowledge as to how this technology can be of benefit. That's cheap advertising without killing a tree or figuring out a media buy (that type of money could have gone back into the resource again). That fee cost you a lot. If after we were on the tour, we came upon a drop bin asking for a contribution, we probably would have provided money at that point. Apart from a gravel parking lot and a chance to walk between two water bodies, the outside of the museum really did not have much going for it - asking for an entrance fee was pretty cheeky.

I like the idea, but am not familiar with exactly how it works or the pros/cons. It's nice to see an alternate form of energy, but some people may not like the 'look' of it. Perhaps more education is needed for the general public to understand this, as it's difficult to make an informed decision based on the current information available to the public.

"I feel all avenues of electrical production need to be explored including wind, water(rivers and ocean waves), nuclear etc need to be explored and not doing so is a mistake.

I also do not feel it should cost any more than conventional methods of producing it.

I feel the entire gamut of possible consequences of every type of energy production used needs to be explored in depth not only fossil fuels before we learn in future years we have put our hopes and money into a harmful new energy source that was not properly thought out."

Go PEI. Hopefully you will continue to be a leader in becoming more green and other provinces will follow suit!

I kinda like the look of the wind turbines. I think they are pretty cool. If it is great way to generate energy then I am all for it. Other provinces should follow.

you need to support the development of small more efficient wind turbines. In that way they don't pollute the views on PEI, because i think that when you are on vacation on PEI you don't want to look at wind farms you want to see a nice view.

good luck, go on!

please provide all information on wind turbine development to other provinces

Keep it - and use more of them

I saw a wind farm around North Sydney in Nova Scotia while on a ferry to Newfoundland. As an Albertan, I found it to be attractive, interesting to look at, and personally feel that it is a great alternative to fossil-fuels. I would welcome further exploration of this means to generate electricity, and applaud PEI as a leader in this field.

One of our main reasons for visiting PEI was because we had heard so much about the wind farms and also the extensive recycling programs. My 13yr old daughter couldn't understand why every community in Canada didn't have a wind farm...

It would be great for PEI to take the lead in wind development -- hopefully tourists will take positive messages home to their provinces and states after seeing wind energy work on PEI

"PEI doesn't have a lot of ""land "" and putting wind turbines on it is not going to bring visitors. In fact I feel it will spoil your lovely land.

I live in Scotland and have seen how the turbines are starting to blot our landscapes."

I am familiar with wind farms having been a part-owner of several in the Palm Springs CA area some years ago and active in their management, maintenance, etc. at that time. There is no escaping the fact that they do alter the landscape and view, but that is a necessary trade-off in view of their non-polluting operation as electric power generators.

I think it is madness to use fossil fuels for stationary power plants.

I think it's a great start in the right direction.

This is part of the solution for a greener production of electricity.

again, I don't know much information on the wind farms, it's an erie sight to look at and I would not want them near my home, PEI is so small. But where they are on the Island are good spots for them, I would not want more on the Island.

You have the advantage of these wind farms being within sight of, or far away from being seen by people.

We thoroughly enjoyed the opportunity to see a wind farm that close. The company that I work for in Port Hope, Ontario is in the process of helping the process of a Wind Farm being established on Wolfe Island in Ontario (near Kingston).

We have seen many wind turbines in the US and in Europe and can not understand why Canada is so far behind in promoting this for or producing energy. You do get use to seeing the wind turbines and I feel we should be doing more toward this source of power now, not years from now.

I think it is smart and you are great to use it.

I STILL WONDER ABOUT THE EFFECT ON NATURE (BIRDS) AND ENVIRONMENT (NOISE)

PEI should look at wind farms as a reliable source of electricity

"wind farms are the most positive thing that can happen not only for the provinces but also for the population. We are behind Europe in this kind of energy. There's also the solar method for energy which is also neglected by our provinces.

Our Government should take the examples that already exist in most European countries. These methods are safer than radioactive plants which can eventually cause a disaster and loss of life and a problem with the waste radioactive."

maybe painted in the scenery so they sort of disappear

The wind turbines is a good idea but the choice of the emplacement is very important, for the tourist (view on the scenic drive) and for the people leaving near of this wind turbine (noise).

PEI should be an example for the rest of Canada.

I visited North Cape to get to know more about Wind farms. It was an interesting trip. Of course, I don't have to live nearby all the time so I cannot say if it is disturbing.

an interesting concept - the province is a small space and could work toward being completely energy efficient - an excellent model - the recycling was the best I have seen and quite well regulated - the residents are proud of it!

One of the reasons I come to PEI is for the beauty. If possible would look better near cities and towns not the countryside, in the fields. Especially along the ocean. It would take away the view. And I have no idea what they sound like.

economic and natural source of energy

They are ok in isolated locations. we know people who live near them in Shelburne county, they are now sick , there houses are worth nothing now as no one wants to live near the constant swooshing. They should be put out on non populated islands off shore. PEI has the highest cancer rate in Canada probably due to farming pesticides, does it want the highest wind turbine related sicknesses also?

I think they look amazing and the wind turbines on PEI were the first I'd ever seen. We even did a nature walk through the turbines at North Cape.

While I was in Ireland I saw wind turbines out in the sea. They were a long distance from the shore. They looked so peaceful but at the same time they were producing a lot of energy. P.E.I also has that option of putting the turbines in the ocean.

I have no argument or concern. Islanders work hard to maintain the beauty of their island and preservation and maintenance. I believe they would make sound decisions on how to cultivate wind farms and their locations.

"Ugly , noisy or not - they are a clean , viable alternative to our present situation . research should go into developing storage capacity to help eliminate the inconsistencies of the wind .

The carbon footprint for building and installing a unit should be less than a quarter of the productivity of that unit in 5 years. What is the effective lifespan of one of these units?"

While an important power asset for the province, I feel it constitutes a limited tourist attraction. I have visited the North Cape to see the wind farm, but would not venture to return to see it. I would return for the North Cape scenery.

good use of wind on island

I think if you have people who are willing to put them on their land and it helps to keep the cost of energy down for the local people, go for it. I am personally tired of the price hikes from Hydro and Gas at this point, anything that would take away from these companies would be welcome!!!!

On our last visit there we really enjoyed seeing the wind turbines... the kids (aged 3 and 1 at the time) were thoroughly fascinated by them and really enjoyed watching them. I think they're a fantastic way to create energy - especially on places like PEI... it's such a common resource that isn't taken advantage of enough.

The wind farms were one of the things I wanted to see on PEI. I am hoping the US moves more in this direction and I commend PEI for its use of wind energy.

We are planning to go back to Murray Harbour next week and I would like to go visit the wind farm in Point North I think... not sure if that's where it is!

have seen them in the provincial parks, yes, they are a bit noisy, but as with city traffic, you get used to it quickly.

I think it is a very good idea and don't understand the reservations people have. I have visited Denmark in the 1990s and was impressed by the use of wind as a means of power generation. There are some places these wind farms may impact the land scape, but in general, I believe they enhance the quality of life & their surroundings, more then they distract.

I do not know how efficient the wind turbines are, but I recognize we need a replacement for our oil use and I applaud the research into alternation energy sources.

Wind farms at North cape and East Point are much more tolerable than the farm in the West Cape Area. I was shocked when I saw the windmills at West cape as there seemed to be little or no planning to the viewscape. North Cape and East Point, are much more tolerable as they are at the end of the Island and in a rougher landscape and appear to be grouped and not stuck all over the place. It appears that there may have been planning at these sites/

Keep going. You are going to make good use of a resource that we have been given that doesn't cost a fortune to harvest.

No comment

go for it

The wind turbines are like a moving work of art in appearance and help PEI become more self sufficient.

"Windfarms must be economical or the Americans would not have built so many! Southern Alberta has quite a few, but we haven't travelled through there for 10years but they had quite a few all over the rolling hills & valleys. British Columbia is taking a serious look at them. The province of P.E.I. should be a Financial Partner to reap the Benefits for the Taxpayers not to support multiMILLIONAIRES to buy New Mega Yachts from Italians!. John Hunt. P.S. we will be returning to finish our Vacation, Renting a car in Halifax Aug 16 2008. and driving from there."

I think this is a great idea and wish Alberta would start investing in some of these methods. I know there are some wind farms in southern Alberta (Lethbridge area), but more needs to be done here. I will visit the wind farms on my next visit to PEI.

I agree with wind energy and that a wind farm can be a tourist attraction, but very little is ever advertised about them in tourist booklets. Clear cutting is usually involved for the construction of the farm, but once it is established it is less hard on the eyes. The only farm one is really allowed to

explore is at North Point, and no information is really given about them for tourists at the access road at North Lake.

"I understand the opposition to wind turbines on esthetic grounds although I don't really share it since I find wind turbines to be quite elegant. I am an amateur landscape photographer and the presence of turbines adds interest in some cases, detracts from the view in others. But there are lots of turbine-free vistas left in PEI!

I recall reading that older turbine designs generated considerable noise and vibration that some living nearby found to be extremely uncomfortable. These issues clearly need to be addressed since wind-generated power could be a tremendous resource for Prince Edward Island and other places.

I applaud the strong commitment to research and implementation of wind power in PEI."

"Obviously wind is the best as far as CO2 and other emissions and sustainability, so is a vital development.

I cannot be specific about PEI, but two different wind turbine companies individually approached myself and spouse as well as several neighbours in summer 2007 about putting wind farm(s) on our property/properties. We held many discussions among ourselves and with the company representatives. Apparently our own property is a prime site (130 acres overlooking Bay of Fundy [a few Km west of Scott's Bay], property elevations of 200-250 meters, logging road on site; high voltage power lines already installed along road, etc.). The distance of turbines from our home would have been about 500-600 meters. The potential income was tempting (more than \$24,000 per year for our property to start). I did much research and visited the wind farm at West Pubnico NS, where I spoke with several residents. From discussion, research, and personal observation, I determined that 500-600 meters is too close. 800 meters is marginally satisfactory, depending on ambient context; 1 Km is really the distance that is needed. If the area is already noisy (along side highways, next to a ocean with heavy surf, etc., then 500 meters might be satisfactory. [I am a professional music historian/early music editor, so have some training in matters concerning sound.]"

I just hope that pei will use even more clean energy in the future. I take pei as an example in many way when it comes to "go green" and i think that more Canadian province should follow your example. And an other wish would be that your wind energy will always belong to your islanders and not any foreign country.

It was very interesting to see the wind farm we have seen operate.

Wind turbines are a very effective as an alternative source of electricity. Our state of Ohio is considering the same. As a yearly visitor to PEI (10 summers in a row), I just don't want them to spoil my beach and ocean view from my cottage.

am generally favorably impressed with the wind farms. but recently heard some unsettling info from people who lived near them. also i looked at a property for sale near some windmills, and they felt like they towered ominously over the property. would like to see more of them, but i would not like to live within 1 mile of one.

If public funds are invested, the public should reap the profit. I do not support use of public funds for private profit.

I was impressed with the beauty of the windfarms. They didn't detract from the scenery and in fact only enhanced the beauty of the island. It is so clean, that looking at them makes the island seem even more neatly kept and cared for.

We have seen a few wind turbines in Nova Scotia and do not think they detract from the appearance of the landscape.

keep up the good work

sounds like a great idea. i wish the USA would consider this!

We like them and think them a good idea

Keep up the good work:)

PEI is on the cutting edge of this method of power generation. Kudos on your visionary foresight !!!

I have always felt that PEI was an environmental leader...no cans etc. My first concern is the bird population and the pastoral setting being disturbed....but, I wouldn't cancel a trip if I had to see wind turbines

Keep up the good work and install more turbines.

they are a safe source of energy

Do it!

Do not know too much about them but they seem to be a more inexpensive way to go

They may be strange at first but I think people will get used to seeing them, and it is something that needs to be developed to help the planet.

Excellent source of natural energy

The question of permits being issued to developer by government should have some gov controls, a balance for gains for both government and developer.

Good luck - keep up the good work!

From our experience, PEI has a lot of wind and I feel you should harness it.

I think it is a great way to generate power. I don't find them unattractive and in some settings I feel that they add interest to the landscape. I believe that as people become better educated about wind farms they will be more widely supported.

I've seen the Wind Turbines at North Cape, and they look fine there, because they are an attraction in themselves. Scattering them throughout the agricultural regions of PEI would really impact the "land that time forgot" ambiance that the PEI gives you when you visit. On the positive side, you could probably generate most of the province's power with wind farms. Have you ever thought of providing reasonably priced access (maybe \$50/day??) to small electric vehicles for touring PEI. High gas prices (and airfares) make it very costly to come to PEI and touring by conventional auto is becoming prohibitive. If visitors had access to reasonably priced electric vehicles for touring maybe more people would fly to PEI.

We are seeing more wind farms as well here in New York State. While wind power is not the answer to all our energy needs, I believe it is an important piece of the puzzle, especially in less populated areas like PEI that have favorable conditions (i.e., prevailing winds, available sites) for its production. To me the major negative impacts which need to be addressed are aesthetic (don't locate them where they would ruin the view in "special" natural locations such as the national park, spectacular seascapes, etc) and environmental (don't locate them where they would affect bird migratory routes, critical habitats, etc.). While wind farms are especially noticeable because they're relatively new on the scene, people will adjust to their presence with time and they'll become part of the landscape - much like the fixed link to New Brunswick has apparently become.

we are from the states and have a house in pei, you might want to advertise more in new england, especially about how warm the water is and the number of golf courses. Be back for 2 weeks in sept.

Ruining the view depends on placement. If it's blocking a shore line sure, that's not what tourists want to see. If it's in the middle of a hay field in the interior, it would actually add interest to that site rather than detract from it.

I am not well versed on the subject, nor am I familiar with the economics and politics of PEI. Most of my answers have been guesses, with no real basis to support my answers. I do believe that wind power, along with solar power and other forms of non-polluting alternative forms of energy are what is needed in the future to offset current energy production which is having a detrimental effect on our environment.

With the price of gasoline recently (everywhere!) ... any location (state or city or country) that has windy areas SHOULD take advantage of that wind rather than using any more gasoline than needed! You're not giving money away - but investing it on a never-ending energy source. Just by the mere fact that you are an island ... things are more expensive to bring to the island ... why not have the wind power to cut down your need to buy/use gasoline products and have the ability to sell any excess wind power/electricity you don't need. - - I live in Minnesota and I know how expensive it was to heat my house last winter, and they keep telling us that this winter will be even more expensive. I know Canada has some oil - but the world is hungering for it, even if you have the 'ability' to use all you'd like ... why do that when you have other alternatives - that won't run out. You don't need to put up wind farms ALL over the island ... put them where there's the most wind. PEI is SO beautiful and 'home-like' ... that if the wind farms were 'grouped' (not scattered out through the entire island) - you could get enough electricity/wind and STILL have areas without the wind farms. I've never been to PEI in the winter - but I can imagine the wind can be brutal ... why not use it rather than just endure it!!

We loved PEI and found the wind farms to be one of the memorable things about the island. They were beautiful to us and we thought PEI was very smart to have them. If other sources of power are completed exhausted, others will be flocking to PEI to learn from your noble experiment.

Go "Green" leave the earth in a better state for our Grandbabes! Wind turbines are definitely a cleaner approach and more economical.

I saw many wind 'farms' while on a road trip in the United States, particularly in Texas and Montana. These turbines were in very open range landscape, away from any populated areas. They were not unattractive, and they bring a lot of income to the ranchers on whose land they are situated.

okay with me

Wish our NB government was as proactive on wind energy.

How about Wave power?

"I don't know what other provinces are doing with ""a green energy movement"" but I strongly agree that wind farms are an asset.

How many wind farms would it take to provide PEI with all it's electrical needs - is that feasible?"

Given PEI's geographic location and the almost constant winds relative to the proximity of the ocean, wind farms are a natural source of hydro production for the area. The only other source would be nuclear and that has its own drawbacks.

Wind turbines are one way of the future in producing electricity. At present, as seen in Alberta and some of the western US, they are still not economically feasible, they still cost more to run than coal and oil/gas fired generators (however are much cleaner to the environment). The other factor is migratory birds. Unfortunately, vast numbers of migratory are destroyed because the wind turbines are placed at the most optimum locations which are on most migratory routes. The same happens to flocks that utilize those same wind currents on their daily feeding paths. Also, they are noisy (unearthly moan/groan). Try sleeping within 5 kms of them (experienced this in Alberta and Golan Heights, Israeli occupied Syria). PEI and all the provinces should be also pushing solar electricity - much more user friendly and cost effective.

I think that wind farms would help with environmental sustainability, would help the province "earn" the tagline on its license plates, and should be placed in areas away from housing (noise) and classic views.

Personally, wind farms would greatly discourage me from visiting PEI. and How can you call yourselves "green" when your grounds "green" is still so chemically dependent? Work on REDUCTIONS....People aren't stupid, they will take actions if lead that way. Make is socially unacceptable to use cars so mcuh, to IDLE so much (I see it very prevalently all over PEI); ETC. Spend funds to support individual homes & businesses in energy strategies! Much more bang for the buck with true, life-value changing effects.

I really see no disadvantage to wind farm, and many advantages. They are not unattractive.

Europe has many wind farms in operation. Most are in coastal regions where there is sufficient on shore winds to make the farms viable.

I think they are lovely and add to the attraction of the Island

If these wind turbines or wind farms can generate electricity as proposed then why not use them for such purpose. Some wind turbines or wind farms do generate a very low humming noise but nothing that would greatly disturb an individual's way of life. The appearance of a wind farm is all subjective. To one it might be a pleasant sight while to others it might be considered an eye sore. Some might like it (considering its purpose) and again others might not.

I wish NS had more

I am in agreement with the use of this form of energy gathering. They are the best use of resources that are on the Island. Wind is here use it.

I appreciate the use of wind farms as a source of green energy, but feel they negatively impact the scenery and I worry about the environmental impact of windfarms on birds and wildlife
If you have wind why not use it?

"The concept of wind farms is a realistic approach. I would think there is a finite number of turbines you might wish to place PEI in order to preserve the pastoral beauty of the island and also the life style of the people.

Wind farms should be build for well thought out endeavors, not just as a money maker for the corporations, nor should they infringe on the islanders ability to make decisions that impact their lives."

I think its wonderful that we are using something that is constantly occuring in nature and does not deplete resources or damage the land to get at it.

good move

My wife and I were told most of the generated electricity was sold to off Island interests. If this is true, ppower P.E.I. first, sell the excess.

PEI should be able to utilize all of it's land and water space for wind power production now instead of later on when it becomes clear that fossil fuels are severely depleted.

While I did not see the windmills in PEI I did tour the ones in CapChat Gaspe, I think they are beautiful as well as a torisst site. We need to stop depending on fossil fuel and begin generating electricty using natural means that will not harm the air we breathe. For example the Niagara Falls in Ontario, I am sure there are other natural ways to generate electricity. Hurray to PEI for leading the way

My then three year old still talks about the big fans he saw by the ocean. They made a big impression on him!

wind turbines are becoming the future a never ending power source

"If wind farms are a poor use of agricultural land then Alberta Oil Sand is now and will be forever in trouble. It is part of the real world today!"

"We deliberately went to look at the tubines and stopped to check the noise level as we are getting a wind farm near us. They are no more noisy (and probably quieter) then living in any city which has traffic. It just becomes background noise. They are much more attractive than an open pit coal mine or a factory. I'd like to see solar panels on all homes as well. Wind turbines are ""different"" now but they will become normal as the telephone pole is now,."

I think humanity as a whole should escalate a movement towards more renewable resources

KEEP OP THE GOOD WORK IN PIONEERING THIS WONDERFUL USE OF OUR NATURAL RESOURCES. THE WIND IS ALWAYS BLOWING ON THE ISLAND SO IT IS JUST A GREAT SOURCE OF CLEAN ENERGY FOR YOUR LITTLE PIECE OF PARADISE.

It's a good plan, an saving energy too

I think it is a great idea. I live in Iowa which is has the second highest number of wind turbines in the U.S. Very little agricultural land is lost; You can farm right up next to them. They are beautiful to see in action. They can be a tourist attraction for those who have never seen them, but don't just give people a map of where to find them. Set up an interpretative center nearby where people can learn about the benefits of wind energy. Also show some comparisons of the size of the blades and nacelles to known objects so people can appreciate how large a single generation tower and turbine is. Educate visitors as to how many barrels of oil each turbine can save.

We have seen some wind farms on PEI during our travels and think they are very attractive. I feel your questions regarding what type of energy generation and how much I am willing to pay for such in my own province are irrelevant.

As long as land use can be continued under wind farms and that the latest technology is used for wind farms and that you have community support, I am full support of wind farms right across the whole country where applicable. PEI can lead the way. I live in BC and they tout themselves are being green but I feel that both BC and Alberta are amongst the least green provinces in Canada.

I dont know much about them

As I said earlier, be careful not to deliver permits to companies that do not take the community needs into account. Also, please preserve the magnificent beaches and shores. Apart from that, way to go, PEI!

I THINK THIS IS AN EXAMPLE THE REST OF CANADA SHOULD BE FOLLOWING

Definitely puts PEI ahead of the rest of Canada when it comes to being proactive with necessary change.

Great work! Nice to see someone taking the first steps toward clean energy!

I do not like wind farms. If they could be designed more to fit into the landscape, painted green or brown, or blue, to fit more into the landscape maybe. But, I hate them. Holland has windmills, and they've made an effort to make them look attractive. No such luck here. There is no imagination in the design of these monstrocites. I imagine that they are likely effective, but as for personal preference, if I knew that a place I wanted to spend a few weeks had them, I would not be going.

I want to visit this year

"I have no knowledge of wind turbines, their use or effectiveness this seems an odd topic for a random survey"

We first visited the government experimental farm in Tignish 10 years ago and we fascinated by the different varieties shown. While I was originally not impressed by the size and what I saw as a visual blight, my husband is an electrician who is very keen on different sources of power. He seeks out wind farms and finds them beautiful. A close friend in Vermont is part of an association to ban wind farms there as he feels they destroy the beauty of Vermont. Since I have asthma and live in Toronto where there are many smog alert days, I am tending to accept wind turbines as a symbol that will allow me to breathe more freely. In Buffalo they have placed wind turbines on the old site of Bethlehem

Steel and that seems to be a wise use of land. Please, please, do not place them in the water as Ontario is contemplating doing in the Great Lakes.

As a resident of the province of Quebec, hydro in this province is very expensive and will be the 6th time in 3 years that they increase their cost. They are presently looking into wind power now. Having relatives in PEI, I intend to question their feelings on wind turbines, but from my perspective as an out of province person, if this power can be harnessed and become a viable, affordable and environmental friendly method for electricity then I am in favor. As for the appearance of the wind turbines, they are not exactly attractive in appearance but neither are poles, wires and towers and do have an unusual appearance. Haven't had a chance yet to visit a wind farm but hope to in the future.

I think they look great and they should be used more in the rest of Canada

Go Green...!!!!!!

