

**Peer Review of the
Bowers Wind Project, Grand Lakes Scenic Watershed, Downeast, Maine,
by Michael Lawrence and Associates**

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Introduction

Michael Lawrence and Associates (MLA) has prepared the *Bowers Wind Project, Grand Lakes Scenic Watershed, Downeast, Maine* for The Partnership for the Preservation of the Downeast Lakes Watershed. This report presents an alternative visual impact assessment (VIA) in terms of both approach and conclusions to LandWorks' *Visual Impact Assessment for the Proposed Bowers Wind Project*, and James F. Palmer's *Review of the Visual Impact Assessment for the Proposed Bowers Wind Project*.

This document presents a peer review of MLA's VIA which has been prepared at LURC's request. The review of LandWorks' VIA included an independent analysis based on what existing information was available and two days of fieldwork. Rather than repeat this analysis, I have chosen the format commonly used for peer reviews of a scientific report or journal article.

Summary

The *Bowers Wind Project, Grand Lakes Scenic Watershed, Downeast, Maine* includes some of the more visible elements that have come to be associated with a professional VIA. There is a visibility map and there are large photographic-quality simulations. However the document is first and foremost an emotional appeal to nostalgia, characterizing the Grand Lakes watershed as "wilderness" (although the sporting camps advertise that visitors will have all the modern comforts), where travel is by paddling a canoe (even though the Grand Laker canoes and the even more common fishing boats are motorized), and the pace of life is slowed down and the sensory overload of our urban lives is quieted (which will not be changed by the presence of wind turbines miles in the distance). Frustratingly, it is not possible to tell whether the anecdotal stories and marketing literature that are the core of this characterization are about locations within 8 miles of the proposed wind turbines or not.¹

These problems distract a critical reader from what the VIA does get right. Many wind turbines will be visible from most of area on three large lakes that are scenic resources of statewide significance: Junior Lake, Scraggly Lake and Pleasant Lake. However, the Wind Energy Act

¹ 35-A MRSA, § 3452, §§ 3 determines that the effect of turbines more than 8 miles away is "insignificant."

makes it clear that “generating facilities are a highly visible feature in the landscape [and this] 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.”² Yet to be demonstrated is that this visibility is unreasonably adverse, based on the Wind Energy Act’s evaluation criteria.

This VIA lacks a rigorous analysis demonstrating how the presence of wind turbines will change the existing character and use experience, as anticipated by the Wind Energy Act’s evaluation criteria.³ There is no attempt to document the number of people using these lakes, in what activities they engage, the role that distant landscape scenery plays in their experience, how the visual presence of distant wind turbines will affect the enjoyment of their activities, and whether they will continue to use the area if the project is constructed. No systematic evaluation of recreation users is presented, and not even all of the state or nationally significant scenic resources are properly identified (Bottle, Keg and Duck Lakes are not identified as scenic resources of statewide significance). A significant portion of the VIA is spent quoting selected marketing literature from web sites, which a reasonable person would not accept as an unbiased source, and answering questions posed for Vermont’s Act 250 aesthetic review, the so called Quechee Analysis, which is not relevant to Maine or the Wind Power Act.

More detailed comments follow, generally presented in the order in which they were encountered in the document.

Overall Comments

1. MLA has prepared a beautiful document that is enjoyable to read. While the specific evaluation criteria listed in the Wind Energy Act are acknowledged, they are not really the focus of this VIA. The approach taken here is one of a qualitative narrative; the goal is to tell a story in words and images through the unique experiences of specific people and places. In their response to my review of their VIA, LandWorks states that “Dr. Palmer’s desire for a purely data driven and objective approach to conducting a visual impact assessment risks losing or inadvertently masking the qualitative aspects that necessarily inform every visual impact assessment” (2011b, page 21). MLA has responded with a powerful qualitative assessment that makes very little attempt to be “purely data driven” or to take an “objective approach”—the major exceptions are a visibility map (page 48), a discussion of earthwork at one site (page 45), and the photosimulations, which were described as being constructed using accepted professional methods.

An example of the anecdotal story as a source of data: “I’m afraid that if this project happens our very fragile tourist industry will suffer greatly. I have a client that I’ve fished with for

² 35-A MRSA, § 3452, §§ 3

³ 35-A MRSA, § 3452, §§ 3

many years and while we were on Baskahegan Lake where there are 30 plus windmills visible on the skyline. He first told me to turn my canoe so he could not see the turbines, then when we got back to the boat landing after a very successful day he said he would prefer not to fish this lake because of the ugly windmills. I think that says it all” (MLA 2011, page 34). This is the only instance noted where MLA presents comments attributed to a typical viewer who said that seeing wind turbines would have a very negative impact on their enjoyment and keep them from returning.

On the other hand, two University of Maine faculty and a graduate student interviewed 48 recreation uses of the Baskahegan Lake in the summer of 2010 (Ednie et al. 2010). Even though most people came to the lake to fish,

“the majority of the interviewees mentioned the scenic quality as an important draw to the watershed. The beauty of the area is an important reason why people return year after year. Related to the simple beauty is the appearance of "wildness" or remoteness on the lakes and streams, as well as the opportunity to view wildlife. Several interviewees commented on the lack of development along the shoreline of the lakes as an important component of the scenery. They mentioned personally wishing they could lease a cabin but knowing that the development of more cabins would diminish the aesthetic quality of the resource. Quietness was also an important quality on the watershed. Several interviewees mentioned that the rockiness of the lake, although difficult to maneuver, maintains the opportunity for solitude on the lake. The rocks make the lake inappropriate for large power boats, jet-skis, and other speed-boating activities such as waterskiing. While some participants mentioned their desire for higher water to ease travel, others reflected on the benefits of rocks as obstacles for keeping an onslaught of diverse users away (and thus maintaining the special opportunity for fishing) (Ednie et al. 2010, page 11).