I've seen them in the Orkney Islands, off the northern tip of Scotland, and I think they add to the scenery.

"It will take time for people to understand there are trade-offs for the use of alternative power sources. We saw hundreds of wind-farms (and solar) during an extended trip to Germany in 2006, and once we got used to them it was fine. They are not attractive, but a novelty at first. Then you realize it's far better than having coal or oil smog coming from fossil-fueled plants."

Good for you, I didn't know you had that many wind farms, I wish Nova Scotia would get their act together, we got lots of wind here too!!!!

no comments

It demonstrates a commitment to progressive ideas to solve the energy crisis.

I would suggest that incorporating the use of wind farms into PEI's efforts to promote tourism would have a positive effect. I am very happy to have participated in this survey. There was one question (13) where I felt uncomfortable in supplying an answer as it requested policy-level input regarding PEI's use of wind turbines. I fully support the use of alternative energy sources; however, I do not think it is my place as a tourist visitor to PEI to suggest what the province's energy policy should be. I do praise the good work just the same.

I think they're great, but more work can be done on the technology end to make them quieter and more efficient. I believe that time and experience will see that happen.
good for PEI I applaud

Keep up the good work!

The wind farms we saw on PEI only add to the beautiful island

I favor the use of wind turbines or wind farm wherever they are economically viable.

Personally I don't think the wind farms detract at all from the landscape. I'd like to see however lesser expensive rates for the wind generated electricity.

"I think that every province should be developing wind power as much as possible, taking care to assure that farmland is still usable.

As far as being ""The Green Province"" I would have agreed completely except for the recent change in the laws regarding plastic pop bottles. I used to hope that other provinces would follow PEI's example and go back to refillable glass, and was very disappointed to hear about that change."

I saw the wind farms of California fifteen years ago, they are huge compared to what we are looking at here. Alberta's windfarms are also very large. If it is possible to develop on rural areas and not adversely affect the communities, kept the noise down, I am all for them. However I am not sure that all the power that is generated is actually used / sold to PEI residents. My bet is that the power from the 65 or so windturbines is not used completely on PEI. Keep it in PEI and save the residents more money. Power Bills are too high now , price per K/watt is higher than neighboring provinces. seen wind farm in florida and they do not take up much land.....good luck
Best locatd in remote areas.

bravo

Conventional power plants still need to run all the time to pick up the load when the wind doesn't blow. Conventional power plants need several hours if not days to get up to speed.

I think it's great. My husband and I were thinking of getting a wind turbine ourselves. Sets a good example for the rest of Canada

good job

great

There are major radio spectrum issues that involve interference with Air Traffic Control radars that need to be dealt with prior to full scale development of wind farms

This is a dumb survey. Visitors to the Island cannot and should not comment on the percentage of electricity which should be generated - how would we know? And, the local population should be deciding what the government invests in. Dumb survey.

Wind farms/going green is viewed (my opinion) as a cover for the nitrate running into the rivers from the farm fields. who cares were you get the electric from when the rivers are all dead!!!!

The North Cape was the first time i have been to a wind farm.And we found it very interesting. No noise and it didn,t ruin the landscape.Also the visitors centre was interesting.We will go again.and it was a beautiful drive to the north cape.

We know they are efficiient but do not know very much about wind farms to date....we need a lot more information to understand and appreciate the wind farms.

Énergie verte et aussi à la portée de toutes les petites municipalités disposant de vitesse de vent adéquat.

"Since I don't know much about their rate of efficiency I can only comment on their esthetic properties (they have a certain elegance) and the philosophical aspect of using an easily accessed resource. It is nice to see some. I don't think I would enjoy seeing them everywhere I turn however."

get at it. I have land I'd love to put wind generators on. Point Prim

Our experience of coming upon the wind farm near East Point was it was an awesome engineering project, the size of turbines was surprising... I thought it should be a tourist destination... I would have enjoyed a tour of the farm, learning more, getting details of the project, size of turbines etc... I was surprised there wasn't an advertised information centre, point of interest advertised on the coastal road... maybe there was one, but it wasn't well advertised or marked... at least we missed any info about such a info. ctr... would be a tourist destination I would have been interested in visiting. Let me know if there are info. centers at PEI wind farms, and I will visit next time I'm on the Island... Mel (Edmonton, AB)

I was disappointed to run out of time before we were able to visit PEI's wind farms during my time there this spring. I look forward to visiting them my next time there. One of the things I and my family took away from our visit was that PEI is a model of living green. PEI's wind farms serve to confirm that belief for me.

We found it to be an attractive addition to the landscape and it shows the world that PEI is actively working to become a greener province.

i think that there should be development for small personal wind turbines for individual people to buy and use themselves as well as the big turbines, we should all be able to own this new technology

I really enjoyed visiting the wind research project at North Cape. My nephew is in graduate school studying wind and solar energy as an engineer and we have great discussions about it. I think they are a great resource. I saw a program on television that was about a newer windmill that appears to be less noisy and more efficient. Maybe PEI should investigate these other styles, too. I applaud the forward-thinking approach that PEI is taking.

I live in Alberta where the use of turbines is quite extensive in the southern part of the province. In my opinion they do not add beauty to the areas in which they are used but I feel that they will, in time, become accepted as a viable, non polluting, and necessary alternative to the fossil fuel now in use. I think, (and hope), that this will be the case on the Island, indeed, the rest of Canada, as well.

"I think it is a great idea to combine land usage-potato farms with wind farms. when you ask if the gvt should subsidize it-I hope that the people should benefit from subsidies and not companies."

Kepp up the good work !

i think it is geat and they are not ugly to look at.

I visited the Wind Energy Interpretive Centre and very much enjoyed it and found it informative. I also enjoy the Black Marsh Nature Trail and the up close look at the wind turbins.

i think having wind turbines is a great use of the wind. Which we all know PEI is known to be always a windy place. Great Job!!!

forward thinking and very progressive.

"As cited earlier...I was to North Cape and was impressed with them all there, it was only driving along the countryside that it really hit home to me that they are an eyesore, but we don't seem to be decreasing our consumption of fossil fuel so the energy has to come from somewhere.

On a plus side, the people I was travelling with were from Ontario and they (5) were all impressed with the cleanliness of the island, the beautiful roads, the scenery and most of all, the warmth of the ""Islanders"". Pls pass along (we stayed at Malpeque Cove Cottages) and everyone was most friendly."

Not too familiar with wind farms but would definitely consider visiting {touring }one on my next visit. Wind turbines or wind farms, Like I said earlier, It is very interesting to know more about the kind of economic energy hope it will come to New Brunswick soon. I always be an environment and nature lover. Thank you

Go for it , if it can help the environment and reduce electricity cost

WE ARE JUST GETTING INTO WIND USE IN NEWFOUNDLAND. QUESTION WE WERE IMPRESSED BY HOW WELL LAWNS WERE KEPT CUT BY HOME OWNERS AND BUSINESS DO YOU ASK PEOPLE TO KEEP THEIR PROPERTY UP TO PAR. YOU SHOULD BE ALL PROUD.

"Viewing the wind farms was on our agenda while on vacation in PEI. It was our 2nd trip to the province and our 2nd time seeing the wind farms. The wind farms are ""cool"". I only wish we had them in Newfoundland (there is so much wind not being put to good use).

If I were to visit PEI again, another trip to North Cape would definitely be on the agenda. During this visit to North Cape we went into the information centre and reviewed the information on wind turbines and generation of energy from the wind. It was very informative and we learned a great deal. I think this information should be emphasized more and/or better promoted - I just happened to ask a clerk what was inside. The blue lobster attracted the kids but then they, too, learned a great deal more while we toured the information centre. I don't recall seeing much in the tourist information about wind energy or the wind farms and visited the area again because I enjoyed it the last time I was there and wanted the rest of the family to see the wind farm.

The wind turbines/wind farms did not negatively affect the view or our trip. We enjoyed seeing them.

Congratulations on using such a resource."

"I am not educated enough about the wind farms to really know how they affect people living nearby. They are not all that attractive, but are a much nicer sight than smoke stacks belching out tons of smoke as with conventional methods. These renewable resources are the way of the future and must be looked at immediately and very seriously. I congratulate PEI on being so forward thinking and looking to new ways to provide energy to its people. A beautiful Island.

On a footnote, I live along the Bay of Fundy in NS, where the highest tides in the world could be harnessed for power...as long as the balance of nature does not suffer. The effects on the ecosystem must be considered. Having said that, look at the damage we have caused world wide with the burning of fossil fuels. What a complicated subject."

"Thank you for starting, and proving, the use of wind turbines

It proves PEI is thinking of the future and is smarter than most"

I am and have been a proponent of wind energy for many years. I have toured parts of Europe that utilize wind farms to a great extent. I believe they are beautiful to behold, especially when you consider that they do not contribute to the continual pollution of our planet.

I don't see anything wrong with the wind farms, but I can't really comment about the noise because I've never been around them enough to comment on it. For houses around them it may be a noise problem with the constant motion.

I think its great that PEI is taking the initiative for creating wind farms, we need to find other ways to produce electricity, so we have to start somewhere!

"I think wind turbines are a very good plan of action but I strongly lean towards nuclear power and EDUCATION by government so that the general public has an honest and clear view of the safety involved in nuclear power.

Unless storage of electrical power can be drastically improved in the use of wind farms and solar power I will probably not change my mind.

I do though sincerely hope that PEI's endeavours are successfull."

green energy solutions should be encouraged.

Wind farms are extremely important, however they take up a lot of space. I have seen efforts in the UK to house the wind farms offshore. Perhaps PEI should think about this as an alternative, especially since so much of your land is being eroded.

As a tourist this is not an important issue to me - I feel this is a matter for the residents of PEI.

We are newcomers in the field of wind generated power. This has been a widely used process in Europe and elsewhere. I would recommend more use of natural resourcesxx (wind and water) for the generation of electricity.

Great job and there should be more provinces like PEI

"I THINK P.E.I. SHOULD BE A LEADER, AN EXAMPLE FOR THE REST OF CANADA AND THE WORLD. DOING SO P.E.I. WOULD BE KNOWN BY THE WORLD AND WOULD BE HELD WITH GREAT RESPECT. IT WOULD BRING ECONOMIC GROWTH TO THE ISLAND, IT IS A WIN WIN SITUATION. THANK YOU"

it's really frickin' windy on the island, so I say use it to your best advantage!!!!

"we need to find more way to help out to keep cost down for all the gas prices are going to far so we need to step up to the plate and have wind farm,ethol,and solor."
they will make wind used geat for pei

I am impressed with this idea. We saw only 1 in our travels this summer, and I am pleasantly surprised that you have so many. It is a very intelligent use of nature. Your electricity must be quite expensive since you rely on New Brunswick so much. Smart folks running your little Province. they seem to be necessary in order to have a clean and renewable energy source. I feel that Wind Farms are of a great purpose to the economy. It should be a cheaper to use electricity..

way to go pei as a green province you rock!!!!!!!!!! I would move there because of it!!!!!!!!!!

Cape North is a great place to visit. We go every year and especially enjoy the restaurant there.

The wind farms at North Cape are perfectly located .. lots of wind and minimal population. I would not like to live too close .. the constant hum might be hard on the nerves .. but I'd like Canada to be less reliant on oil supplies both because of the cost and the pollution created. I've travelled coast to coast .. and there is no shortage of empty space in Canada .. and no shortage of wind.

"I very strongly feel that the historical and natural attractiveness of PEI's rural scenery is being destroyed with the rapid expansion of these so-called ""wind farms"".

I also cannot understand what PEI's government is thinking with regard to the transmission lines that pass through communities. I don't think that this will be an asset to PEI in terms of its tourism industry. People don't travel to PEI to see wind turbines. Many people travel to PEI to enjoy the landscape. The view is not improved with these turbines. Most of the power generated, as I understand it, will be exported and the companies owning the turbines are European. Just where is the benefit to Prince Edward Island? I think those making the decisions are making colossal errors and I, for one, am re-thinking the amount of time I will choose to spend on PEI in the future."

It is time to rethink where we get our energy from. The wind is a source that is always there, always renewed. Let's use what God has given us.

I wholly endorse PEI's efforts in becoming more "green friendly".

create more. fund development of solar

I feel that I do not have enough knowledge on this subject to be able to properly answer

The first time I ever saw a wind farm was on PEI a few years ago. I was fascinated and thought the Island very progressive. Wondered why the rest of Canada hadn't followed suit. Since then, I've seen them in the UK. Toronto has one - how ridiculous can that be?

"I think that they should be promoted as the wind mills in Holland where they are scenic, relaxing sound etc

Near Goderich Ontario, should be aware of native land claimns"

terrific option for generating electricity

Glad to see you using them. The wind has a lot of power and since the wind is free, why not use it to our benefit. I hope other provinces start using them. I know they are costly to get started but that cost will be recovered in the long run.& I feel we will be saving the earths resources.

North Cape installation is very impressive

Excellent idea to generate power with less pollution

wind farms located in areas prone to winds are good. They should not intrude into any truly scenic area= photos with wind mills take from the photo opportunity but on their own wind farms do present photo opportunities. petroleum had a limited life and every effort should be made to find alternatives

I visit PEI each year for its friendly people, awesome landscape, excellent beaches, relaxing atmosphere and now I can add to that, the fact that I am proud that PEI is in the forefront demonstrating to the rest of the country what can be done through a concerted effort and with the well being of our climate in mind.

I look forward to visiting one.

move them off shore would be more attractive to the island

"They are like telephone poles -- after a while you don't ""see"" them anymore. I have seen large numbers of turbines in Quebec (along the St. Lawrence) and outside of Palm Springs, CA.

I understand that currently PEI only gets about 5% of its electricity from the turbines. It has to be at least 20% to become more than a curiosity or experiment. Perhaps I am wrong about these statistics."

It was interesting to see and certainly the idea is a good one. Whether or not it fits in with daily life, I do not know.

go for it

I think my bottom line is: I support wind farms, like the look, but please don't put them right beside my property.

I have not seen the wind farms but feel this is a very progressive movement and environmentally responsible

I personally don't like the look of them.

I think this is a wonderful initiative the PEI government has taken. If only other provinces would use more eco-friendly renewable resources.

We visited the North Cape during one of our trips to PEI. We found the information centre to be very educational and interesting. I think that anyone who doesn't invest in wind energy now is being totally irresponsible. I applaud the province of PEI for doing such a great job.

we will be sure to visit some wind turbines next summer

We usually visit North Cape when in PEI, and were surprised this year that the "egg beaters" were gone. We were looking forward to showing these to our son. We were however presently surprised by the number of wind turbines and noted that other provinces should do the same.

No comments at this time.

I think wind farms are fantastic. I grew up in Southern California and our area had a large wind farm. I think it's great that PEI is being so proactive. There are too many grouped together and thus helping to cause the devaluation of the local property values. Thank you Conservatives

They can be used to teach students and adults about electricity, and the savings involved. They are not NOISY, and not harmful to the environment. They are not unsightly and no smoke or steam in the air. We saw a big wind farm in New York and it did not distract from the scenery at all. We are all for them.

if it means paying less on electricity bill i am in favor of it

It is a wonderful way to generate electricity without pollution and I would encourage more of them. I do not have enough information or knowledge to answer questions on PEI and wind farms that you have asked. Some of these questions are not for tourists and lay people.

I haven't seen the wind turbines but my family has just returned from PEI. I am going to PEI in September and are planning to hopefully go see them. PEI is not only the gentle island its also a green one too!

I strongly agree with wind farms. We made a special trip to North Cape just to see them I'm sorry I could not comment on the percentage of your survey. I don't understand enough about percentage.

i think the other provinces should follow suit

will take too long my english is so-so

PEI, if practicable..will be able to provide completely sustainable energy through industrial leadership in the 21st century. Your location guarantees this. What this requires is the participation of government and the population to promote success. Keep private enterprise out of the equation.

Way to go, but keep an eye on the tide power plants!

Wind power is still developing as a solid energy source, and government should be in the forefront, aiding the development.

"I do appreciate the wind turbines and I look forward to seeing them when I do visit PEI; however, I feel some of these questions should be answered by the local people that live in the area and that it is apart of their lives. As I am only a temporary staying there as they live there all year. Thank-you and hope that this does help. As I always look forward to relaxing PEI:)"

Your questions did not provide enough background info to fairly answer some of the questions. I agree with the intent of this survey, just not info on the present situation in PEI to be objective. Thanks

All energy production systems have positives and negatives. Wind turbines or farms, although initially a costly investment, will pay off in the long term as it is sustainable and, unlike oil or gas, is not as vulnerable to global price fluctuations.

I do not have any technical knowledge of the working of wind turbines, or how they relate to PEI's environment or people

Is better to live and visit in a place free of pollution.

I watch CBC Compass New in the US. I am very concerned that most of the new wind farms are privately owned and the electricity generated is going off island (New England). How much are the residents of PEI receiving from the revenue generated? It seems like the PEI government gives too many tax breaks to corporations without a good return to the PEI tax holders. RE: Ocean Choice.

I would like to learn more about PEI's wind program. I have seen extensive wind turbines in northern Europe and apparently, they are very inefficient and the turbines seem to break down a lot. I think that here in PEI, where there seems to be a constant wind, the wind turbines would be more efficient. Not to confuse things, but has wave power been considered?

I like to see the wind farms. It makes me know that people are trying to use alternative, cleaner sources of energy.

"I think wind farms are needed and a good alternative to fossil fuels. It is important to place them in areas that primarily agriculture and away from homes and tourist areas."

I should know more about wind farms

Given that PEI is an island, any development that makes PEI more independent and cost-efficient is a good thing.

As an evolving technology, I feel it is especially important to devote time and money for researching ways to use alternative energy resources. As a whole, the parts of Canada I have visited (PEI, Nova Scotia, and British Columbia) seem to be very cognizant of the preserving the environment and the minimizing the footprints human actions leave behind. I applaud efforts taken to learn more about renewable energy resources, and hope that one day my country, the United States, will start paying attention to the efforts taken by Canada.

I think wind farms are an excellent way to generate electricity. I have no problem with the way they look, in fact, I was thrilled to see the enormous wind farms in the area north of Palm Springs, California, when I visited there. I would love to have one in my yard, neighborhood or town. I live on Cape Cod and we are in a great political debate about the construction of a wind farm in the middle of Nantucket Sound. I am strongly in favor of its construction

I think the wind farms are beautiful to look at. They are fascinating, and I do not recall hearing much noise from the wind farm up in North Cape. The arguments people put up (here in Maine) about the wind farms making TOO MUCH NOISE, don't seem to hold in my opinion.

I think it is great that PEI is using a natural resource to provide energy! Way to go!

"My daughter and I thought they were wonderful at North Cape and were AMAZED at their size. We did not feel that they detracted from the area in the least. I do not know about their efficiency as compared to conventional methods, but perhaps if they were combined with other methods such as hydro or the new ""Pickins"" use of algae, that would be good. Though, I am not from Canada and feel that I should have little say in what your country does. Your folks should decide. You do need to

know that I, personally (and most every person I know) believes that Global Warming is a big farce. To find cleaner ways to bring energy solutions forward from our own country, is goal enough for me. You have a very lovely part of the earth to call home. We hope to visit again." Great idea and I encourage more use. I just wish that the political and regulatorial climate in my State (Michigan) was as attractive and proactive.

Thank you for the opportunity to contribute to the survey.

"I visited North Cape particularly because I was interested in learning more about wind energy. I think that it is a terrific tourist attraction and that the museum there is very well done (as, incidentally, is the restaurant). I think that visiting the wind farm should be promoted as much as possible, because it really does give visitors a better idea of the pros and cons of wind energy.

Regarding the "attractiveness" of turbines, at first they are definitely striking, but I do think there is something almost stately about, and I would be proud to have such an item near my house, because I am more concerned about being environmentally responsible than worried about what a wind turbine might look like. I think eventually they will grow on people."

Some one is not thinking clearly if they think wind farms are the answer. I've seen them in my state and across large stretches of other states. They are just a bad idea in my opinion.

wind turbines are the future of man king

It is one of the future energy ways to generate electricity

Wind farms should be located in non attractive zone to eventually revitalize those area by having schedule tourism tours

I live in Quebec but my son lives in Montague. Every time we go to PEI we notice that there seems to be much more wind on the island than where we live, therefore, wind turbines seem to me like a very good idea.

you should put wind farm were the land is not been use.

Your an example for the rest of the provinces. Here in the province of Québec, we try to put pressure to encourage such action. People need more information but were are seeing more components as 500-1000 watts be installed for domestic uses. People are beginning to understand the urgencies of energy saving.

Keep up the good work

I don't know very much about them, all I hear in Kingston is that they are efficient and the people don't mind them.

Nil

THE WIND TURBINES ARE A GREAT SOURCE OF ENERGY, BUT THERE SHOULD BE A BACK UP OF ALTERNATIVE ENERGY. I BELEIVE PEI HAS SET THE STANDARD IN WIND FARMS AND HOUSEHOLD GARBAGE SEPARATION.WE LOVED THE VISIT AND WILL BE BACK.

away from community and the local farmers wind turbined can generate a new source of power. They have already have been recorded to cause noise and physical and mental health problems when improperly located

I am in favor of any movement/plan that helps the environment.

I think they are a great idea, however I know people who live there say they are noisy, however I don't find they are at all.

great idea.

Good luck with it, as a coastal province there is usually no shortage of Wind. It is free and clean. You are going in the right direction.

"PEI is such a beautiful province. People need energy at a fair price. Fossil-based fuels are not an option any more except if absolutely necessary. (e.g. if there are no other reasonable way available to develop energy.) PEI needs to use wind turbines or wind farms : let's just hope that what prevails in their development is the good of the people and not the enrichment of a few."

I would like to see more use for wind farms on the island

I know nothing re this topic. I don't find it relevant to my vacation

wind farms are easier on the eyes and lungs than coal or oil burning power plants, and are one of the few options PEI has for producing its own energy.

PEI should invest in solar as well. Also check out VAWTs for wind power as well

Over the last 10 years my job has enabled me to travel extensively and see wind farms in other areas of North America and around the globe. I believe wind turbines are not an eye sore but in fact add beauty to the landscape. They point to a community that cares about sustainability and a future for their children. How can this not be looked at positively? I may live in the US now, but PEI will always be my home and I believe wind energy is something we "as Islanders" should embrace.

Generating power using a natural resource that is endless and creates no environmental impact is the way to go - keep up the great work of developing this source of energy.

I only made a brief visit to PEI. I was very favourably impressed with the general neatness of the countryside compared to the more wilderness type of surroundings where I currently live.

I do believe that you are asking questions that the average person and one not living in PEI is not qualified to answer.

Wind is good

Think wind farms are great! Any kind of renewable energy we should be taking advantage of.

Thoroughly enjoyed-clean/friendly/good food, lots to see and do

Enjoying stay. Learning a lot of history, don't get that in the States.

Very interesting spot.

A bold, positive step. Going to go check them out. Cheaper than buying energy from New Brunswick.

PEI is beautiful. Wind farms are beautiful, liked that they are spaced apart.

We've got to figure out how to create new sources of energy. It's natural, and we're not hurting the environment. They're expensive, but the more we develop them, the more the cost will go down.

Having a great trip, very relaxing

Have a great time on PEI, keep coming back.

I think it's a good way to go. Renewable.

People who live near them should be consulted before the construction of wind farms.

PEI led the way initially with wind turbines, had them before anyone else. Would like to think New Brunswick will catch up.

Beautiful country. Would come back.

Great visit so far. Good luck with energy conservation.

This survey was a little too long!

So far I like what I see!

A welcome sight. I find them pretty. Some people have miniature ones on their front lawns. When I know what they're giving us, I find them even prettier. In PEI you are *far* ahead of us in Vermont. We are also blessed with wind - but our governor is anti (pity). He also allowed a Canadian corp to buy the dams on the Connecticut and Westfield Rivers. We should have bought them (pathetic). Keep up the good work, I'll be back.

Having a great trip on the Island.

Wish there was better weather

- Wind would be beneficial and cause it free - Put in ocean

St. Lawrence are currently installing 9 wind turbines in our community.

Not a well-designed survey for visitors.

If you have these farms perhaps you should require some landscaping as a mandate for approval for installation. Make it as pretty as possible.

I've visited the center twice in North Cape and I find it impressive. I hope NL follows PEI's example and looks into this energy source.

-Poorly worded questions -mutimulated questions; produce particular results.

- Great Island - Love the thought of turbines.

- Enjoy the Island

The lawns in PEI are incredibly green. I am hoping that no pesticides or other chemicals are roatinely used in order to accomplish this.

When we visited North Cape there was an annoying buzz. I have coners about bird migration routes and defromagnetism fields.

I visited North Cape in part to see the wind farm as I have never seen one before. I find them a little noisy when one is up close.

Should promote it more (wind farms)

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

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Public Acceptance Study : One Year Post-construction

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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.

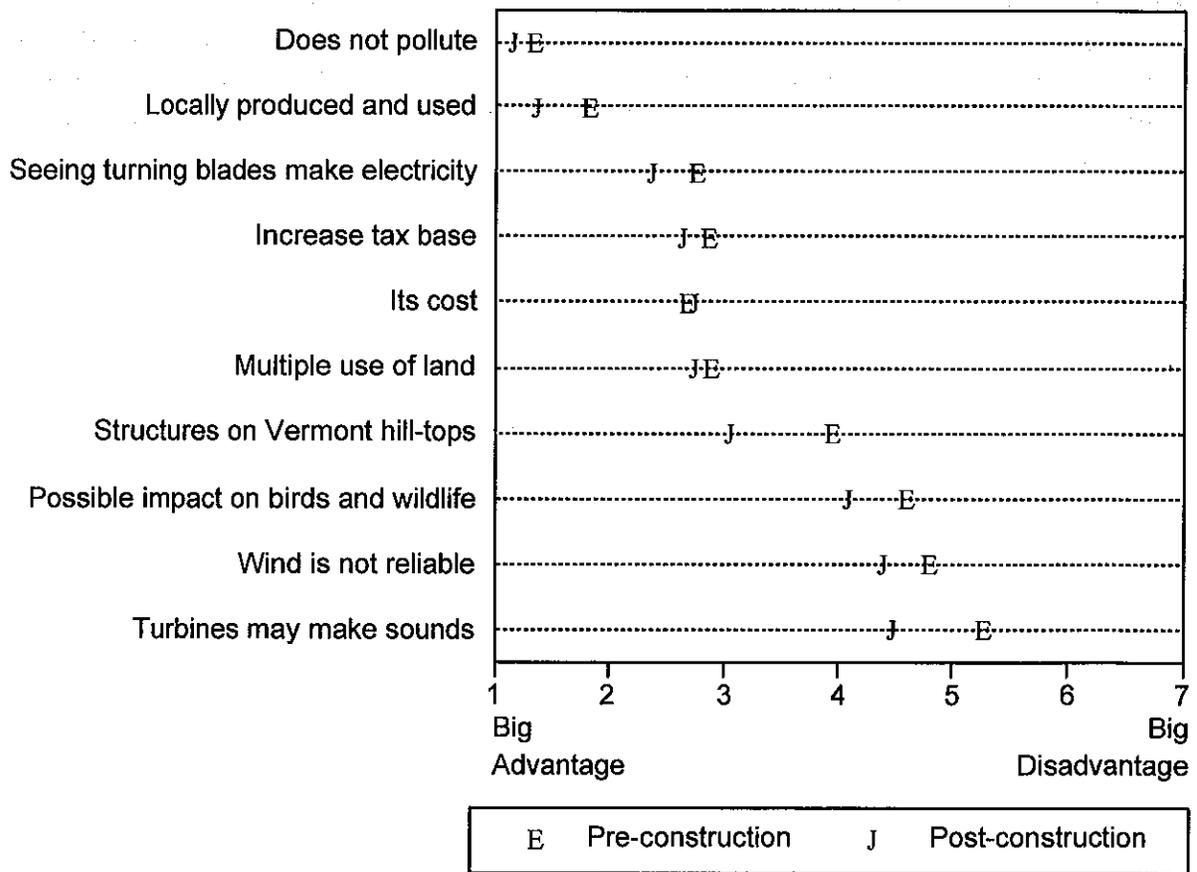


Figure 1. Comparison of ratings made pre- and post-construction of statements about wind power plants.

Support for the Searsburg Wind Power Project

Respondents were asked four questions in 1996 and 1997 to gage 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.

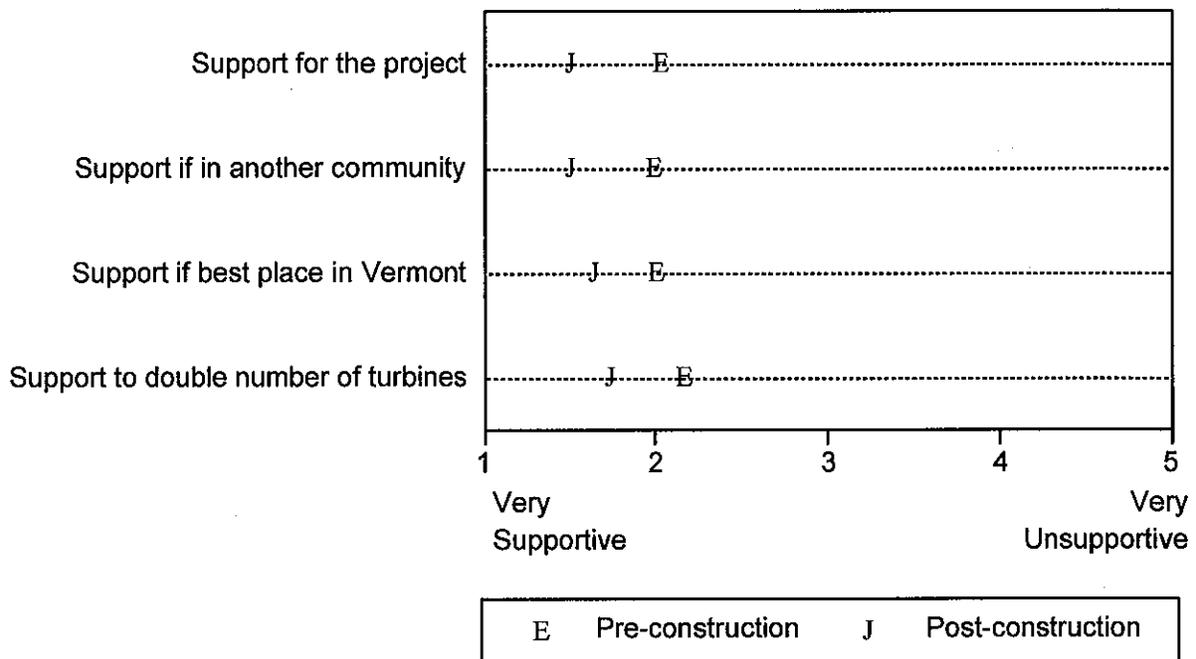


Figure 2. Comparison of ratings made pre- and post-construction of support for Searsburg Wind Power Project.

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."

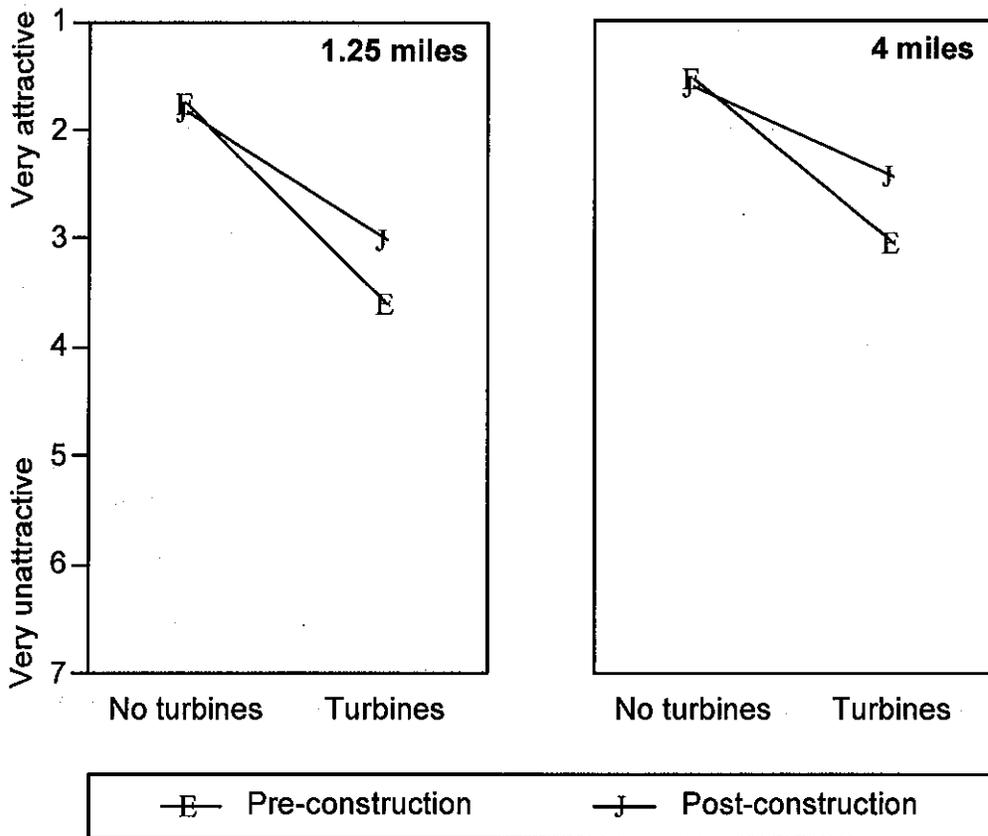


Figure 3. Comparison of ratings made pre- and post-construction of the Searsburg Wind Power Project with and without the wind turbines.

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.

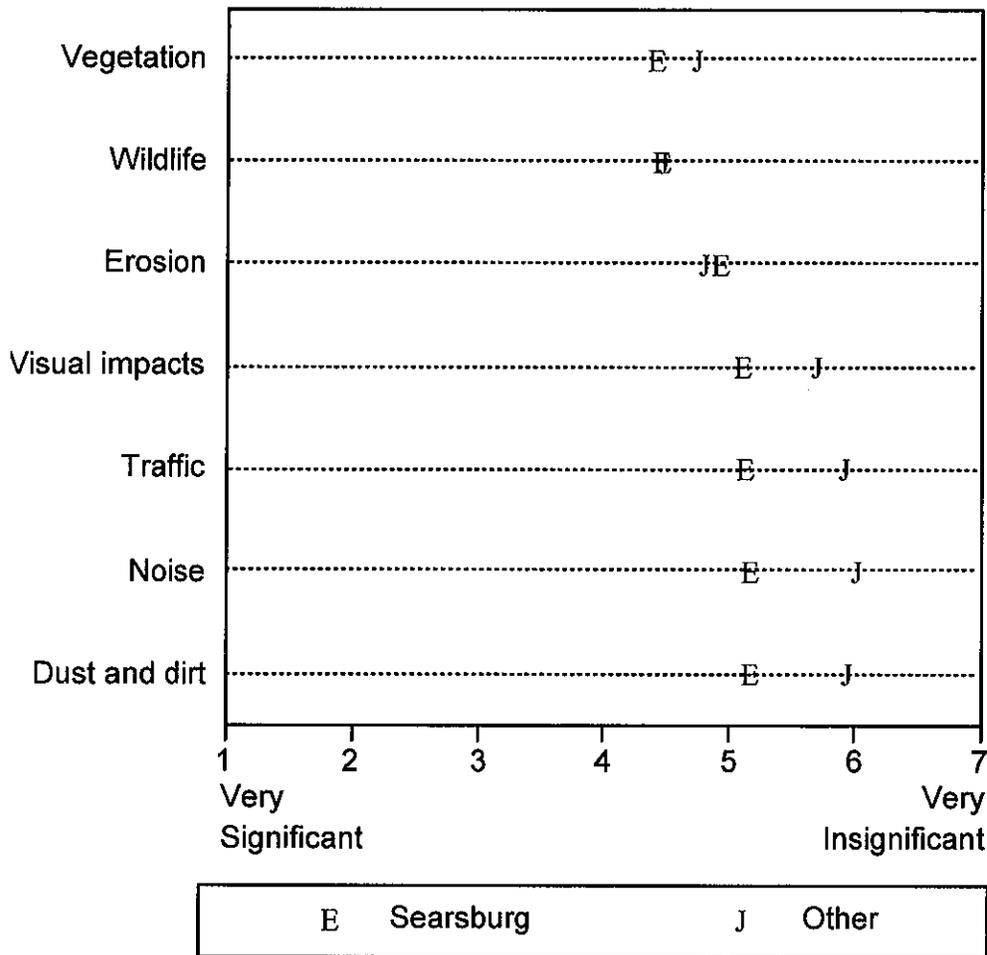


Figure 4. Comparison of ratings made by Searsburg and other respondents of the impacts related to construction of the Searsburg Wind Power Project.

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.

Public Acceptance Study : Year One Post-construction

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
Gender:	Male	61.9
	Female	38.1
Age:	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 gage 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	Uncsure	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 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	
Summer: 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
Winter: 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 ($X^2 = 2.95, p = 0.566, df = 4$).

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."

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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 investigate 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
Gender:	Male	64.7	61.9
	Female	35.3	38.1
Age:	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

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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 a 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	t - test (p)
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 (=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 (=0.0001)
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 (=0.0001)
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 (=0.0001)

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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 (= .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 (= .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 (= .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 (= .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		t -test (p)
	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	
Summer: 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)
Winter: 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-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-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

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

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

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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	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	5.13 (=0.0001)	1.70	1.34 2.97 (0.0005)	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	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	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	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	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	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	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	5.14 (=0.0001)	4.82	4.57 1.92 (0.058)	4.19	4.09 0.79 (0.430)

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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)
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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 (= 0.0001)	1.81	1.29	5.66 (= 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 (= 0.0001)	1.83	1.28	6.80 (= 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 (= 0.0001)	1.82	1.37	5.32 (= 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 (= 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	
Summer: 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)
Winter: 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	F-test (p)
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 (=0.0001)
View D: 4 miles away, with turbines	3.27	2.03	1.97	21.1 (=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	1996	1997	1996	1997
View A: 1.25 miles away, no turbines	1.82	2.12	1.77	1.71	1.68	1.65
		-1.3 (0.199)			1.0 (0.327)	-0.2 (0.865)
View B: 4 miles away, no turbines	1.61	1.89	1.49	1.48	1.48	1.41
		-1.5 (0.128)			0.9 (0.386)	0.2 (0.842)
View C: 1.25 miles away, with turbines	4.76	3.98	3.26	2.59	2.67	2.40
		3.9 (0.0002)			4.2 (0.0001)	1.0 (0.306)
View D: 4 miles away, with turbines	4.10	3.27	2.62	2.03	2.27	1.97
		4.0 (0.0001)			5.0 (=0.0001)	1.3 (0.187)
Near visual impact (View A – View C)	-2.94	-1.82	-1.49	-0.87	-0.99	-0.73
		-4.1 (0.0001)			-3.0 (0.003)	-1.2 (0.226)
Far visual impact (View B – View D)	-2.49	-1.39	-1.13	-0.55	-0.79	-0.55
		-4.6 (=0.0001)			-3.5 (0.0008)	-0.6 (0.536)
Average visual impact	-2.71	-1.64	-1.31	-0.71	-0.89	-0.64
		-4.5 (=0.0001)			-3.5 (0.0007)	-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

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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.

Do wind farms affect tourism?

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Like many places, Québec has also created a policy framework to increase energy production from renewable sources such as wind.(1) Wind farm construction presents numerous challenges, but from a tourism viewpoint, it has a direct visual impact on scenic landscapes and an indirect effect on industry due to potential economic losses. Opponents to wind farms believe that constructing large, towering metal structures creates an industrialized landscape in rural and natural areas, which some people consider to be detrimental.

Landscapes are an important tourism resource, so it is unrealistic for tourism stakeholders to offer unequivocal support for wind farms. For this reason, battles to stop wind farm development around tourism attractions continue, while at the same time opinions about wind farms continue to diverge. For example, there is opposition to the recently erected wind turbine on Grouse Mountain in Vancouver(2) and to the proposed wind farm near Mont St. Michel, a UNESCO World Heritage Area in France, even though the turbines would be situated some 15 km from it.(3)

Wind turbines as tourist attractions?

For some people, wind turbines are symbols of sustainable development and valued for producing clean energy. Perhaps this attitude can give wind turbines some recognition for being part of modern heritage. Windmills, the predecessors of modern wind turbines, were also contested when introduced to the European landscape around the 12th century. In countries like Holland, windmills today are a visual part of the nation's heritage and in Québec, many are also tourist attractions, notably on Île Perrot and Île aux Coudres.

However, wind turbines are unlikely to be a major tourism draw in their own right, especially since they are now increasingly part of the cultivated landscape in many countries. In some cases, they diversify the attraction base of a destination, like Cap Chat in the Gaspé Peninsula, where a visitor centre showcases the highest vertical-axis wind turbine in the world. Similar interpretation centres worldwide offer guided tours; in Denmark, for example, there are boat tours to see the offshore wind farms at Middelgrunden near Copenhagen. Preferences and attitudes towards modern wind farms are likely to evolve over time as people get accustomed to their presence, but it is unlikely that they will appeal to everyone in the future.

Visitor preferences

A Scottish report reviewing a number of studies evaluating the impact of wind farms on tourism suggests limited overall negative impacts.(4) However, tourists generally prefer wind energy projects to be located away from accommodation areas, historic sites, scenic areas and viewpoints, and places of natural beauty. The proportion of visitors who flatly oppose wind turbines near tourism attractions appears to be a minority, according to some reports. For example, a broad national survey in France showed 22% of the population thought wind turbines affected tourism negatively, while the rest were positive or neutral.(5) Similarly, in the Languedoc-Roussillon Region, a survey showed only 16% of visitors thought wind turbines degraded the landscape in general.(6) In a more recent study from

Scotland, about 20% to 30% of tourists preferred landscapes without wind farms and the rest were mainly positive or neutral.(4) Tourist perceptions were also evaluated in a study in the Gaspé Region of Québec, where visitors generally expressed a positive attitude towards wind farms.(6) However, when asked about the establishment of new wind farms in the future, 56.4% preferred to see a concentration of wind turbines (more than 12 turbines) in a few places, rather than fewer turbines (less than 12) in multiple locations. Furthermore, 5.6% of visitors surveyed did not want to see any wind turbines in the Gaspé Region.(7)

Economic impact

While preference studies show broadly similar patterns, very few quantitative studies published to date have established empirical links between wind farms and the net economic impact on tourism. (8) Several studies use hypothetical scenarios to assess future preferences, thus indicating likely impacts on tourism.(9,10) Such studies tend to show that visitors would not change their travel patterns to an area if a wind farm were established, as 92% of visitors indicated in a survey in Southwest England, for example.(9) Overall, there is limited evidence to suggest that wind farms have a serious negative economic impact on tourism.

A report from Scotland estimated the net economic impact of potential wind farm development by calculating the combined effect of the changing number of tourists going to an area when a wind farm is constructed and the subsequent change in expenditures, and the lowered willingness to pay for a "room with a view" in an accommodation facility affected by the construction. The study looked at four areas in Scotland that represent about 12% of the country's tourist activity and found that, in total, 81% to 98% of the tourists to these areas would be affected.(4) It also estimated the proportion of accommodation facilities in the same areas that would be impacted by the proposed wind farms, and this ranged from 9.83% to 32.40%. In the visitor survey part of the study, 63% of tourists preferred a landscape free of wind turbines from the hotel bedroom, while 28% were neutral and 9% were positive. The authors suggest visitor perceptions about wind farms are based on where they are. Thus, opinions about wind farms are likely to change if one has a passing view for a few seconds while driving by compared to having a longer, static view from a hotel room. For accommodation establishments with affected views, the study found a reduction in use by 4.9% to 16.20% and estimated a net expenditure reduction of between 0.48% to 1.59% respectively. The study also found proposed wind farm development may lead to a 2.5% loss due to fewer returning tourists visiting the area.(4)

Conclusion

In most places, like Québec, a variety of legislative and planning tools help minimize the social and environmental impact of wind farms.(11) In addition to its visual impact, wind farm development continues to push the limits of social acceptability in terms of its planning, management, operational control and fairness with regard to the distribution of benefits.(12) The few studies mentioned here suggest that even though the majority of tourists may appear positive about wind farms, one must look closer at preferences with regard to visiting places and choosing accommodations. In this context, it would be worthwhile to independently assess the effects of wind farms on tourism at the local and regional scale in Québec.

Sources:

(1) Ministère du Développement durable, Environnement et Parcs (2006). L'énergie pour construire le Québec de demain. La Stratégie énergétique du Québec 2006-2015. Québec: Gouvernement du Québec. 138 p.

(2) Colebourn, J. (2009). "Wind turbine power project installed atop Grouse Mountain," in the Province. September 25. Accessed online 10 Oct. 2009.
[Http://www.theprovince.com/story_print.html?Id=2035719&sponsor=](http://www.theprovince.com/story_print.html?Id=2035719&sponsor=)

(3) nouvelobs (2009). "Manifestation anti-éolien au Mont-Saint-Michel," in Le Nouvel Observateur. September 26. Accessed online 10 Oct. 2009.
[Http://tempsreel.nouvelobs.com/depeches/sciences/20090926.SCI7308/manifestation_antieolien_au_montsaintmichel.html](http://tempsreel.nouvelobs.com/depeches/sciences/20090926.SCI7308/manifestation_antieolien_au_montsaintmichel.html)

(4) Riddington, G., Harrison, T., mcarthur, D., Gibson, H., and Millar, K. (2008). "The economic impacts of wind farms on Scottish tourism. A report for the Scottish Government." Accessed online 16 Oct. 2009. [Www.scotland.gov.uk/Resource/Doc/214910/0057316.pdf](http://www.scotland.gov.uk/Resource/Doc/214910/0057316.pdf)

(5) Synovate (2003). Perception et représentation de l'énergie éolienne en France. Ademe. 18 p.

(6) Institute CSA (2003). Impact potentiel des éoliennes sur le tourisme en Languedoc-Roussillon, France. Synthèse de Sondage. 5 p.

(7) Richard Guay Consultants (2004). Étude de marketing auprès des touristes de la Gaspésie afin de connaître leurs attitudes face à l'installation d'éoliennes. A report presented to technocentre Éolien Gaspésie-les-Îles. Québec. 37 p.

(8) Riddington, G., mcarthur, D., Harrison, T. And Gibson, H. (2009). "Assessing the economic impact of wind farms on tourism in Scotland: GIS, surveys and policy outcomes," International Journal of Tourism Research. Published online in Wiley Interscience. DOI: 10.1002/jtr.750
<http://www3.interscience.wiley.com/journal/122609399/abstract>

(9) visitbritain (2006). Foresight. Issue 33. July. Strategy and Communications Division.

(10) mori Scotland (2002). Tourist Attitudes towards wind farms. research study conducted for the Scottish Renewables Forum and the British Wind Energy Association. Final Report. Edinburgh. 24 p.

(11) Ministère des Affaires municipales et des Régions (2007). Guide d'intégration des éoliennes au territoire : vers de nouveaux paysages. Québec: Gouvernement du Québec. 38 p.

(12) Saucier, C., Côté, G., Fortin, M.-J., Jean, B., Lafontaine, D., Feurtey, É., Guillemette, M., Méthot, J.-F. And Wilson, J. (2009). Développement territorial et filière éolienne. Des installations éoliennes socialement acceptables : élaboration d'un modèle d'évaluation de projets dans une perspective de développement territorial durable. Rimouski: Université du Québec à Rimouski. 227 p.

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The Economic Impacts of Wind Farms on Scottish Tourism

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Part 2 Methods

4 Intercept Survey

4.1 Intercept locations

The intercept study sought to investigate the reactions and views of tourists by personal interviews within Scotland. One of the key aims was to undertake interviews with individuals who had actual experience of wind farms (as opposed to mocked up pictures in before/after studies) in part because some held the belief that individuals inadvertently exaggerated their reactions. Thus intercept points had to be established as close as possible to actual Wind farm sites that were either operational or that had been approved for construction. Intercepting a significant number of visitors on the actual sites of Wind farms would not have been reasonable due to their location. Therefore certain criteria were set to decide intercept locations in order to optimise response levels and ensure a representative sample:

- safe and convenient for respondents to stop
- maximise intercepting people who have made a tourist visit decision
- maximise the likelihood that respondents will have seen the local Wind farm(s)
- recognised as tourist destinations
- provide a reasonable spread of locations throughout Scotland

As shown in Table 4-1, four areas were chosen for the survey covering five operational Wind farms and one approved Wind farm. The intercept locations were a combination of local Tourist Information Centres (TICs), visitor attractions or transport hubs. This ensured that the majority of people interviewed would be tourists. Questionnaire design ensured that those people who were not in the area for tourist reasons would not form part of the survey sample (see [Appendix I](#) [<http://www.scotland.gov.uk/Publications/2008/03/07113554/19>] for questionnaire).

Table 4-1 Visitor Destinations, Wind farm Sites and Intercept Locations

Wind farm Name & Location (Grid Reference in brackets)	Intercept Locations
Stirlingshire & Perthshire <i>Braes of Doune Wind farm</i> (NN 718 105), near Doune/Callander	Stirling Castle, Callander TIC, Tullibardine Visitor Centre (Blackford),

<p>Caithness & Sutherland</p> <p><i>Buolfruch Wind farm (ND 160 355), Causeymire Wind farm (ND 155 505) and Forss Wind farm (ND 019 695)</i></p>	<p>Thurso TIC, Scrabster Harbour</p>
<p>Scottish Borders</p> <p><i>Dunlaw Wind farm (NT 466 572), near Lauder</i></p>	<p>Thirlestane Castle and Melrose TIC</p>
<p>Dumfries & Galloway</p> <p><i>Dalswinton Wind farm, near Dumfries Grid Ref. (NX 945 893)</i></p>	<p>Dumfries TIC and Kircudbright TIC</p>

An initial pilot survey was undertaken at two of the Stirlingshire/Perthshire intercept locations (Callander TIC and Tullibardine Distillery & Visitor Centre) to test the questionnaire

The full survey was undertaken at the intercept locations during the summer months of July, August and September. The purpose of using the summer months was twofold:

- the wind farm sites were at maximum visual impact, due to the most favourable weather conditions relative to the rest of the year.
- being the high season for tourism in Scotland, this would help maximise response levels

4.2 Questionnaire design

4.2.1 Objectives of Design

The two key research questions for the intercept survey were as follows:

- what were the attitudes of visitors seeing Wind farms in the landscape
- what were the return visit intentions of visitors prior to and after knowledge of the existence of a Wind farm at the destination

4.2.2 Attitude Questions

To answer the first research question, the survey adapted a question from the Wind farm report commissioned by VisitScotland ¹¹ (<http://www.scotland.gov.uk/Publications/2008/03/07113554/211>) in 2001, which asked respondents to indicate how certain features in the landscape affected their tourist experience.

This question was presented and recorded as follows:

Table 4-2 Structure of Question on Attitudes

" Q17. How do you feel the following structures impact on your experience of Scotland's scenery?"

	Strongly Positive	Slightly Positive	No impact	Slightly Negative	Strongly Negative
Electricity pylons and wires	1	2	3	4	5
Wind farms and turbines	1	2	3	4	5
Mobile telephone masts	1	2	3	4	5
Ski Uplift (Railways, Chairlifts, Tows) and Ski Fencing	1	2	3	4	5
Planted forestry and forest felling	1	2	3	4	5
Telephone wires and poles	1	2	3	4	5
Hydro-electric dams	1	2	3	4	5
Power stations	1	2	3	4	5
Fish farms	1	2	3	4	5
Quarries	1	2	3	4	5
Trails and tracks across open upland areas	1	2	3	4	5

This provided an indication not only of popular attitudes towards Wind farms, but also allowed comparison with other built features to establish the relative position of Wind farms in terms of public opinion.

4.2.3 Impact of Development on Tourist Intentions

To answer the second research question, respondents were asked to indicate their likely future visit intentions to both the local area and Scotland as a whole. Using the slide-rule device shown in **Figure 4-1** respondents were asked to indicate their likelihood of returning to the Area and to Scotland by sliding the indicator to a point between 0% (Definitely Will Not Return) and 100% (Definitely Will Return). Based on the figure below, the Area score is 50% and Scotland score is roughly 75%. The purpose of using the slide-rule was to overcome the weakness of providing arbitrary scales (e.g. 0-25-75-100, or even 10-20-30-... 90-100), so that respondents could more intuitively indicate their intentions.

Figure 4-1 The Sliders Used to Assess Likelihood



At a later point in the interview - once the subject of the local Wind farm was introduced - respondents were shown the slide-rule again with the markers still where they had put them. They were then asked to indicate whether - now having knowledge of a Wind farm development - their likelihood of return would change. The extent of the change was indicated by sliding the indicators to a new position.

The visit intention was required from respondents three times based on three different visual situations:

- 4. having actually seen the Wind farm;
- 5. shown a photo-montage of the local landscape before and after the creation of the existing Wind farm;
- 6. shown a photo-montage of the local landscape illustrating the existing Wind farm and how the landscape would look if the Wind farm had been extended by 40%-50%

Any change recorded for each of the above situations would indicate the level of change in intention.

4.2.4 Estimating the Change in Intention

Prior to any discussion on wind farms the interviewee was asked about their intention to return to Scotland. In the figure above the respondent has indicated an **initial intention of return to the area of 50% and to Scotland of 75%:**

After discussion of wind farms the interviewee was required to state their return intentions in the following situations:

- 1. Having actually seen the Wind farm

New Slider Positions	Area = 25%	Scotland = 75%
Result: Change in intention	Area = 25%	Scotland = 0%

- 2. Shown a photo-montage of the local landscape before and after creation of the existing Wind farm

New Slider Positions	Area = 10%	Scotland = 75%
Result: Change in intention	Area = 40%	Scotland = 0%

3. Shown a photo-montage of the local landscape showing the existing Wind farm and how the landscape would look if the Wind farm had been extended by 40%-50%

New slider positions	Area = 0%	Scotland = 70%
Result: Change in intention	Area = 50%	Scotland = 5%

This methodology allows for the measurement of people's reaction not only to actual Wind farm developments but also to different levels of development. The latter has become more of an issue as the number of operations and applications for new or extended developments has increased significantly in recent years.

4.2.5 Other Questions

In addition to these two main research questions, a number of profiling questions were asked in order to test responses across different demographics and tourist motivations.

Finally, a set of four questions were asked at the end of the interview related in the main to planning policy considerations.

4.3 Survey results

4.3.1 Number and Location of Responses

There were a total of 380 responses from the four areas under analysis. As shown in Table 4-3, Stirlingshire & Perthshire accounted for nearly half (44.8%) of responses. The other three areas had a similar proportion of the remaining responses.

Table 4-3 Response by Interview Location

Interview Location		Frequency	Percent	Cumulative Percent
Stirlingshire & Perthshire	Callander TIC	77	20.3	44.8%
	Tullibardine Distillery	13	3.4	
	Stirling Castle	80	21.1	
Dumfries & Galloway	Kircudbright TIC	70	18.4	20.2%

	Dumfries TIC	7	1.8	
Caithness & Sutherland	Scrabster	63	16.6	18.4%
	Thurso TIC	7	1.8	
Scottish Borders	Melrose TIC	51	13.4	16.6%
	Thirlestane Castle	12	3.2	
Total		380	100.0	

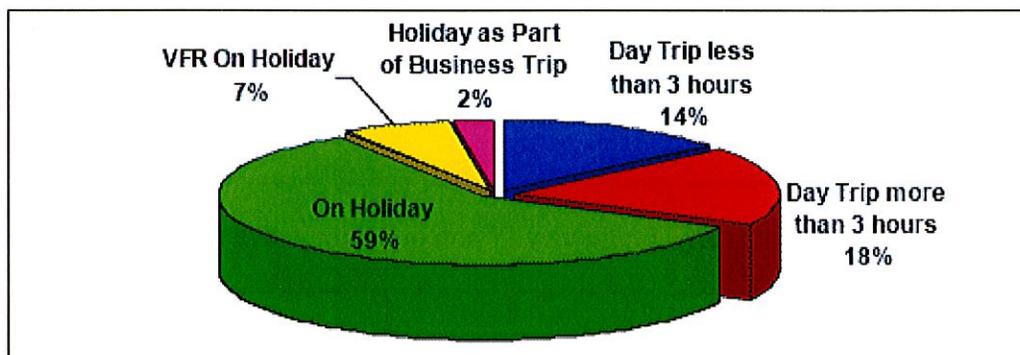
4.3.2 Respondent Profile

Trip Type

Just over two-thirds (68%) of respondents identified themselves as being on some form of holiday with an overnight stay. This consisted of three holiday types: general holiday (59%); visiting friends and relatives (VFR) (7%) and holidays as an extension of a business trip (2%).

14% of respondents were on a day trip of less than three hours, while a further 17% identified that their day trip lasted for 3 hours or more.

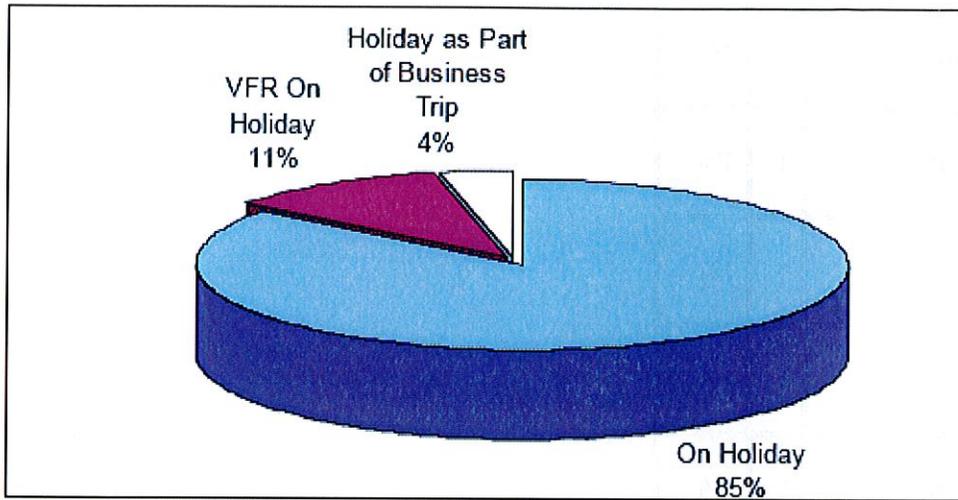
Figure 4-2 Trip Type



N= 380

Figure 4-3 shows that among overnight stay respondents only, 85% were on a general holiday and 11% were visiting friends and relatives.

Figure 4-3 Trip Type - Overnight Stays Only

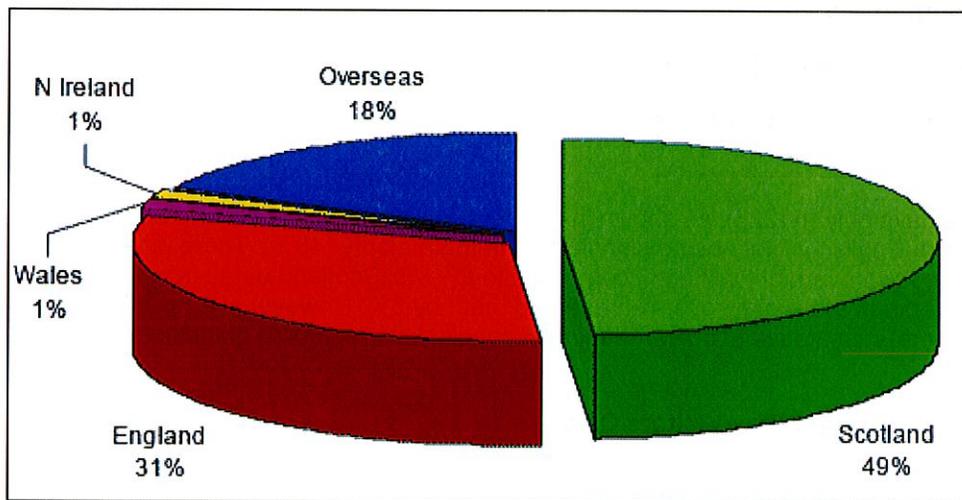


N=223

Country of Origin

The distribution of country of origin among all respondents (n=380) shown Figure 4-4 illustrates that visitors from Scotland and England predominate - accounting for 80% of responses.

Figure 4-4 Country of Origin of All Respondents



N=380

Table 4-4 provides more detail on the home countries of overseas respondents.

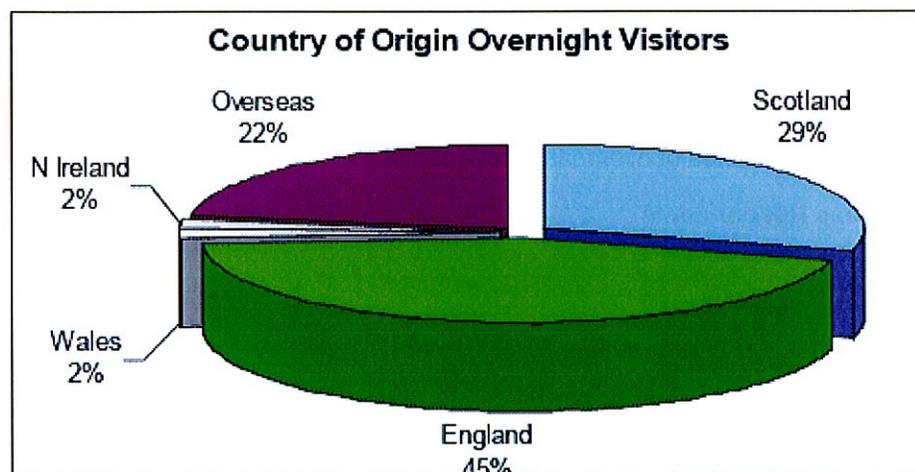
Table 4-4 Country of Origin of Overseas Respondents

Country	N	%	Country	N	%
USA	16	23%	Austria	1	1%

Australia	15	22%	Belgium	1	1%
Canada	9	13%	France	1	1%
Germany	7	10%	Hungary	1	1%
Spain	4	6%	Japan	1	1%
Netherlands	3	4%	Lithuania	1	1%
Italy	2	3%	New Zealand	1	1%
Sweden	2	3%	Russia	1	1%
Switzerland	2	3%	South Africa	1	1%
<i>N=69</i>			Total	69	100%

However, looking at overnights stays only (n=223), as shown in Figure 4-5, visitors from Scotland and England make up 74% of the sample - with English visitors being significantly in the majority (45%). There is therefore some under-representation of Scottish overnight visitors if compared to the VisitScotland data shown in Table 4-5 Visitors from England and Overseas are slightly over-represented, both by 5%. However, we would suggest that the sample is still sufficiently representative to draw meaningful conclusions regarding opinions on Wind farm developments.

Figure 4-5 Country of Origin of Overnight Stay Visitors Only



N=223

Table 4-5 Country of Origin from VisitScotland Data

Country	Trips 2006 (m)	%
Scotland	6.35	40%
England	6.40	40%
Northern Ireland	0.38	2%
Wales	0.15	1%
Total Overseas Tourism	2.73	17%
Total	16.01	100%

Source: VisitScotland (2007), Tourism in Scotland 2006

Numbers on First Trip to Scotland or the Area

Almost 9 out of 10 of respondents (86%) had made a trip in Scotland before. It was the first trip to Scotland for a total of 52 respondents, with 39 from overseas, 10 from England and 3 from Scotland.

Table 4-6 Q4 First Trip to Scotland?

	Frequency	%
Yes	52	14%
No	327	86%
Total	379	100%

N=379

Of those staying overnight (n=222), it was the first trip for 41 of them. 31 of these respondents were from overseas and 10 were from England.

Table 4-7 Q4 First Trip to Scotland - Overnight Stays Only

	Frequency	Percent
Yes	41	18%
No	181	82%
Total	222	100%

N=222

First trippers were much more in evidence in Stirlingshire/Perthshire, Caithness & Sutherland and the Scottish Borders, compared to Dumfries & Galloway. This is mainly a function of a greater proportion of overseas respondents in these areas - 23%, 19% and 24% respectively - compared with only 3% in Dumfries & Galloway.

Table 4-8 Q5 First Trip to Area, by Area

	Q5 First Trip to Area?		% first trip to area	Total
	Yes	No		
Stirlingshire & Perthshire	64	106	38%	170
Caithness & Sutherland	29	41	41%	70
Scottish Borders	20	42	32%	62
Dumfries & Galloway	12	65	16%	77
Total	125	254	33%	379

Of the 222 overnight stays, it was the first trip to the area for 93 of them. Of these, 38 were from overseas and 38 were from England, with the remainder coming from Scotland (14) and Wales (3).

Table 4-9 Q5 First Trip to Area? - Overnight Stays Only

	Frequency	Percent
--	-----------	---------

Yes	93	42%
No	129	58%
Total	222	100%

N=222

Most areas, with the exception of Dumfries & Galloway, had a similar proportion of overnight stay visitors on their first trip.

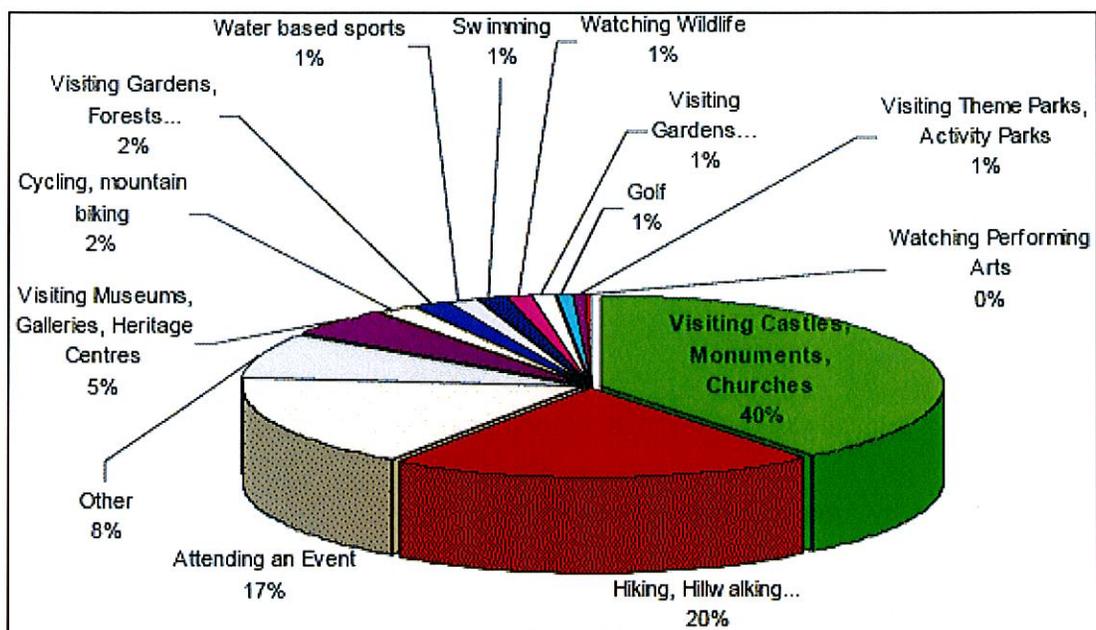
Table 4-10 Q5 First Trip to Area, by Area - Overnight Stays Only

	Stirlingshire & Perthshire	Caithness & Sutherland	Borders	D&G	Total
Yes	46	28	8	11	93
No	52	38	9	30	129
Total	98	66	17	41	222
% first trip	47%	42%	47%	27%	42%

4.3.3 Main Activities Undertaken

The main activities undertaken by respondents were similar to tourists in general (see VisitScotland data ¹² [<http://www.scotland.gov.uk/Publications/2008/03/07113554/211>]). The proportion of respondents attending events was higher than normal because the intercepts occurred when most areas had their main summer season events.

Figure 4-6 Main Activity Undertaken

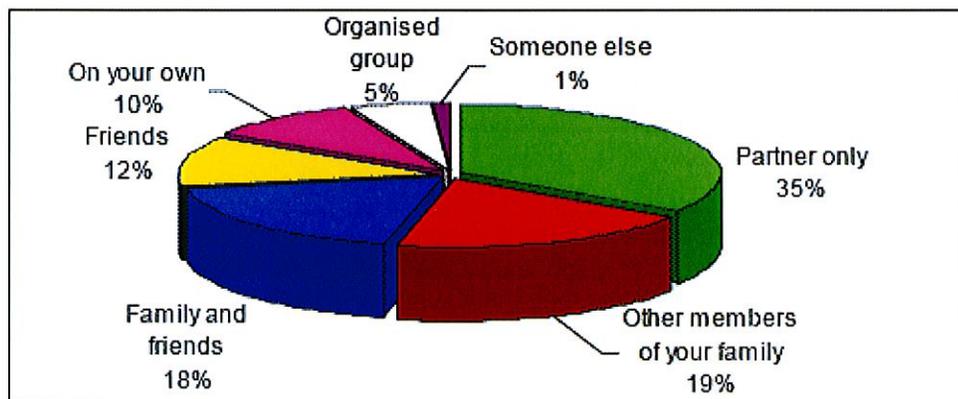


n=357

4.3.4 Travel Group Profile

The most represented visitor group type among respondents was those in a couple (35%). The next equal largest groups were 'Other members of your family' (19%), 'Family and Friends' (18%) and 'Friends' (12%). These three close informal groups overall accounted for 49% of respondents. Evidence from most Scottish destinations identifies the couples market as the largest market, ranging from one-third to well over a half.

Figure 4-7 Travel Group Profile

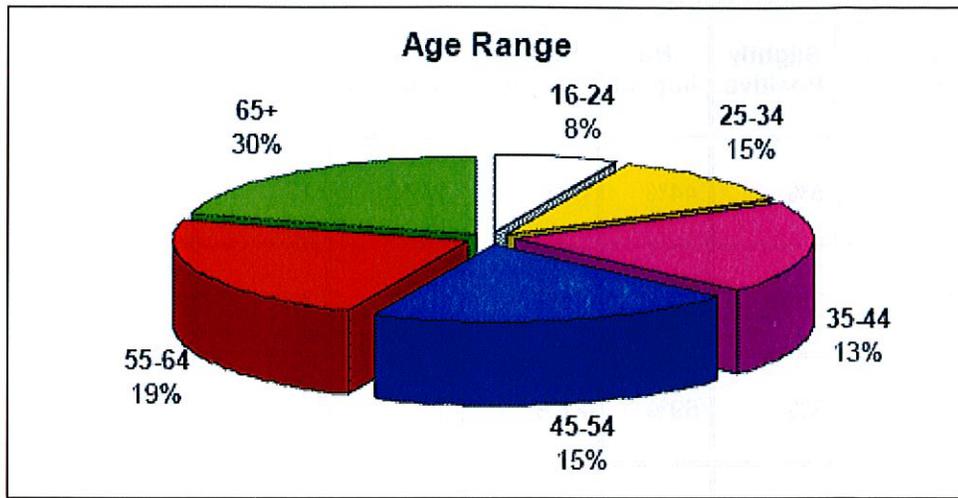


n=380

4.3.5 Age Range and Gender

There is some over representation in the older age ranges, but in general we believe the distribution of respondents is acceptable for the purposes of this project.

Figure 4-8 Age Profile of Respondents



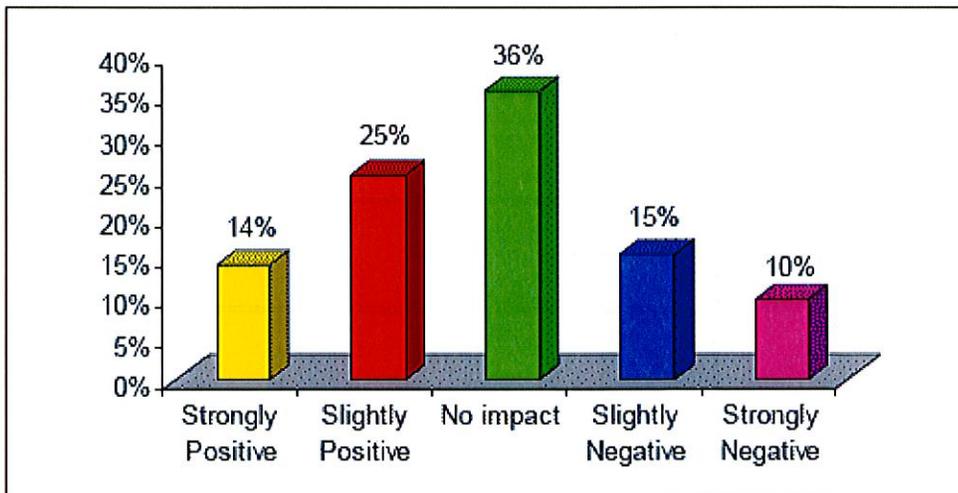
N=375

There was a highly even balance of respondents by gender, with 194 males and 186 females.

4.4 Attitude to structures in the landscape

42% of respondents had some level of positive opinion towards Wind farms, while one-quarter (25%) indicated some level of negative response. One-in-ten respondents (37 responses) indicated that they were strongly negative.

Figure 4-9 Q17 Opinion of Structures in the Landscape - Wind farms



In terms of positive attitudes, Wind farms were behind only Upland Trails and Tracks (55%) and Planted Forestry and Felling (46%). If taken along with 'No Impact' responses, three-quarters of respondents (75%) believe that Wind farms have a positive or neutral impact on the landscape.

On the other hand, the level of negative response (25%) towards Wind farms was the fourth highest of the 11 structures in the landscape upon which an opinion was sought - behind Pylons (49%), Mobile Telephone Masts (36%) and Power Stations (26%).

Table 4-11 Opinion of Structures in the Landscape - All Structures

	Strongly Positive	Slightly Positive	No impact	Slightly Negative	Strongly Negative	+ve rank	-ve rank
Pylons	2%	5%	44%	32%	17%	10	1
Wind farms	14%	25%	36%	15%	10%	3	4
Mobile Telephone Masts	1%	3%	59%	27%	9%	11	2
Ski Facilities	3%	16%	73%	6%	2%	6	9
Planted Forestry/Felling	15%	31%	36%	15%	3%	2	7
Telephone Wires/Poles	2%	8%	69%	17%	3%	9	6
Hydro-electric Dams	10%	18%	66%	5%	2%	4	10
Power Station	4%	7%	63%	20%	6%	8	3
Fish Farms	4%	18%	67%	8%	3%	5	8
Quarries	3%	10%	64%	16%	7%	7	5
Uplands Trails/Tracks	23%	32%	41%	3%	1%	1	11

The extent to which these opinions have an impact on visitor intentions to return to an area is explored in the next section.

As shown in Table 4-12, the proportion Scottish and English respondents who displayed a negative view of Wind farms was almost twice that of overseas visitors. A high proportion of overseas visitors were also neutral on the subject. All groups had similar proportions indicating a positive disposition towards Wind farms and their impact on the landscape.

Table 4-12 Opinion of Wind farms by Country of Origin

	Strongly Positive	Slightly Positive	No impact	Slightly Negative	Strongly Negative	Total

Scotland	16%	23%	34%	18%	9%	182
England	11%	30%	30%	16%	13%	116
Wales	20%	40%	20%	0%	20%	5
N Ireland	25%	0%	50%	0%	25%	4
Overseas	13%	22%	49%	9%	6%	67

Day Trip visitors were also slightly more negative towards Wind farms than holiday visitors (overnight stays), illustrating perhaps that people are perhaps more negative towards Wind farms the closer they live to them. That is, overseas are the least negative, while domestically overnight stay visitors (who by definition live further away than day visitors) are less negative than day visitors.

Table 4-13 Opinion of Wind farms by Trip Type

	Strongly Positive	Slightly Positive	No impact	Slightly Negative	Strongly Negative	<i>n</i>
Day Trip less than 3 hours	19%	23%	32%	19%	8%	53
Day Trip more than 3 hours	9%	23%	36%	17%	14%	69
On Holiday	14%	25%	37%	14%	10%	218
VFR On Holiday	24%	40%	20%	12%	4%	25
Holiday as Part of Business Trip	11%	11%	56%	11%	11%	9

N=374

Analysis of attitudes based on the main visitor activity undertaken by respondents is shown in Table 4-14. Only a small number of these categories had sufficient responses to provide meaningful analysis and within these it can generally be concluded that none deviated significantly from the figures for the sample as a whole.

Interestingly, the proportion of respondents whose main activity was indicated as walking/hillwalking (where the landscape is a major of the experience) and who indicated a negative attitude towards Wind farms (19%) was lower than the overall figure of 25%. This group also had the most positive attitude (45%) among those categories where the sample size was of sufficient size for analysis.

Table 4-14 Opinion of Wind farms by Main Activity

	Strongly Positive	Slightly Positive	No impact	Slightly Negative	Strongly Negative	n
Visiting Castles, Monuments, Churches	12%	25%	38%	15%	9%	138
Hiking, Hillwalking...	26%	19%	37%	10%	9%	70
Attending an Event	10%	22%	42%	18%	8%	60
Other	17%	28%	17%	21%	17%	29
Visiting Museums, Galleries, Heritage Centres	11%	22%	39%	22%	6%	18
Cycling, mountain biking	29%	14%	14%	29%	14%	7
Visiting Gardens, Forests...	17%	50%	17%	0%	17%	6
Water based sports	0%	40%	40%	0%	20%	5
Swimming	20%	60%	20%	0%	0%	5
Fishing	0%	25%	50%	0%	25%	4
Watching Wildlife	0%	0%	67%	0%	33%	3
Golf	0%	33%	0%	33%	33%	3
Visiting Theme Parks, Activity Parks	0%	50%	0%	50%	0%	2
Watching Performing Arts	100%	0%	0%	0%	0%	1

N=351

4.5 Likelihood of return

4.5.1 Initial Estimate of Return to the Area and Scotland

Prior to asking respondents direct questions about their opinion of Wind farms, they were asked to indicate their likelihood of return to the area in which the intercept was taking place. These responses would provide a zero base from which to compare how people's intentions to return were affected once the issue of Wind farms was explored directly.

As shown in Table 4-15 only 6 respondents to this question had indicated that they were unlikely to return to any of the four the areas, with 4 respondents indicating this in Stirlingshire/Perthshire and 2 respondents in Caithness & Sutherland. Of these, one person provided a reason which was that they 'Don't visit places twice'.

Dumfries & Galloway had the highest proportion of respondents indicating a 100% likelihood of returning to the area, at 88%, followed by the Scottish Borders (54%), Caithness & Sutherland (46%) and Stirlingshire/Perthshire (45%). This again reflects the profile of respondents in each area, with Dumfries & Galloway having 97% of the sample being domestic visitors compared to levels of around three-quarters to four-fifths in the other areas.

Table 4-15 Frequency of Likelihood of Return to Each Area

Likelihood	Caithness & Sutherland		Perth, Kinross & Stirling		The Scottish Borders		Dumfries & Galloway		All	
	N	%	N	%	N	%	N	%	N	%
0	4	2%	2	3%	0	0%	0	0%	6	2%
5	3	2%	1	1%	0	0%	0	0%	4	1%
10	4	2%	1	1%	1	2%	0	0%	6	2%
15	0	0%	1	1%	0	0%	0	0%	1	0%
20	4	2%	4	6%	1	2%	1	1%	10	3%
30	1	1%	5	7%	2	3%	0	0%	8	2%
40	0	0%	2	3%	0	0%	0	0%	2	1%
50	26	16%	7	10%	8	13%	0	0%	41	11%

60	9	5%	1	1%	2	3%	0	0%	12	3%
70	16	10%	3	4%	1	2%	0	0%	20	5%
75	4	2%	1	1%	2	3%	2	3%	9	2%
80	13	8%	2	3%	4	6%	1	1%	20	5%
85	0	0%	1	1%	3	5%	2	3%	6	2%
90	8	5%	5	7%	4	6%	2	3%	19	5%
95	0	0%	0	0%	1	2%	0	0%	1	0%
99	0	0%	1	1%	0	0%	1	1%	2	1%
100	75	45%	31	46%	34	54%	68	88%	208	55%
	167	100%	68	100%	63	100%	77	100%	375	100%

90% of respondents in Stirlingshire/Perthshire indicated a 50% or above likelihood of returning to the area, while the proportion in the areas of Caithness & Sutherland, Scottish Borders and Dumfries & Galloway were 76%, 94% and 99% respectively.

All respondents to this question, save for one, indicated some level of intention to return to Scotland, with four-fifths (80%) definitely returning. 97% of respondents indicated a 50% or above likelihood of returning.

Table 4-16 Q15 Likelihood of Return to Scotland

Likelihood	Frequency	%
0	1	0.3%
5	2	0.5%
10	3	0.8%

20	2	0.5%
25	1	0.3%
30	1	0.3%
40	2	0.5%
50	12	3.2%
60	6	1.6%
70	10	2.7%
75	4	1.1%
80	16	4.3%
85	1	0.3%
90	10	2.7%
95	1	0.3%
99	2	0.5%
100	299	80.2%
Total	373	100%

N=373

4.5.2 Affect on Decision to Visit Again Having Seen the Wind Farm

Numbers who had seen a Wind farm

This question was not asked to those respondents in Dumfries & Galloway as there is only a planned wind farm for that area. As such, the sample for this question was N=246.

Almost two-thirds (63%) of respondents had seen the wind farm en route to the intercept locations in the other three areas.

Table 4-17 Q18 Did you see a Wind farm in the AREA?

	Frequency	Percent
Yes	191	63%
No	111	37%
Total	302	100%

N=302

As shown below, wind farms around the Caithness & Sutherland intercept sites had the highest level of visibility among respondents with 90% having seen a Wind farm in the area. Two-thirds had seen the Braes of Doune Wind farm in Stirlingshire/Perthshire, while only one-quarter had seen the Dunlaw Wind farm near the Scottish Borders intercept sites.

Table 4-18 Q18 by Intercept Area

Area	Yes	No	Total	% Yes
Stirlingshire & Perthshire	113	56	169	67%
Caithness & Sutherland	63	7	70	90%
Scottish Borders	15	48	63	24%
	191	111	302	63%

N=302

Likelihood of Affecting Future Visit Intentions:

Of those who had seen a Wind farm in an area (191 respondents), 4 people (2%) indicated that it would affect their intention to visit the area again. It should be noted that all 4 of these respondents were intercepted in the Stirling/Perthshire area, so that none of the respondents in Caithness & Sutherland or in the Scottish Borders indicated that the Wind farm they had seen would affect their decision to visit the area again.

Table 4-19 Q19 Would this affect decision to visit AREA again?

	Frequency	Percent
Yes	4	2%
No	187	98%
Total	191	100%

Taking Stirlingshire/Perthshire alone, the proportion of those indicating a change in visit intention is slightly higher (4%).

Table 4-20 Stirlingshire/Perthshire - Q18 Did you see a Wind farm in the AREA?

	Frequency	Percent
Yes	96	68%
No	46	32%
Total	142	100%

Table 4-21 Stirlingshire/Perthshire - Q19 Would this affect decision to visit AREA again?

	Frequency	Percent
Yes	4	4%
No	92	96%
Total	96	100%

Of the 4 people who said that it would affect their decision, 2 indicated that the likelihood would decrease and 2 signalled that it would increase. No one indicated that they would definitely not return at all as a result of the Wind farm.

Of the two who confirmed that it would decrease, one indicated a change from 70% to 40% and one indicated a change from 100% to 80%. Of those who indicated an increase in likelihood to return, one indicated a change from 100% to >100% (shown as 101% below) and one indicated a change from 10% to 30%.

Table 4-22 Q13 Likelihood of Return to Area *vQ20 How much would it affect decision to visit AREA again? (Seen)

		Q20 How much would it affect decision to visit AREA?				Total
		30%	40%	80%	101%	
Likelihood of Return to Area	10%	1	0	0	0	1
	70%	0	1	0	0	1
	100%	0	0	1	1	2
Total		1	1	1	1	4

Green - increased intention, Cerise = decreased intention

All four respondents also indicated that it would affect their decision to visit Scotland as a whole again (Question 21). As shown below, again two respondents indicated a decrease in intention and two indicated an increase in intention.

Table 4-23 Q15 Likelihood of Return to Scotland v Q22 How much would thus affect decision to visit SCOTLAND? (Seen)

		Q22 How much would thus affect decision to visit SCOTLAND?				Total
		40%	70%	80%	101%	
Q15 Likelihood of Return to Scotland	60%	0	1	0	0	1
	70%	1	0	0	0	1
	100%	0	0	1	1	2
Total		1	1	1	1	4

Green - increased intention, Cerise = decreased intention

The net result of the change in intentions - as indicated by the 4 respondents who would re-evaluate their intention to return - would be a 7.25% fall for the area and a 9.75% fall for Scotland. These percentages are of course related only to that 2% of respondents who had indicated a change. As such, the actual impact is virtually zero - 0.15% for the area and 0.2% for Scotland. Of course, the area in question is Stirlingshire/Perthshire as respondents at the other locations indicated no change to their visit intentions having seen the local Wind farm.

4.5.3 Affect of Before and After Photos on Future Visit Intentions

All respondents ¹³ [<http://www.scotland.gov.uk/Publications/2008/03/07113554/21>] were shown a photo montage of the local Wind farm showing how the landscape looked before the development and in its present form. 11 of the 379 respondents (3%) indicated that it would affect their future visit intentions.

Table 4-24 Q23 Would this affect decision to visit AREA again?

	Frequency	Percent
Yes	11	3%
No	368	97%
Total	379	100%

N=379

As shown below, of those 11 respondents confirming a change in visit intention, 4 indicated an increase and 7 indicated a decrease. 2 respondents indicated an intention to definitely not return - one from 30% to 0% and one from 100% to 0%.

Table 4-25 Q13 Likelihood of Return to Area v Q24 How much would this affect decision to visit AREA again? Planned Farms

Q13 Likelihood of Return to Area	Q24 How much would this affect decision to visit AREA again?							Total
	0%	10%	30%	40%	50%	90%	101%	
10%	0	0	1	0	0	0	0	1
30%	1	0	0	0	0	0	0	1
40%	0	0	0	0	1	0	0	1
70%	0	0	0	1	0	0	0	1
80%	0	0	0	1	0	0	0	1
100%	1	1	0	0	0	2	2	6
Total	2	1	1	2	1	2	2	11

Green - increased intention, Cerise = decreased intention

4.5.4 Response to Photos of Actual and Extended Development

All respondents were shown a photo montage of the actual Wind farm development alongside that of an extended development of the Wind farm. 26 of the 379 respondents (7%) indicated that it would affect their future visit intentions.

Table 4-26 Q27 Would this affect decision to visit AREA again?

	Frequency	Percent
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Yes	26	7%
No	353	93%
Total	379	100%

N=379

As shown overleaf, of those 26 respondents confirming a change in visit intention, 23 indicated a decrease and 3 indicated an increase. Of the 3 people who indicated an increase in visit intention, 2 were intercepted in Stirlingshire/Perthshire and 1 in Caithness & Sutherland.

7 respondents indicated an intention to definitely not return if the Wind farm was extended to the extent portrayed in the photo montage. 5 of these were from the Stirlingshire/Perthshire study and 2 from the Dumfries & Galloway intercept. Interestingly, one of the seven people who indicated that they would not return having seen the image of the extended development, had initially indicated that Wind farms had a Slightly Positive impact on the landscape. This suggests that for some people there is a natural tipping point at which a positive disposition can become negative as a development's visual impact increases.

Table 4-27 Location of Intercept and Future Visit Intention Based on Extended Wind farm

	+ve intention	-ve intention
Stirling/Perthshire	2	17
Caithness & Sutherland	1	0
Scottish Borders	0	2
Dumfries & Galloway	0	4
Total	3	23

N=26

Table 4-28 Q13 Likelihood of Return to Area v Q28 How much would this affect decision to visit AREA again? Enlarged Farms (prev 4.5.17)

Q13 Likelihood of Return to Area	Q28 How much would this affect decision to visit AREA										
	0%	3%	9%	10%	20%	25%	30%	36%	40%	50%	60%
10%	0	1	0	0	0	0	0	1	0	0	0
20%	1	0	0	1	0	0	0	0	0	0	0
30%	1	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	1	0
50%	0	0	0	0	0	0	1	0	0	0	0
60%	1	0	0	0	0	0	0	0	1	0	0
70%	2	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	1	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	1	1	0
100%	2	0	1	0	0	1	0	0	0	1	1
Total	7	1	1	1	1	1	1	1	2	3	0

Green - increased intention, Cerise = decreased intention

4.5.5 Response Summary

The net result of the change in intentions is shown in Table 4-29. This relates to the three scenarios reported on above, namely:

1. change in intention having seen a Wind farm locally
2. change in intention having seen the photo montage pre-development and actual development
3. change in intention having seen the photo-montage of the actual development and extension to actual development

This shows that the impact at both the area level and nationally is relatively small, with only the extended development scenario at the area level showing significant value (-2.54%). However, the figures do show that respondents became slightly more negative towards a Wind farm development as the visual impact increased. This is an important consideration for local authorities and the Scottish Executive in respect of applications for extensions to existing developments.

Table 4-29 Impact of Change in Intention of Three Visual Impact Scenarios

Having Seen	ALL		Overnight	
	Area	Scotland	Area	Scotland

Number Sampled	191	191	137	137
Number Responding	4	4	3	3
Number Not Responding	187	187	134	134
Percent Responding	2.1%	2.1%	2.20%	2.20%
Change in Likelihood	-0.08%	-0.10%	-0.12%	-0.16%
Photo	Area	Scotland	Area	Scotland
Number Sampled	380	380	256	256
Number Responding	11	4	7	3
Number Not Responding	369	376	249	253
Percent Responding	2.89%	1.05%	2.73%	1.17%
Change in Likelihood	-0.73%	-0.05%	-0.70%	-0.10%
Extended	Area	Scotland	Area	Scotland
Number Sampled	380	380	256	256
Number Responding	26	5	19	4
Number Not Responding	354	375	237	252
Percent Responding	6.84%	1.32%	7.42%	1.56%

Change in Likelihood	-2.54%	-0.30%	-2.50%	-0.45%
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4.6 Views on specific wind farm issues

4.6.1 Wind farms in the same view

A significant proportion of respondents (44%) agreed that they don't like to see several Wind farms in the same view. These results suggest that those respondents who have indicated having a neutral or even positive perspective on individual Wind farm sites are less likely to have a similar opinion on a landscape that has several developments in view.

This clear result compares with analysis in the previous section where there was a small increase in the negative response as the visual impact increased for an individual Wind farm development. This suggests that people see one large scale development in an area as preferable to several smaller scale developments dotted on the landscape.

On the other hand, both sets of results also confirm that a definite tipping point exists where Wind farm development becomes untenable for a significant number of visitors.

Table 4-30 Q31 - I don't like to see several Wind farms in the same view

	Frequency	%
Agree Strongly	70	19%
Agree Slightly	94	25%
Neither Agree nor Disagree	99	26%
Disagree Slightly	74	20%
Disagree Strongly	40	11%
Total	377	100%

4.6.2 'I like to see Wind farms'

Nearly half (48%) of respondents agreed with the statement 'I like to see Wind farms'. 28% disagreed with the statement. The remaining 24% of respondents were neutral on this statement; therefore overall almost three-quarters (72%) were positive or neutral to this statement. This corresponds to the responses given at Question 17 regarding the impact of structures on the landscape, where exactly three-quarters (75%) of respondents indicated that Wind farms either had a positive impact or no impact on their experience of the landscape.

Table 4-31 Q31 - I don't like to see Wind farms

	Frequency	Percent
Agree Strongly	100	27%
Agree Slightly	81	21%
Neither Agree nor Disagree	91	24%
Disagree Slightly	44	12%
Disagree Strongly	61	16%
Total	377	100%

N=377

4.6.3 I think they should be painted to make them less visible

Exactly half (50%) of respondents did not agree that Wind farms should be painted, with only 29% agreeing to this statement. This is a strong indication that the painting of Wind farm structures, even with the intention of making them less visible, would actually increase the level of negative opinion from that which exists towards their present form. Indeed, a larger proportion of both respondents who are positive and negative towards Wind farms disagreed with this statement.

Table 4-32 Q31 - I think they should be painted to make them less visible

	Frequency	Percent
Agree Strongly	40	11%
Agree Slightly	68	18%
Neither Agree nor Disagree	75	20%
Disagree Slightly	102	27%
Disagree Strongly	87	23%

Don't Know	5	1%
Total	377	100%

4.6.4 A well sited Wind farm does not ruin the landscape

A significant proportion (68%) agreed that a well sited Wind farm did not ruin the landscape, while one-fifth (20%) disagreed with this statement. Interestingly, of the 105 respondents that had disagreed with the statement 'I like to see Wind farms', 40 of them agreed that a well sited Wind farm did not ruin the landscape. However, of the 181 respondents that had agreed with statement 'I like to see Wind farms', 12 actually disagreed that a well sited Wind farm did not ruin the landscape. This suggests that even among those who like to see Wind farms, for some of them there will be certain settings or locations where they would not like to see such a development. It could be argued nonetheless that the existing planning regime already acknowledges this fact and that guidelines attempt to stop such developments.

Table 4-33 Q31 - A well sited Wind farm does not ruin the landscape

	Frequency	Percent
Agree Strongly	111	29%
Agree Slightly	146	39%
Neither Agree nor Disagree	45	12%
Disagree Slightly	40	11%
Disagree Strongly	33	9%
Don't Know	2	1%
Total	377	100%

4.7 Conclusion on Intercept Methodology

The approach chosen was largely successful in obtaining the views of a representative sample of tourists in significantly different areas most of whom had had some experience of viewing a wind farm development. The results confirm that a sizeable minority of tourists did not like wind farms, but only a small minority were so offended as to change their intentions about revisiting Scotland. The impact is consequently likely to be very small.

Importantly those who had seen a farm were less hostile than those who had not, suggesting that previous intention type surveys such as NTS/System3 (2002) and indeed the Internet Survey conducted as part of this research, may have exaggerated the impact. It is believed that this may reflect a "protest vote" response by some who have negative views about wind farms and the landscape and who wish to register those views in some way whilst, in practice, continuing to holiday in Scotland.

One major surprising finding was that those who had had most exposure, specifically those who had driven very close to the wind farms in Caithness (Causeymire) and in the Borders (Dun Law) were possibly even less affected than those who had viewed them at some distance e.g. the Braes of Doune from Stirling Castle. The initial plan to classify tourists by level of exposure was, as a consequence, altered and all exposure was treated similarly.

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Economic Research Findings: The Economic Impacts of Wind Farms on Scottish Tourism

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Glasgow Caledonian University was commissioned in June 2007 to assess whether Government priorities for wind farms in Scotland are likely to have an economic impact - either positive or negative - on Scottish tourism. The objectives of the study were to:

- *Discuss the experiences of other countries with similar characteristics.*
- *Quantify the size of any local or national impacts in terms of jobs and income.*
- *Inform tourism, renewables and planning policy.*

Key Findings

The overall conclusion of this research is that the Scottish Government should be able to meet commitments to generate at least 50 per cent of Scotland's electricity from renewable sources by 2020 with minimal impact on the tourism industry's ambition to grow revenues by over £2 billion in real terms in the 10 years to 2015.

- In total, three-quarters of tourists felt wind farms had a positive (39 per cent) or neutral (36 per cent) impact on the landscape.
- If the renewables target is met via substantial wind farm development, Scottish tourism revenues in 2015 are forecast to be 0.18 per cent lower (£7.6 million) than they would have been if there were no wind farms in Scotland.
- This change in tourism expenditure would mean that in 2015 there will be £4.7 million less Gross Value Added in the Scottish economy than there would have been in the absence of all the wind farms that would be required to meet the renewables target through wind power alone (at 2007 prices). This effect will be offset or reinforced by other economic or environmental impacts of wind farms and a part of the adjustment may have already occurred.
- Four parts of Scotland were chosen as case-study areas and the local effects were also found to be small compared to the growth in tourism revenues required to meet the Government's target. The largest local effect was estimated for 'Stirling, Perth & Kinross', where the forecasted impact on tourism would mean that Gross Value Added in these two economies will be £6.3 million lower in 2015 than it would have been in the absence of any wind farms (at 2007 prices). The majority of this activity is expected to be displaced to other areas of Scotland, and the local effect on tourism should be considered alongside other local impacts of the developments - such as any jobs created in the wind power industry itself.
- Based on survey responses and research findings, the report makes recommendations for the planning authorities which could help to minimise any negative effects of wind farms on the tourism industry. From a tourism stand point, larger developments may be preferable to a number of smaller developments, particularly when they occur in the same general area. There is also an opportunity for the renewables and tourism industries to work together to protect certain areas from development (e.g. National Parks or National Scenic Areas) and to market other areas - with a number of developments - as "green" to make use of the positive perceptions of wind farms.

Methodology

The methodology for the study had four main elements:

1. Desk-based review of around 40 studies in the UK and Ireland, in addition to international reports from Denmark, Norway, Sweden, Germany, the United States, and Australia.
2. Intercept survey of 380 tourists at locations in 4 case study areas: ' *Caithness and Sutherland*', ' *Stirling, Perth and Kinross*', ' *Scottish Borders*', ' *Dumfries and Galloway*'.
3. Internet survey of 600 people in the UK and 100 people in the US who had been or were likely to go to Scotland in the near future.
4. Geographical Information Systems (GIS) analysis to identify the number of tourists that are likely to see wind farms during their stay: while travelling (by road) or from their accommodation.

Introduction

Scottish Ministers are committed to generating at least 50 per cent of Scotland's electricity from renewable sources by 2020, with an interim milestone of 31 per cent by 2011. The 2011 target implies around 5,000 megawatts of installed capacity and wind farm developments are expected to make a significant contribution. In turn, these developments will affect the country's landscape, which is often cited by tourists as their primary motivation for visiting Scotland. In light of the tourism industry and the Scottish Government's shared ambition to grow tourism revenues by 50 per cent in the 10 years to 2015, it is vital that the potential impact of wind farms on tourism is accurately assessed, to allow informed, appropriate decisions to be made on their suitability and location.

Findings from the Literature Review

The number and quality of published studies of actual measured effects is very limited. The evidence that exists from the UK suggests there is often strong hostility to developments at the planning stage on the grounds of the scenic impact and the perceived knock on effect on tourism. However developments in the most sensitive locations (such as National Parks and National Scenic Areas) do not appear to have been given approval so that where negative impacts on tourism might have been a real outcome there is, in practice, little evidence of a negative effect.

There is, however, evidence that - on balance - individuals (tourists or otherwise) place a higher value on the landscape when a wind farm is not included in the view than when it is. What is less clear from the literature though is whether this change in value affects a tourist's decision to visit that location (i.e. whether there is a resultant impact on tourism). Over time hostility to wind farms appears to lessen and they become an accepted even valued part of the scenery, particularly by those closest to them. In some countries an established wind farm appears to be able to act as a tourist attraction in the same way as a hydro-electric power station. Overall, there does not appear to be any robust evidence to suggest a serious negative economic impact of wind farms on tourism.

General Attitudes of Current and Potential Visitors towards Wind Farms

This research sought to assess the opinions of tourists towards wind farms in order to supplement the economic impact findings. The findings in the four case-study areas included:

- In total, three-quarters of tourists felt wind farms had a positive or neutral impact on the landscape, of which:
 - 39 per cent of respondents were positive about wind farms,
 - 36 per cent had no opinion either way, and
 - 25 per cent were negative (including 10 per cent who were strongly negative).
- Compared to 10 other structures in the landscape (including pylons, mobile phone masts and fish farms) wind farms received the joint lowest number of "no impact" responses. Opinions on wind farms amongst tourists appear to be heavily divided relative to other structures with the majority of respondents (64%) offering either pro- or anti- wind farm views. The level of *negative* response to wind farms (25%) was the fourth highest of the 11 structures; the level of *positive* responses (34%) was third highest.
- Overseas visitors seemed to be more positive about wind farms than domestic tourists.
- 68 per cent of tourists were positive about the statement "A well sited wind farm does not ruin the landscape" with a further 12% neutral.

- 48 percent of visitors were positive about the statement "I like to see wind farms" with a further 24% neutral.
- Importantly, respondents that had seen a wind farm were less hostile than those who had not.
- The results confirm that a significant minority (20% to 30%) of tourists preferred landscapes without wind farms. However of these only a very small group were so offended that they changed their intentions about revisiting Scotland.

The internet survey of current and potential tourists (600 based in the UK, 100 from the US) found that:

- The perception is that turbines are as prevalent in areas designated as areas of natural beauty as they are in other non-scenic parts of the country.
- The youngest respondents (ages 16-25) in general appear to think that wind farms have less of an impact than potential visitors in other age ranges.
- A much higher percentage of respondents indicated that they would not visit an area if a wind farm was constructed (17.8%) than was found in the intercept survey. It should be noted that compared to the results of the intercept survey, this estimate is less robust and **should therefore be treated with caution**, as, unlike the intercept study, respondents were not made aware of what constituted the "local area". Instead, the result is indicative of the level of negative feeling some people have towards wind farms.
- As in the intercept survey, wind farms appeared to be more favoured by foreign tourists than UK visitors.
- Most individuals appear to prefer a landscape from their accommodation without a wind farm (63%) but there is also a substantial proportion that is neutral (28%) and a few who positively like wind farms (9%). Most people appear to believe that, from the hotel bedroom, it is better to face an open hillside, rather than a wind farm.
- There appears to be a diminishing marginal loss of value associated with increasing size of wind farms. In effect, it appears that once there has been an intrusion into the scenery, the effect on the value of the landscape of expanding the size of the wind farm is relatively small.

Economic Impacts

Sources of Economic Impacts

Two main economic impacts may occur when a wind farm is constructed. First, there may be a change in the number of tourists going to an area. This was estimated using the responses to the intercept survey. Secondly, the views from some accommodation will be affected by the construction of wind farms. Under certain assumptions, economic theory predicts that in the short run a change in demand for a "room with a view" will result in a proportionate change in the average price actually paid by the tourist. Consequently, any rise or fall in expenditure on accommodation can be calculated using the findings of the internet survey. Bringing together the two effects allows the estimation of the net changes in tourism expenditure at the local and Scottish levels.

Changes in Visitor Intentions (to Return)

The vast majority (93-99%) of tourists that had seen a wind farm in the local area suggested that the experience would not have any effect on their decision to return to that area, or to Scotland as a whole. The net result of the changes in intentions at both the area level and nationally is therefore relatively small and not significantly different from zero in a statistical sense. Only when respondents were shown images of hypothetical extensions to the wind farm did they become negative in their responses. The extended development scenario at the area level shows a very small but statistically significant (at the 10 per cent level) fall of 2.5 per cent in the likelihood of revisiting an area and an even smaller (less than 0.5 per cent) fall in the likelihood of revisiting Scotland. These are believed to be the maximum negative response that might be expected. Indeed, there were some tourists for whom the experience increased the likelihood of return rather than decreasing it. The assessed change in likelihood combines both decreases (**negative** impacts) and increases (**positive** impacts). The report applies this percentage change in likelihood to the estimated number of tourists that will see a wind farm during their visit and assesses the related fall in expenditure.

Changes in the Price of Accommodation

The results of the internet survey suggest that the average tourist is prepared to pay around 20-35 per cent more for a room with an unspoilt view than they are for a room with a view of a wind farm. In the short run this will result in a corresponding fall in the price charged for the room. However, the vast majority of wind farms considered in this study (both current and proposed) did not affect the views from any accommodation. As a result, the impact of wind farms on tourism revenues that may arise through changes in the price of

accommodation - even in the short run - was found to be small. The fall in expenditure on accommodation across the four case study areas ranged from only 0.48 per cent in 'Caithness and Sutherland' to 1.59 per cent in 'Dumfries and Galloway'.

Modelling the Economic Impacts

The impact on tourism expenditure arising through both effects was calculated using VisitScotland spending data and data submitted by local authorities in support of Grant-in-Aid submissions. This was then fed into the Detailed Regional Economic Accounting Model (DREAM) of the region to provide estimates of the employment and income (Gross Value Added) lost to each case study area and nationally. At the national level, DREAM is the same as published Scottish Government Input-Output tables.

Impacts on Local Area Economies

This study identified all wind farms currently in operation or proposed (as at June 2007). While not all of these will be granted acceptance, it is recognised that there are a number of other applications at the scoping stage that might be built. **The number of wind farms considered is greater than the additional capacity required to meet the Scottish Government's targets for renewable energy.** The results of the analysis compared to a scenario where there would be no wind farm developments in Scotland are shown in the table below.

Economic Impact of All Current and Proposed Wind Farms on Scottish Tourism at Local Level (2007 prices)¹ (<http://www.scotland.gov.uk/Publications/2008/03/07113507/2>)

	Current Estimated Total GVA		Potential Reduction by 2015 due to Tourism Visits		Potential Reduction by 2015 due to Accommodation Spending		Maximum Total Reduction by 2015 due to Tourism Effects	
	(1)	(2)	(3)	(4)	(5)	(6)	(7=3+5)	(8=4+6)
	GVA £m	Jobs	GVA £m	Jobs	GVA £m	Jobs	Total GVA £m	Total jobs in all industries
Caithness & Sutherland	£466	1,590	£0.6	27	£0.1	3	£0.7	30
Stirling, Perth & Kinross	£2,961	10,600	£5.2	279	£1.1	60	£6.3	339
Scottish Borders	£1,150	3,600	£1.5	75	£0.2	6	£1.7	81
Dumfries & Galloway	£1,661	4,800	£3.0	200	£1.1	77	£4.1	277

These results should be interpreted very carefully. They suggest that slower growth in tourism revenues caused by all current and proposed wind farms ² (<http://www.scotland.gov.uk/Publications/2008/03/07113507/2>), compared to a situation with no wind farms in Scotland, will result in a modest negative economic impact at a local level. By 2015, the effects tourism revenue and value added ³ (<http://www.scotland.gov.uk/Publications/2008/03/07113507/2>) - compared to what they would have been in the absence of any wind farms in Scotland - will vary depending on the area; ranging from £0.7 million less value added in 'Caithness & Sutherland', to £6.3 million less value added in 'Stirling, Perth & Kinross' (at 2007 prices). This is equivalent to saying that tourism revenues will support between 30 and 339 jobs fewer in these economies in 2015 than they would have in the absence of **all** the

wind farms required to meet the current renewables obligation. Part of this adjustment will already have taken place.

These estimates should not be considered in isolation - the effect of reduced tourism revenues may be offset or reinforced by other economic impacts. For example, the number of jobs and income arising in the construction and operation of *each* wind farm developed should be considered when assessing the total impact of all current and proposed wind farms on a local economy.

At the Scotland level, ***the total impact is not equal to all the local area effects added together***. Those areas with fewer wind farms are likely to see greater increases in tourism than they would have otherwise and this will act to offset slower growth in other parts of the country. Only a negligible fraction of tourists will change their decision whether to return to Scotland as a whole because they have seen a wind farm during their visit.

This report estimates that if the renewables target is met via substantial wind farm development, Scottish tourism revenues in 2015 are forecast to be only 0.18 per cent lower in 2015 than they would have been if there were no wind farms in Scotland. This change in tourism expenditure would mean that in 2015 there will be £4.7 million less Gross Value Added in the Scottish economy than there would have been in the absence of all the wind farms that would be required to meet the renewables target through wind power alone (at 2007 prices). These jobs are equivalent to £4.7m of Gross Value Added at 2007 prices. In comparison to the current size of the tourism industry, the reduction in growth prospects is very small (0.1 per cent of tourism employment); compared to the economy as a whole they are smaller still. It should also be remembered that these are not job losses that will be felt instantaneously, rather it is a reduction in the number of jobs that will be created in future as a result of tourism spending. These impacts should not be considered in isolation from other impacts of wind farms on employment, the economy and the environment.

The importance of substitution within Scotland should be noted: a bigger loss is estimated for 'Perth, Kinross and Stirling' than for Scotland as a whole. This can be explained in part because of the exclusion of residents of Scotland from the estimate of national impact - these people would be expected to continue to spend in Scotland even if they are put off visiting a particular area. The local area estimate is also dependent on the maintenance of areas without, or with very few, turbines. If this is not the case then the local area effects are likely to be lower than currently estimated, whilst the impact on Scotland as a whole may be larger.

The report makes clear that all estimated impacts are a **worst case scenario**, for a number of reasons. The most important of these are:

- The research was based on reactions to hypothetical extensions to existing wind farms,
- The research assumed perfect visibility of wind farms, and
- Wind farms could prove to be a tourist attraction.

Planning Recommendations

This research has found that the negative impact of wind farms on tourism at national level is small and any reduction in employment in tourism will be less than the numbers currently directly employed in the wind power industry. However planning authorities may wish to consider the following factors to ensure that any adverse local impacts on tourism are minimised:

- The number of tourists travelling past *en route* to elsewhere,
- The views from accommodation in the area,
- The relative scale of tourism impact i.e. local and national
- The potential positives associated with the development
- The views of tourist organisations i.e. local tourist businesses or VisitScotland.

In some cases this consideration would be greatly assisted if the developers produced a brief Tourist Impact Statement as part of the Environmental Impact Assessment. The core of the statement would be the tourist accommodation and the number of tourists on roads within the Zone of Visual Impact. However in tourist areas the developer might also be expected to generate proposals to make use of the positive aspects of the development.

At the national planning level the research in this report identifies that from a tourism viewpoint:

- A number of wind farms in sight at any point in time may be undesirable

- The loss of value when moving from medium to large developments is not as great as the initial loss. It is the basic intrusion into the landscape that generates the loss of value for tourists.

This suggests that from a tourism stand point, larger developments are preferable to a number of smaller developments, particularly when they occur in the same general area.

Finally this research found that, in general, the public did not recognise that some areas had been protected from development. Currently those tourists who do find wind turbines an objectionable presence are most likely simply to move to another area in Scotland. To ensure substitution opportunities it is important that areas are retained where turbine development is limited to supplying local needs in small remote communities. Smaller scale community projects clearly have an important role to play in meeting Scotland's energy requirements.

The wilderness nature of any untouched areas should be publicised. Equally the research found some tourists positively attracted to wind turbines, particularly in quiet rural areas similar to Denmark. The research suggests that there may be an opportunity to market these areas as "green" and to view wind farm development positively. Of the case study areas Caithness would appear to be the most vulnerable to tourism losses and equally it is this area that has the greatest opportunity to promote itself as a centre for renewable energy.

Conclusions

Overall the finding of the research is that if the tourism and renewable industries work together to ensure that suitably sized wind farms are sensitively sited, whilst at the same time affording parts of Scotland protection from development, then the impacts on anticipated growth paths are expected to be so small that there is no reason to believe that Scottish Government targets for both sectors are incompatible.

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WIND TURBINES IN TOURISM LANDSCAPES

Czech Experience

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Abstract: This study proposes to assess and empirically verify possible negative effects from the construction of wind turbines on the landscape image and tourism potential of affected areas, using the example of two comparative recreational localities in the Czech Republic: one with the construction of a wind farm planned and the other with an already existing farm. The empirical research consisted of two mutually linked parts: a questionnaire survey and focused, semi-structured interviews. Emphasis was placed on the subjective perception of the phenomenon by tourists and local business representatives from the sphere of tourism. The analysis focuses also on the social-geographical factors that shape tourists attitudes to the wind energy development dilemma. **Keywords:** wind energy, landscape, perception, Czech Republic. © 2010 Elsevier Ltd. All rights reserved.

INTRODUCTION

Growing concern over global climate changes, energy sustainability, and security has led to increasing interest in developing renewable energy sources. In this respect, wind energy has become the most dynamically developing sector. However, development is not as fast as had been expected in many countries and wind turbines (hereafter WT) projects are at both local and regional levels subject to considerable social controversy (Breukers & Wolsink, 2007; Van der Horst, 2007; Wüstenhagen, Wolsink, & Bürer, 2007). Among the main arguments of opponents recently is, in addition to the potential impacts of WT on the character of the landscape, also speculation about their negative effects on tourism in the affected areas, owing to a suggested loss of attractiveness of the “visually polluted” landscape (Gordon, 2001). Still, there has been a very limited number of studies (including no examples concerned with East-Central

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Europe) dealing with the specific issue of tourist perception of the phenomenon, unlike the surveys of general public opinion of wind energy development or on the local acceptance of WT projects by residents.

Wind energy development in the Czech Republic (hereafter CR), likewise in neighboring Slovakia, has been delayed compared with most of the European countries, and its realizable wind potential has by far not yet been utilized. This situation has been caused by specific political and economical factors (Cetkovský, Frantál & Štekl, 2010). The recent period may be marked as a new wind energy boom, legislatively supported (with economic subvention) on a national level by the “Act on the Promotion of the Use of Renewable Sources“ (No. 180/2005 Coll.) which assumed a share of 8% of electrical energy production gained from renewable sources until 2010. According to new direction of the European Commission (No.2009/28/ES) the share of renewable energy sources in total energy consumption should raise to 20% on average for the whole EU until 2020; the CR expects the share of about 13%.

Wind energy development has started to effect a fundamental change in the Czech landscape character, especially its visual image. Not only objective factors but to a large extent also the subjective views and preferences of various pressure groups (investors, local and regional political authorities, residents, landscape ecologists, etc.) come into the decision making game about the WT projects. The spatial distribution of realized projects is characterized by strong regional disparities, which reflect not only objective wind potential and physical-geographical limits of area but also (and maybe especially) political-institutional factors (Wolsink, 2000) taking effect in the administration of permitting system. In this respect, the landscape has become a point of contention and negotiation among different ways of seeing, various interests, value judgments, ideologies, myths, and representations (Cosgrove, 1998).

The CR is a relatively small-scale, landlocked country. Most of its area includes neither alpine terrain nor seashore (unlike European tourism leaders such as Austria, Switzerland, Spain, Croatia, France, etc.), and is therefore an example of a country where the prerequisites for tourism lie within various types of rural countryside and where the diversity of the landscape is also determined by its architectural elements, connected with the historical and cultural traditions of each place (Vystoupil & Kunc, 2009). In many areas where the natural potential is combined with a typically rural cultural landscape, the construction of a new dominant feature (not just a WT, but also, e.g., an observation tower, high-rise building, mobile phone base, etc.) is a bone of contention (Klapka, 2008). In this respect, the issue of WT has become a kind of hammer in political battles concerning landscape planning, regional development, and land-use policy. Furthermore, the opinions of individuals are often presented and mediated as impartial judgments, as for example this statement from the former Moravian-Silesian Region regional governor (*hejtman*) (translated from Czech by the authors):

Probably the biggest damage the wind turbines cause is in the landscape. If the Jeseníky Mountains and Beskydy Mountains are protected landscape areas with the dominant function of tourism, wind energetics could utterly destroy this function (Tošenovský, 2005, p. 2).

Or this similar statement from the Vysočina Region council authority:

In the event that we turn the Vysočina Region into the wind farm, we can abandon the idea of tourism development. It is hard to imagine a tourist who is going to walk, ride on a bicycle, or gather mushrooms, and finally lodge under the whizzing wind turbines (Bílek, 2007, p. 2).

Similar prejudiced statements arise on the political scene—as well as from the academic sphere—and are mediated in many countries. In regions and locations where tourism is an important source of income and thus a significant part of the local economy, arguments about the negative impacts from construction of WT are a delicate issue, which can significantly influence public opinion and the decision making process on projects. Naturally the extent of resistance and active counteraction against projects differs across localities, regions, and countries (Toke, Breukers, & Wolsink, 2008); opposition proceeds primarily from a subjective perception of risk that is, in principle, socially constructed. Burgess (2002) argues that the media play a key role in shaping public anxieties towards new objects in the landscape, and he asserts that policy makers and other men of influence should avoid a non-scientific precautionary approach in this respect.

Crude construction of WT as new vertical dominants can undoubtedly mean a significant interference with the landscape. In this regard, it is not necessary to deal with clearly justified restrictions (in most countries, stated legislatively) on building WT in the most precious landscapes, that is, national parks and protected landscape areas, which in the CR cover approximately fifteen percent of total area. However, it is not possible to approach the issue of WT construction a priori negatively, and thus to yield to groundless speculations and myths about their negative impact that can prevent their constructions in suitable locations with no conflicts between interests. WT are often considered symbols of clean, dynamic energy, and they can present “positive esthetic value, like Hi-Tech product” in some landscapes, for example, segments of visually open cultural landscape, or industrial or post-industrial landscapes (Vorel, 2009).

The authors propose to verify empirically the possible negative effects of the WT construction on the landscape image and tourism potential of concerned areas. Two comparative rural recreational localities have been chosen as case studies, one with construction of a wind farm planned and the second with a farm already existing. The field research consisted of two parts: an on-site questionnaire survey with tourists, and focused, semi-structured interviews with local business representatives running accommodation and catering establishments. The aim of the survey was to identify what impact the presence of WT in the landscape has or may have on the perception

and experience of tourists, their preference of landscape type for prospective WT installations, and whether there may be any potential interest in visiting these locations specifically for their WT. The intention of the focused interviews was to map the situation of local entrepreneurs (who can be considered local experts in the given domain) and their opinions on the effects of WT on tourism and recreation in the study areas. In contrast with the studies previously undertaken, the analysis was also targeted on the socio-demographical and geographical factors which shape the individual attitudes of respondents to the wind energy development dilemma.

THE IMAGE OF WIND TURBINES IN TOURISM LANDSCAPES

Natural potential can be considered the decisive factor in the location of most tourism and recreation activities, as it is this which determines both the functional and the spatial distribution in land use. However natural potential cannot be identified with the overall potential for tourism since the cultural subsystem—historical, religious, technical, or military sights; village monument conservation, vernacular architecture, and other cultural facilities—also play an important part in the overall potential of the area (Pearce, 1995). In many current national strategic documents (e.g., The Program of Rural Development of the CR for 2007–2013; Department of Agriculture, 2007), the assessment and utilization of natural and cultural heritage through rural tourism is identified as the strongest force function of rural areas. Natural and cultural-historical potential can also be understood as part of the objective identity of a location, which includes the physical setting and qualities, activities, and meanings that create the individuality and distinctive character of a place.

Nevertheless, this identity has its subjective dimension as well: the images, which are products of subjective perception, beliefs, ideas, impressions, attitudes, and immediate sensations made according to personal experiences as well as information gained from other people or media (Gertner & Kotler, 2004). Analyzing images of a place has a key role in the strategic planning of development activities and their realization in contemporary place competition (Gallarza, Saura, & García, 2002; Kotler & Gertner, 2002). As concerns tourism development, the objective potential of an area often does not have to be the most important factor (Selby & Morgan, 1996). It is rather a matter of how the whole area is perceived and assessed in its total complexity by key constituents (e.g., tourists, investors, the media), by its residents, local authorities, and entrepreneurial subjects—where they see its strengths and weaknesses, and on which qualities (natural attractions, historic or architectural sights, cultural or sporting life, etc.) they will establish strategies for place branding (Anholt, 2006; Freire, 2006).

New anthropogenic elements in the landscape always present controversy, particularly if the area has a rare or unique natural or cultural-historical potential. There are many studies concerned with the effects of constructions of diverse character, type, and structure on tourism;

attitudes are different with respect to the reality of a given location, environment, or population segment. It is hypothesized that the perceptions of tourists can significantly differ from those of residents. People in environments that are out of the everyday for them perceive and experience the surrounding world with different eyes, and they want “to gaze on different landscapes and townscape that are unusual for them” (Urry, 1990, p. 1). Therefore, objects that residents might often find irritating could have an attraction to tourists. Attraction to tourists can be based on any unfamiliar element, depending only on the tourists’ interests and preferences which objects are perceived and experienced as tempting (Leiper, 1990; *op. cit.* Löytynoja, 2008).

In countries with significant industrial traditions, a variety of technical objects have been revitalized in order to support new forms of tourism (Edwards & Llurdés, 1996). The former industrial complexes (e.g., copper mines in Røros, Norway; the Ironbridge Gorge area in the UK; the Zollverein coal mine industrial complex in Essen, Germany, etc.) have been placed on the UNESCO heritage list and enjoy the interest of tourists. On the other hand, a number of objects recently installed in the landscape, mostly connected with new technologies, have been negatively perceived by both residents and tourists. Probably the most criticized constructions are telecommunication facilities (mobile telephone transmitters or towers). The research by Park, Jorgensen, Swanwick, and Seman (2008) shows a generally prevailing public antipathy toward telecommunication facilities located in national parks in England. In the tourists’ opinion, the negative effects on the landscape character outweighed the socio-economic advantages connected with the use of the technology. Mobile telephone stations are mostly perceived as industrial objects counterworking against “landscaping of the rural as scenic countryside and disrupt the tourist rural idyll and authenticity of the heritage industry’s staple of mannered country life” (Law, 2005, p. 1). In recent years also the photovoltaics (or solar power plants) passed through a dynamic development. But these objects are not as expanded and conflicting as WT; they used to be located mostly at plain fields (often at agricultural or industrial zones, fabric roofs, etc.), they are not visible far and wide and change the landscape character moderately. Some studies proved even a positive effect of solar technologies for sustainable tourism development (Michalena & Tripanagnostopoulos, 2010).

An important evaluative criterion for perceiving the visual effects of different objects on the landscape are the symbolic associations (positive or negative) attached to them. Thus wind energy may be associated with such “higher concepts” as global climate change and the like. An example of such a symbolic dimension of perception is demonstrated by Devine-Wright (2005, p. 129). The small-scale hydroelectric generating stations in an English national park are perceived very positively thanks to their association with historic water mills also preserved in several places around the park. This example shows how innovation in technology can be perceived positively when it represents continuity between the past and the modern. Suitable marketing strategies could lead to a more positive perception of WT if they symbolically

emphasize a continuity with historic wind mills or symbolize a material reconnection to the energy we use (Pasqualetti, 2000). Historic wind mills are today regarded as symbols of a nature-considerate approach of the past and serve as obvious tourist attractions, whereas modern WT are often presented as alien structures.

There is prevailing divergence between broadly high rates of support for a larger-scale utilization of renewable sources (including the wind energy) as a general idea and the rate of acceptance of WT as real constructions with impacts on a specific landscape. This divergence, which appears in polls across countries (Devine-Wright, 2005; Krohn & Damborg, 1999) is often related to so-called NIMBY (*Not In My Backyard*) syndrome. The NIMBY theory (Marks & Von Winterfeld, 1984; Thayer & Hansen, 1988) assumes people do not want WT constructed in their place of their residence but do not mind them being placed anywhere else. Validity of the NIMBY theory in context of the wind energy research was impugned by studies of Wolsink (1994, 2000, 2007), however the concept has not been definitively falsified. Wolsink detected a multidimensionality of the oppositional behavior and argued (*op. cit.* Devine-Wright, 2005, p. 131) the NIMBYism actually “represented constellation of different attitudinal positions to both wind energy policy and development”. After all, environmental concerns, landscape contexts, their subjective perception, and tendencies for the preservation of local identity play a dominant role in the process of forming opposition to WT.

The reason for the deficit in more complex empirical studies dealing with impacts of the wind energy development on tourism is of both subjective and objective character. In many countries where there exist high levels of public support for renewable energy (e.g., Denmark, Germany, Austria, etc.), the question of their possible negative influence on tourism is practically not dealt with; on the contrary they are often effectively used in marketing support for “green tourism” (British Wind Energy Association, 2006). Objective reasons relate to the difficulties of research validity—in other words, to the difficulty (or even impossibility) of measuring the direct effects of the construction of WT on tourism, a complex sector where a great number of partial factors (e.g., the social situation within the country, the value of the local currency, extended options of traveling abroad, the changing prices of fuels, seasonal variations of weather, fashion trends, etc.) act upon one another and develop relatively independently of the construction of WT in a given location.

One possible research method is an indirect measurement of the effects of WT via questionnaires or interviews with tourists or the general public and via inquiries with business subjects in the sphere of tourism and affiliated services, as well as with representatives of local government, and so on, to assess preferences and tendencies toward changing current behavior. Such kinds of polls were executed for the British Wind Energy Association in Scotland (MORI Scotland, 2002) and for the Wales Tourist Board (NFO World Group, 2003). The general results can be summarized as follows: most tourists perceive WT neutrally or even positively, and the presence of WT has no effect on their

decision about visiting a given location. WT and tourism are also partially dealt with by Hauer (2003), who examines the effects of wind energy development on the economic position of disadvantaged peripheral regions through the case of the Waldviertel region in Austria. The most recent study of Dalton, Lockington, and Baldock (2008) surveys tourist attitudes to use of the photovoltaic and wind facilities in Australian hotels; proving a prevailing positive support for renewable energy and a willingness of tourists to pay some extra money for “environmentally friendly accommodation”. Still, there is a lack of deeper social-geographical analyses of the issue in the context of different national, regional, and cultural landscapes.

There can never be 100% support from local communities for wind energy projects; on the other hand, they do represent a possible financial benefit for municipalities, which can then be used for the development of the location’s infrastructure and its promotion (including the tourism development). Real cases from different countries show that WT can attract a large number of tourists and together with suitable marketing promotion can contribute to better place brand and development of new forms of tourism (“green tourism” or so-called “turbine bagging”) in peripheral rural localities (BWEA, 2006). Many WT projects include *ab initio* plans for their use as ecological educational centers (e.g., Lamma Islands, Honk Kong), as observation towers (e.g., Lichtenegg, Austria; Swaffham, Great Britain; Zoetermeer, Netherlands) or as nature trails (e.g., Kotka, Finland), with the aim of fully utilizing their tourist potential. For some municipalities, WT have become icons which go toward creating their place brand. This kind of projects may be the first step in the process of embracing wind energy visibility not as a problem but as an asset in contemporary place competition.

Study Areas

Two comparative rural areas were chosen for the purpose of this study, similar as far as their natural conditions and the landscape character are concerned (Figure 1). These areas can be regarded as typical (not only in the CR) representatives of areas suitable for WT construction: they are located in less populated, upland, or piedmont areas with proper wind potential and without any special nature or landscape protection status. At the same time, they are the areas with significant tourism potential and recreational function. The first study area (hereafter SA1) is the surroundings of the Slezska Harta dam and reservoir in the Moravian-Silesian region (as a location where the construction of WT has been considered). The second one (SA2) is the vicinity of the Křstofovy Hamry municipality in Krusne Hory Mountains, located on the Czech-German borderland (as a locality where a large wind farm has been in operation for a few years).

The Slezska Harta dam and lake is not only a fresh water reservoir but also a popular recreational area with significant natural potential (typical for summer activities as camping, cycling, hiking, bathing and fishing). The whole area is located in the natural area of the Nizky



Figure 1. Map of the Czech Republic with Two Study Areas

Jesenik Mountains, which is not particularly protected on a large scale: there are no legal restrictions resulting from status as a protected landscape area. The related area is composed of five small municipalities; the cadastre of one of the municipalities was identified by developers as a suitable candidate for the construction of five WT. The plan for the construction of a wind farm was received with enthusiasm both by local authorities (for potential economical benefits) and was accepted by residents (with more than two thirds of the inhabitants expressing support in the public inquiry; the overall return was 80%). However, the project has been perceived negatively by some representatives at the regional level (in the Moravian-Silesian regional authority). For them the project is in conflict with plans for tourism development, owing to a suggested loss in the attractiveness of the landscape, and so the regional authority blocked the project.

The comparative area of the Krusne Hory Mountains represents on the one hand a tourist district with super-regional significance for both summer and winter recreation, and on the other a location with the highest installed capacity of wind energy in the CR (thanks to its outstanding wind potential and the absence of limiting factors from natural protection). The wind farm of Krystofovy Hamry is located in the central part of the mountain area (installation altitude is over 800 a.s.l.) near the Prisecnice reservoir. At the present it is the largest wind farm in a country, consisting of 21 turbines with the output of 2 MW each. The whole region is characterized by the legacy of coal-mining industry in the foothills, by relatively more positive attitudes of local and regional political authorities towards the wind energy (probably for the reasons of seeing the “good practices” of wind energy exploitation on the German part of border), and by dynamically improving the environment quality and tourism development during last twenty years.

Research Methods and Hypotheses

In the course of July and August 2008, field research was carried out. This research consisted firstly of a standardized questionnaire survey of tourists in the study areas completed via on-site interviewing by trained interviewers and secondly of focused, semi-structured interviews made by the authors themselves with representatives of local business subjects from the sphere of tourism (specifically accommodation and catering establishments). The sample comprised together 229 respondents: 156 tourists and 73 entrepreneurs, with approximately half coming from each area.

The tourists were selected for questionnaire interviewing by semi-quota sampling in proportion to their basic demographic characteristics (gender, age, place of residence). The aim was to include approximately equally gender representation, a complete age spectrum, and respondents from a variety of regions. The aspect of respondents' education was not a priori controlled since the previous studies (e.g., Frantál & Kučera, 2009) proved the education does not have a significant effect on opinion differences. The strongest age demographic in the sample was the category of 30–39 year olds (25%) and the weakest was the category of 19 and younger (5%); the other age categories (20–29, 40–49, 50–59, and 60 and older) comprised approximately 17% each. The youngest (up to 19 years) and oldest (older than 60) age categories were underrepresented in the sample as against the basic population. In practice, representatives of all thirteen Czech regions were involved in the survey, even if not proportionally according to total population of regions. The quantitative data were analyzed using the SPSS statistical program, including descriptive statistics and correlation analysis.

The sample of business subjects (running accommodation and catering establishments) comprised representatives of all existing establishments in the municipalities located within the study areas; in the course of the research undertaking, these subjects had to be actually engaged in business. Practically the sample consisted generally of males; only two female subjects were interviewed. On one hand, we regard the entrepreneurs as local experts on the tourism issue and as local residents with a potential NIMBY attitude towards WT in the area of their residence on the other hand. The aim of the interviews, which lasted 20 minutes on average, was to investigate via qualitative methods the flip side of the tourist perspective upon WT, which is the entrepreneurs' point of view, including the economic and social-cultural contexts that influence the local business environment, and also the actual residents' point of view.

The hypotheses that drive this study were defined as follows:

H1. WT are perceived more positively in contrast to other industrial and infrastructural constructions and facilities;

H2. most tourists do not regard the presence of WT in recreational landscapes as negative for their experience;

H3. tourists' perception of landscape image and the sense of attractiveness differ that of local residents;

H4. socio-demographic characteristics, psychographic (travel behavior and preferences) and geographical (place of residence) variables have an influence on perceptions of the phenomenon.

Survey of Tourists

Travel behavior. Survey respondents in the sample can be divided into five groups: the first group (almost 15%) of tourists were traveling on their own, almost 15% as a pair or couple, a smaller third as families with children, and another third in groups of friends/fellows, while one in ten respondents came in a package tour. In both study areas, a majority of the people (more than two thirds) questioned was not visiting the location for the first time. Actually every fifth person visited the area regularly and considered the location a "familiar place". Almost half of those questioned were tourists who had gone out on a one-day trip to the locations (i.e., they did not stay overnight); the second group (approximately 10%) stayed in the area between one and three nights; and the third group (40%) spent more than four nights in the area. As concerns the one-day trippers (regarded as excursionists in established terminology), only 40% of them were regional residents, and the rest were from other regions. Just 10% of one-day trippers were in the area for the first time and other 10% for the second time; 80% of them visited the area already several times; hence they know the area very well. Both the study areas are typical for frequent one-day trips (actually as most of the localities in the CR because of its small-area and good traffic accessibility), so it was natural to include the excursionists into the sample. It was also purposeful to include the segment of regional residents touring in order to analyze the influence of spatial variables on perceptions. In practice, only respondents who have had personal experience with WT in the area were included in the sample in SA2.

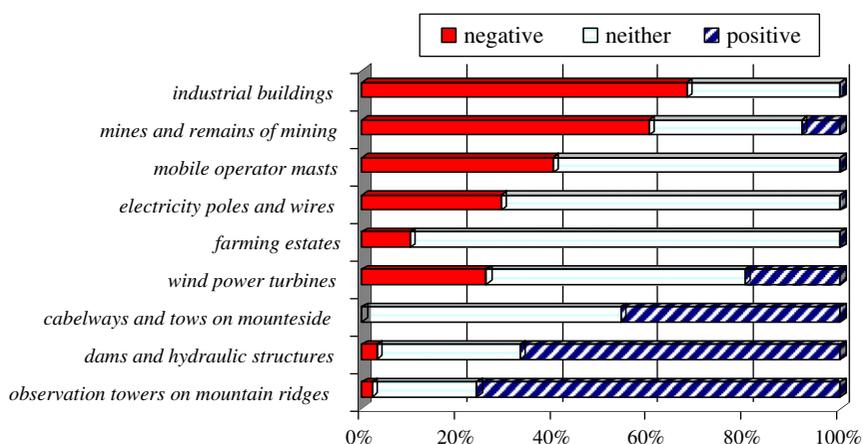
Destination choice. In both researched areas the respondents selected, out of fifteen given options, attractive landscape and scenery as the most important factor of their destination choice. This preference implies that these subjects should be sensitive towards objectionable interferences of WT on the landscape character. Among other aspects which were emphasized as considerably important were interesting history and sights, the number of tourist (nature) trails and cycling routes, a wide selection of activities, hospitable people, and facilities for sport. Aspects which proved the least important were good traffic accessibility, need for cultural events and festivities, and the availability of virgin (meaning untouched by human activity) nature. Minimal differences in these preferences between the respondents in both study areas can be regarded as statistically insignificant; therefore the results were merged into one table (see Table 1).

Perception of industrial objects: One question asked concerned to what degree different objects of human activity dissuade tourists from

Table 1. Importance of Destination Attributes

Attribute	Rank	Relative importance [%]
Attractive landscape and surrounding scenery	1	85
Interesting history and sights	2	55
The choice of tourist trails and cycling routes	3	35
Hospitable people	4	29
Wide spectrum of options of what to do and to see	5	28
Options of sport self-realization	6	25
(...)	(...)	–
Good traffic accessibility	13	11
The offer of cultural events and festivities	14	11
Virgin (wild) nature without traces of human activity	15	8

visiting a certain location. As the most disturbing elements in both areas were voted industrial buildings, mines and the remains of mining operations, mobile phone masts, and electrical poles and wires (Figure 2). Again there minor differences of perceptions appeared respecting the area sub-samples (except the perception of mining activities); therefore the results were merged for both areas. It is interesting to clarify that mines and relicts of mining were also experienced positively by one in ten respondents. This tenth was represented mainly by tourists in the SA2, wide areas of whose foothills have been afflicted by long-term opencast coal-mining. This result demonstrates how a phenomenon which the residents find extremely irritating can exercise a certain attraction on a specific sort of tourist (mainly middle-aged males coming from non-industrial regions). Generally, on a fifth of the respondents, the WT also did not make a good impression; on

**Figure 2. Relative Impacts of Anthropogenic Objects in Landscape on Tourist Experience**

the other hand a fifth of the respondents also expressed the opinion that WT acted positively in the landscape (in contrast to other forms of industrial facilities, mining activities, or coal-fired power plants) and represented a symbol of “clean energy”. However, there significant differences were evident in attitudes according to geographical variables (place of residence), which will be analyzed below.

Future visits: According to most respondents (90%) the prospective construction of WT in the SA1 would have no impact on their future visits to the area (i.e., they would return irrespective of WT), and in their view the presence of WT in the location would have no significant effect on tourism and recreation development. Similarly in the SA2, the majority (95%) stated that the presence of WT in the locality had no impact on their present and future visits. In other words, we can say that the presence of WT was shown to have only a minor effect on the attractiveness of the location and on the tourist destination-choice. A minority even expressed their belief that the presence of WT could have a positive impact, meaning an increase in the number of tourists. Only 6% of the respondents in the SA1 and 4% in the SA2 saw the construction of WT as having a real negative effect. According to these the main reason would be damage to the landscape character, the WT being perceived as disturbing features. This group of people stands opposed to wind energy development in the CR in general.

WT versus tourism: Table 2 presents the assessment of answers to more specific questions related to the problem. The data were again merged for both study areas because the differences between them were statistically insignificant (varying between 3% and 5%). We can sum up that although a quarter of people view the WT as affecting the landscape character and a third are skeptical of their use in promoting tourism, in spite of this a clear majority (84%) confirm that these objects would not influence their potential visits to the concerned areas. Only 6% of the respondents stated clearly that they would rather not visit locations where WT were installed; on the other hand, two thirds welcomed the

Table 2. Relative Frequencies of Responses to the WT Dilemma Statements

Statement/response [%]	Agreed	Hesitant	Disagreed
WT as a renewable energy source contribute positively to the protection of the environment	69	13	18
WT significantly affect the landscape character	27	5	68
If I knew that there are WT in a location, I would rather not visit the location	6	10	84
I would be interested in visiting the WT as long as there would be an information (excursion) centre	65	8	27
WT can be effectively used to support the tourism development	35	30	35

(N = 156)

presence of WT as they would become places of interest for them. Generally, more than two thirds of respondents believed that the use of WT as a “clean” renewable source contributes positively to the protection of the environment.

Positioning wind turbines: The question of what kind of landscape is suitable for prospective WT construction is perhaps the most controversial aspect of the ongoing debate. A majority (60%) prefer a larger number of smaller wind farms (consisting of 3–5 turbines) located in a number of different places to one large wind park with 80–100 turbines in one “sacrificed” area (an option preferred by only 10%). As expected, already used agricultural areas are preferred (70%) to untouched virgin nature areas (5%). And (surprisingly) highland areas are preferred (58%) to lowlands and plain fields (12%). This preference for construction in highland areas seems to be opposed to the preference for development in agricultural landscapes mentioned hereinbefore as well as to the assertions of some expert landscape character assessment studies, which presuppose a restriction on the WT construction precisely on knolls and ridges due to their contamination of the “visual horizon” and visibility from great distances (Cetkovský & Nováková, 2009).

Perception divergences: Via the correlation analysis method, it was tested whether there a relation exists between the perception and attitudes and selected socio-demographic characteristics of the respondents, their travel behavior and preferences. It was proved that there are no statistically significant differences in perception and attitudes as far as the gender (apart from a slightly larger percentage of females with neutral or indecisive attitudes) and even the education level of respondents were concerned. The younger age groups (18–29 and 30–39 years old) tended to support WT more often than did the older ones (but only up to 60 years; the oldest group was again more tolerant or simply indolent). More critical were those visiting on their own or with coeval friends (most commonly groups of middle-aged or older males). The pairs and families with children were more tolerant or they focused their attention on destination attributes other than WT. Whereas the first-time visitors were more likely (by two thirds) to be neutral in their perception of WT presence in the SA1, the repeat or periodical visitors had a more pronounced attitude (approximately a third were positive, another third were negative, and only one third remained neutral). Thus it is hypothesized to clarify own opinion takes some time over one visit. Thus a typical opponent would appear to be an individual aged 40–59 years, most commonly a male, traveling alone or with fellows, just for a one- or two-day trip, visiting regularly the same “familiar” places. The local or regional residents as tourists were also more likely to oppose WT in the areas where spending a holiday.

Geographical variables: A spatial factor plays a significant role in the process of attitude formation in two different ways. Figure 3 illustrates how the rate of acceptance of WT declines according to the rate of interference into the personal space of respondents. The first spatial aspect represents the acceptance of wind energy development as a

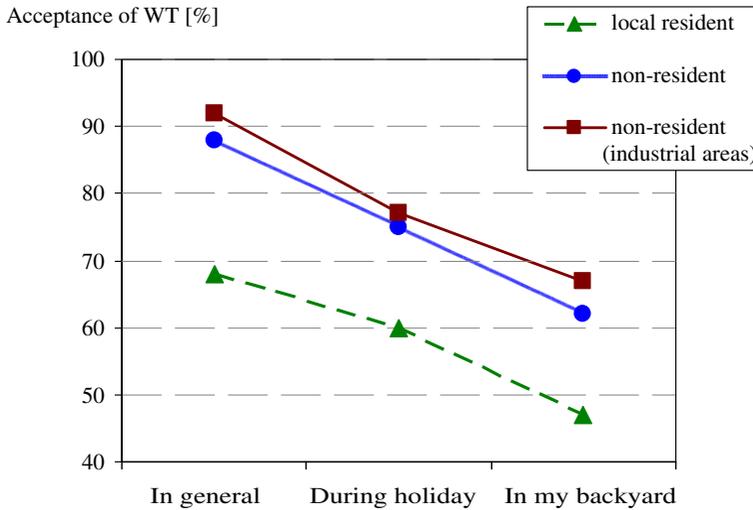


Figure 3. Relationship Between Acceptance of WT and Respondents Domicile

general idea; the second one stands for the acceptance of WT sited in tourist or recreational landscapes (i.e., potential holiday spots); and the third aspect is the acceptance of WT being potentially constructed right in the vicinity of respondents' residence. Analyzed thusly, the factor of respondents' residence (or one can say "regionality") proves to be of a doubly considerable importance. Respondents from the sample were *post factum* sorted into three categories: (a) local or regional residents, living permanently in the contiguous localities but not directly in the immediate vicinity/visibility of WT; (b) non-residents with a permanent abode outside of the region, coming mostly from large cities such as Prague, Plzeň, Pardubice, Kroměříž, Karlovy Vary, etc. from various regions; and (c) non-residents living in environmentally affected localities (here represented by the (ex-)mining, heavy, and/or chemical industry areas in the Ostrava region, Mostecko region, the cities of Chomutov, Litvinov, etc.).

The local/regional residents were more likely to oppose WT than the ones living outside the region. Wolsink (2000, p. 57) identified in his study four different forms of resistance towards the wind energy contexts that could explain the divergence between the support of wind energy as a general idea and local opposition, from which the "classical NIMBY", "anti-process" and "anti-project" attitude seem to act here as well. Moreover, we found the people from environmentally affected areas showed a higher rate of acceptance with respect to all three spatial aspects mentioned above. The *Pearson's* correlation coefficient (R) equals 0,64 (general aspect); 0,43 (holiday aspect); 0,79 (backyard aspect); the correlation is significant at the 0,01 level. In additional, open-ended questions concerning the factors motivating support for wind energy, the respondents from environmentally affected regions mostly mentioned the environmental argument—the

preference of WT as a clean source over coal-fired power plants. In this connection, there was many times mentioned as an outstanding example, the visual or symbolical contrast in real constructions in the landscape, between “clean” wind turbines and “polluting” coal-fired power plants. These findings agree with the results from similar studies from the UK cited by Van der Horst (2007, p. 2709) which show a relationship between the industrial character of a location and the local people’s perception of environmental risk as well as their positive attitude towards alternative technologies.

Local Entrepreneurs Interviewed

In every area where tourism is to some extent developed, accommodation facilities make up the most important segment of infrastructure; they are often referred to as the basic infrastructure of tourism. This is also why we consider information from the owners of accommodation and catering facilities to be of great significance. They can be regarded at once as local experts on the tourism issue and local residents with potential NIMBY attitude towards WT in their residence. In interviews we tried to identify and pick out both these points of view. The main findings from our interviews can be summed up (see Table 3) and interpret as follows: First, potential construction of WT can have a certain (may be perceived negative as well as positive) impact on the landscape character as reported by the respondents. Second, approximately a quarter of entrepreneurs (as an average for both study areas) oppose WT presence in their residence’s vicinity. In this respect they assessed WT from the perspective of local residents who currently live in the location with WT and view them permanently (in case of the SA2) or who are proposed to live with them in near future (in case of the SA1). Third, regardless of their personal attitude as local residents, they suppose the presence of WT should have no significant impact on further development nor lead the decline of tourism in the areas concerned. Generally, only one in ten suspected the construction of WT would have a negative impact on future tourism expansion in the area, while on the contrary another one in ten assumed the presence of WT in the locality could have a positive influence on tourism development. Comparing the study areas, the entrepreneurs in the SA2 had more pronounced personal attitudes, while there the neutral or I-do-not-care attitudes were more frequent in the SA1. At the same

Table 3. Attitudes of Local Entrepreneurs to WT

Study area	Aspect/attitude [%]	Positive	Neither	Negative
Slezská Harta (SA1)	Personal attitude to WT	17	71	12
	Supposed impact of WT on local tourism	8	87	5
Krušné Hory (SA2)	Personal attitude to WT	11	59	30
	Supposed impact of WT on local tourism	4	84	12

(N = 73)

time the respondents in the SA1 were more likely to support the proposed wind energy development in their area.

According to the entrepreneurs' estimation most of the current clientele in the study areas consists of Czechs; however, in the case of SA2 tourists from Germany and the Netherlands also represent a very important source of income for the local economy (being a richer buying power than Czechs). Further, half of all customers who were spending a longer time (around week or more) in the locality were the "current buyers" returning regularly every year in the same season. The entrepreneurs supposed that an absolute majority of tourists do not mind the presence of WT in the localities and there are different decisive factors of local destination choice. The most frequent foreigners (i.e., Germans and Dutchmen) are even more familiar with WT constructions than Czechs as experienced by respondents. In their opinion, the factors which actually affect local tourism development are the quality of services, hospitality, and (for foreign tourists) the currency exchange rate between the Euro and the Czech crown, rather than the WT presence in landscape. As the most serious handicaps on prospective development they see in both areas the insufficient infrastructure network and accompanying services (i.e., a lack of multifunctional facilities for tourists' enjoyment), as well as weak cooperation and partnership among the state administration, regional and local government, business subjects, and commercial agencies that is fundamental for realizing the promotion of rural regions. In this respect, the entrepreneurs as well as the local political authorities expected wind energy development in the SA1 as a possible way how to gain economical profit and to invest in infrastructural development and marketing promotion. Other specific information concerning the local business environment were identified during the interviews, however they are not significant for this study.

DISCUSSION AND CONCLUSION

The principal aim of this study was to empirically assess the relative impact of WT on the landscape image and tourism potential of affected areas, as perceived by tourists and local entrepreneurs. The survey findings indicate that construction of WT in suitably selected locations may have only a minor or negligible negative impact on tourists' perception and experience of landscape, and their destination choice. To the contrary, WT could be used to support development of new forms of tourism with the support of proper marketing promotion. Generally, WT are not perceived to be as disturbing as such other industrial or infrastructural constructions as factories, mines, or telecommunications (*cf.* Park et al., 2008) and electrical pylons—the first hypothesis (H1) was verified. Although for an absolute majority of tourists, the attractiveness of local nature and scenery is the most important aspect in their choice of destination, and accordingly they are sensitive of unfavorable interferences into the landscape, only a minimum number (6%) of tourists offered a strict

opinion against visiting locations with WT. The hypothesis (H2) that most tourists (i.e., more than three quarters) do not regard the presence of WT in landscapes as negative for their experience was also confirmed. According to a majority of tourists (over 90%) the presence of WT in an area does not influence their destination choice. On the contrary, it seems that in many regions, particularly in East-Central Europe, WT are still a relatively new phenomenon which tourists may be quite interested in; almost two thirds of respondents expressed an interest in visiting WT as long as there would be an information centre.

The above mentioned findings are in contrast to statements of political authorities in many regions, arguing about definite impacts of wind energy development on local tourism. It would be interesting to confront these arguments and our survey findings with some objective evidence. A recent study of Frantál and Kunc (2010) analyzed a correlation between the spatial distribution of implemented and rejected WT projects and selected locality variables (these included e.g., the affiliation of project location to district/region, proximity to the nearest protected landscape area or national park, natural attractiveness of the area, and district's tourist function). It was revealed that the administrative affiliation have the strongest influence on the fact whether WT will or will not be built. There is no statistically significant relationship between the implementation of projects and the proximity of a location to national park or protected landscape area. And paradoxically WT were more often constructed in districts of more attractive nature and with higher tourism potential. These findings demonstrate how the decision-making process is rather than being an issue of objective assessment an object of subjective attitudes and political decrees of local/regional authorities. It seems the negative WT impacts on landscape are often used just expediently because the "environmental arguments" are more persuasive in battles with opponents (*cf.* Bosley & Bosley, 1988).

Anyway, WT stand to be the most ambivalent modern industrial objects, they are perceived both negatively and positively by certain population segments. The survey confirmed the hypothesis (H4) that some socio-demographic characteristics, travel behavior and personal preferences of tourists, and the geographical variables (i.e., their place of residence) have an influence on the divergences of perceptions of the phenomenon. This study proved a prevailing trend in the divergence between a broadly high rate of support for a larger-scale utilization of renewable sources (including the expansion of wind energy) as a general idea, and the rate of acceptance of WT as real constructions affecting a specific landscape (be it a "holiday place" or a "homeplace"). Our findings contribute to the NIMBY-theory polemics (Hubbard, 2006; Wolsink, 2006) by adding the significant information that there exists a middle spatial dimension between the global acceptance of WT (as a general idea) and the local acceptance of WT (in the backyard); it is the "tourist acceptance" of WT (in tourist areas). This finding is a verification of our hypothesis (H3) that tourists' perception of landscape image and the sense of attractiveness differ that of local

residents. In addition to quantitative surveys, there is a need for more in-depth qualitative research to better understand the process of the construction of individual attitudes and to explain the divergence between positive general attitudes and actual oppositional behavior.

The study definitely contains certain methodological limitations. As concerns the selection of our sample of tourists, this survey cannot be regarded as representing the general public opinion but as a case-study dealing specifically with the segment of tourists, who (i) prefer the nature-related tourism and active recreation, (ii) visit the rural recreational areas that are typical for the current wind energy development. Nevertheless, the survey findings have a predicative value and we can deduce certain generally true verdicts from them—even in respect to almost unambiguous results that were validated by the information gained from in-depth interviews with local entrepreneurs. They reported two different points of view upon the wind energy development: (i) as local residents they oppose the construction of WT in their vicinity to a certain degree; (ii) as local experts on the tourism issue they confirm that different factors (not WT) actually affect local tourism development.

The wind energy development, no more than other energy sectors, has brought about some negatively perceived impacts on the landscape and the familiar life of local residents (Frantál & Kučera, 2009). The high visibility of WT itself is generally regarded as its most serious misconduct; consequently, an ideal area does not exist, only more or less acceptable areas do. On the other hand, unlike traditional energetic industry, WT do not produce any waste, and are temporary constructions, being relatively easy to remove from the sites and recycle after their operating time has passed. They have pros and cons, and it is difficult, perhaps impossible, for people not to project their own subjective preferences into assessing a balance between the local impacts on the landscape and environment and the profits for local community, and the supply for global climate changes. For developers and planners a relevant consideration should be that people living in areas that are in some way environmentally stricken (e.g., by mining activities, smokestacks, or the chemical industry) are those more likely to support the building up of new and alternative energy facilities such as WT. Generally, WT can be perceived and presented both negatively—which is still often the case in political dictums and in the media, not only in the CR—as constructions which could frighten away all prospective tourists from the given area and positively as (a) a complement to the surrounding landscape, a new architectural element creating new dimension and value; (b) objects extending the selection of activities for tourists who are interested in modern technologies, with WT as technical monuments becoming destinations for educational excursions; (c) constructions bringing to municipalities direct financial profits which can then be used either in the form of investments in infrastructure or to promote tourism in the location (information boards, nature trails, cycling routes, support of cultural or sport activities, media promotion). **A**

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REFERENCES

- Anholt, S. (2006). Why brand? Some practical considerations for nation branding. *Place Branding*, 2(2), 2–12.
- Bílek, V. (2007). *Poskozují větrné elektrárny krajinu Vysočiny?* [online]. Retrieved January 15, 2009, from the Vysočina Region Web site: URL: <http://www.kr-vysocina.cz/soubory/450008/14_bilek.pdf/>.
- Bosley, P., & Bosley, K. (1988). Public acceptability of California's wind energy developments: Three studies. *Wind Engineering*, 12(5), 311–318.
- Breukers, S., & Wolsink, M. (2007). Wind power implementation in changing institutional landscapes: An international comparison. *Energy Policy*, 35(5), 2737–2750.
- British Wind Energy Association (2006). *The impact of wind farms on the tourism industry in the UK* [online]. Retrieved August 15, 2008, from British Wind Energy Association Web site: URL: <<http://www.bwea.com/pdf/tourism.pdf/>>.
- Burgess, A. (2002). Comparing national responses to perceived health risks from mobile phone masts. *Health, Risk and Society*, 4(2), 175–188.
- Cetkovský, S., Frantál, B., & Štekl, J. (2010). *Větrná energie v České republice: hodnocení prostorových vztahů, environmentálních aspektů a socioekonomických souvislostí*. Brno: Ústav geoniky.
- Cetkovský, S., & Nováková, E. (2009). Assessment of the impact of wind turbines on landscape character: Implications for landscape planning. *Moravian Geographical Reports*, 17(2), 27–33.
- Cosgrove, D. (1998). *Social formation and symbolic landscape*. Madison: University of Wisconsin Press.
- Dalton, G. J., Lockington, D. A., & Baldock, T. E. (2008). A survey of tourist attitudes to renewable energy supply in Australian hotel accommodation. *Renewable energy*, 33(10), 2174–2185.
- Department of Agriculture (2007). *The program of rural development of the Czech Republic for 2007–2013*. Prague: DA.
- Devine-Wright, P. (2005). Beyond NIMBYism: Towards an integrated framework for understanding public perceptions of wind energy. *Wind Energy*, 8(2), 125–139.
- Edwards, J. A., & Llurdés, J. C. (1996). Mines and quarries: Industrial heritage tourism. *Annals of Tourism Research*, 23(2), 341–363.
- Frantál, B., & Kučera, P. (2009). Impacts of the operation of wind turbines as perceived by residents in concerned areas. *Moravian Geographical Reports*, 17(2), 34–45.
- Frantál, B., & Kunc, J. (2010). Větrné elektrárny a cestovní ruch. In S. Cetkovský (Ed.), *Větrná energie v České republice. hodnocení prostorových vztahů, environmentálních aspektů a socioekonomických souvislostí* (pp. 178–194). Brno: Ústav geoniky.
- Freire, J. R. (2006). ‘Other tourists’: A critical factor for a geo-brand-building process. *Place Branding*, 2(1), 68–83.
- Gallarza, M. G., Saura, I. G., & García, H. C. (2002). Destination image: Towards a conceptual framework. *Annals of Tourism Research*, 29(1), 56–78.
- Gertner, D., & Kotler, P. (2004). How can a place correct a negative image?. *Place Branding*, 1(1), 50–57.
- Gordon, G. (2001). Wind, energy, landscape: Reconciling nature and technology. *Philosophy and Geography*, 4(2), 169–184.
- Hauer, A. (2003). Windenergie im Waldviertel: Wirtschaftsgeographische Analyse unter Berücksichtigung der Akzeptanz durch Anrainer, Zweitwohnungsbesitzer und Urlaubsgäste. *Wirtschaftsgeographische Studien*, 29, 29–46.

- Hubbard, P. (2006). NIMBY by another name? A reply to Wolsink. *Transactions of the Institute of British Geographers*, 31(1), 92–94.
- Klapka, P. (2008). Krkonoše a udržitelný turismus. *Krkonoše a Jizerské hory*, 3, 24–25.
- Kotler, P., & Gertner, D. (2002). Country as brand, product, and beyond: A place marketing and brand management perspective. *Journal of Brand Management*, 9(4/5), 249–261.
- Krohn, S., & Damborg, S. (1999). On public attitudes towards wind power. *Renewable Energy*, 16(1), 954–960.
- Law, A. (2005). The social geometry of mobile telephony. *Razón y Palabra*, 9(42).
- Leiper, N. (1990). Tourist attraction systems. *Annals of Tourism Research*, 17(3), 367–384.
- Löytynoja, T. (2008). The development of specific locations into tourist attractions: Cases from Northern Europe. *Fennia*, 186(1), 15–29.
- Marks, G., & von Winterfeld, D. (1984). 'Not in My Back Yard': Influence of motivational concerns on judgments about risky technology. *Journal of Applied Psychology*, 69, 408–415.
- Michalena, E., & Tripanagnostopoulos, Y. (2010). Contribution of the solar energy in the sustainable tourism development of the Mediterranean islands. *Renewable Energy*, 35(3), 667–673.
- MORI Scotland (2002). *Tourist attitudes towards wind farms* [online]. Retrieved August 15, 2008, from British Wind Energy Association Web site: URL: <<http://www.bwea.com/pdf/MORI.pdf>>.
- NFO World Group (2003). *Investigation into potential impact of wind farms on tourism in Wales* [online]. Retrieved August 20, 2008, from Ecodyfi organisation Web site: URL: <http://www.ecodyfi.org.uk/tourism/Windfarms_research_eng.pdf>.
- Park, J., Jorgensen, A., Swanwick, C., & Seman, P. (2008). Perceived landscape impacts of mobile telecommunications development in the Peak District National Park, England. *Journal of Environmental Planning and Management*, 51(5), 679–699.
- Pasqualetti, M. J. (2000). Morality, space, and the power of wind. *Geographical Review*, 90(3), 381–394.
- Pearce, D. (1995). *Tourism today: A geographical analysis*. London: Longman.
- Selby, M., & Morgan, N. J. (1996). Reconstructing place image. A case study of its role in destination market research. *Tourism Management*, 17(4), 287–294.
- Thayer, R. L., & Hansen, H. (1988). Wind on the land: Renewable energy and pastoral scenery vie for dominance in the siting of wind energy developments. *Landscape Architecture*, 78(2), 69–73.
- Toke, D., Breukers, S., & Wolsink, M. (2008). Wind power deployment outcomes: How can we account for the differences? *Renewable and Sustainable Energy Reviews*, 12(4), 1129–1147.
- Tošenovský, E. (2005). Proč říkám ne větrným elektrárnám. *MF Dnes*, 2–2.
- Urry, J. (1990). *The tourist gaze: Leisure and travel in contemporary societies*. London: Sage.
- Van der Horst, D. (2007). NIMBY or not? Exploring the relevance of location and the politics of voiced opinions in renewable energy siting controversies. *Energy Policy*, 35(5), 2705–2714.
- Vorel, I. (2009). Větrné elektrárny a charakter, ráz a identita kulturní krajiny. *Workshop Větrné elektrárny a životní prostředí, 10.3.2009, Jindřichův Hradec*.
- Vystoupil, J., & Kunc, J. (2009). Tourism in the Czech Republic: In form of presentation of Atlas of Tourism of the Czech Republic. In W. Wilk (Ed.), *Global changes: Their regional and local aspects* (pp. 210–222). Warsaw: University of Warsaw.
- Wolsink, M. (1994). Entanglement of interests and motives: Assumptions behind the NIMBY-theory on facility siting. *Urban Studies*, 31(6), 851–866.
- Wolsink, M. (2000). Wind power and the NIMBY-myth: Institutional capacity and the limited significance of public support. *Renewable Energy*, 21(1), 49–64.
- Wolsink, M. (2006). Invalid theory impedes our understanding: A critique role of place-identity in risk perception. *Transactions of the Institute of British Geographers*, 31(1), 85–91.

- Wolsink, M. (2007). Wind power implementation: The nature of public attitudes: Equity and fairness instead of, backyard motives“. *Renewable and Sustainable Energy Reviews*, 11(6), 1188–1207.
- Wüstenhagen, R., Wolsink, M., & Bürer, M. J. (2007). Social acceptance of renewable energy innovation: An introduction to the concept. *Energy Policy*, 35(5), 2683–2691.

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