All of those interviewed were “asked to describe any problems associated with recreational use they have observed... two out of the six interviewees responded that there were no problems, the other four provided valuable feedback. ... Many of the comments pertained to the presence of human waste and trash at the launch area” (Ednie et al. 2010, page 13). No other problems were related to scenic values. It is particularly noteworthy that the wind turbines are not mentioned as a recreational use problem, since the nearest Stetson Wind turbines are visible from the lake on the ridgeline 5 to 9 miles away. And none of these 48 recreation users mentioned them as a problem, even though many mentioned the importance of scenery and solitude to their recreation experience. This finding was significant enough that LandWorks conducted a follow-up interview with Dr. Ednie to verify that this was so: “Professor Ednie (Phone interview conducted by Neil Kiley , May 15, 2011)... noted that while there were no specific questions with regard to the wind project in the survey, ‘she was equally surprised that no one referenced them in any of the responses. She assumes that people just did not attach any

significance to them. By contrast she confirmed that residential development seems to be perceived much more negatively” (LandWorks 2011b, page 14).

So what is one to think? How does one weigh the secondhand anecdotal story against a systematic investigation of many typical viewers using Baskahegan?

2. Throughout the MLA VIA, this whole area is characterized as “wilderness,” this is a misleading. LURC’s Comprehensive Land Use Plan (CLUP) acknowledges that little of the jurisdiction is wilderness. None of these lakes are Management Class 1 or 6 lakes, which are reserved to protect the most remote lakes. The highly prized Grand Laker canoes are typically motorized (Chandler 2006), which would not be allowed for recreational use in a “wilderness” area.

On the other hand, a reasonable person might assert that a portion of some of these lakes may be “remote” as LURC conceives of that concept, or that the area is or should be part of a wildland conservation area that might lead LURC to reconsider the Lake Management Classes assigned to some of the lakes. However, no data or objective analyses are presented to support this assertion. In the absence of supporting evidence, it is difficult to take MLA’s characterization of wilderness seriously.

3. The MLA VIA asserts that “this Visual Impact Assessment follows the standards outlined in the Maine Legislature’s 2008 Wind Power Development Act labeled, *Determination of effect on scenic character and related existing uses*” (MLA 2011, page 4). However, the Act states that beyond 8 miles the scenic effects “shall be considered insignificant” and the VIA regularly discusses scenic impacts from wind turbines that are more than 8 miles distant. In addition, it fails to consider several ponds that are state or nationally significant scenic resources (SNSSR): Bottle Lake, Duck Lake and Keg Lake. These are some of the most developed lakes in LURC’s jurisdiction and they also provide the best boat access to Junior Lake for visitors.
4. Implementing the Wind Energy Act’s requirement to consider “the expectations of the typical viewer” has proved to be difficult. MLA has chosen to use web site marketing literature, interviews with sporting camp owners, and writings from professional sportsmen. It is unlikely that anyone would represent these voices as being from “typical viewers.” However, it is instructive that most of the comments do not focus on scenery *per se*, but the feelings of remoteness and being away from the city. It is unclear whether the visual presence of turbines miles away will change the feeling of remoteness or being away from the city any more than the frequent signs of forest harvesting do. The primary activity is fishing, and the visual presence of turbines would not seem to affect this either.

5. There are differences between what we see when in the landscape and looking at a photograph or photosimulations. While evaluations of photographs usually represent most of our scenic experience, this is not always so (Palmer and Hoffman 2001). However, it is not as simple as MLA would have us believe: “In looking at the photosimulations, please keep uppermost in your mind that mechanical cameras do not capture anywhere near the detail and range of color that we see with our eyes. Details that blend together in the distance in photographs are sharp and clear to the human eye” (MLA 2011, page 61). For instance, the nighttime photosimulation Exhibit-27 on page 31 shows much more detail than would be visible to someone looking at that view. In another instance, the reflection of the turbines on the water will almost certainly not be as sharp as shown in Exhibit-9 on page 11 or the VIA’s cover.

It is also asserted that “actual wind turbines appear with greater clarity to us than photosimulations can portray” (MLA 2011, page 61). Of course it depends on the clarity of the photograph, the visual acuity of the viewer, and the atmospheric conditions when the viewer is looking at the site or the simulation photograph is taken. MLA uses an Olympus E-500 camera with an 8 million pixel sensor. This creates a digital photograph that is not quite as sharp as the visual acuity of the average human eye, which is one reason the simulations may not be as sharp as what we actually see. However, these photographs appear to be taken on a day with excellent atmospheric clarity, and the conditions when a view is looking at the same scene may not be as clear, so the photosimulations may have greater clarity. In addition, the turbines are not part of the photograph. They are a computer generated image that may be substantially sharper and with higher visual contrast than the turbines will actually have.

6. MLA has decided to apply a series of questions attributed to “*Vermont’s Scenic Landscapes: A Guide for Growth and Protection*” (Courtney 1991, pages 45-55) as a way to “cover the information required to satisfy ‘The scope, scale and potential effects of views of generating facilities on the scenic resource of state or national significance’” (MLA 2011, page 36-57)⁴ This document “is based on the work of the Design Issues Study Committee... [whose] stated purpose was to assist the Agency [of Natural Resources] in developing general policies and guidelines on project design that would help... deal with the issues of aesthetics and Act 250, (the Vermont land use regulatory law)” (Courtney 1991, page 3). Courtney drew these questions verbatim from a Vermont Environmental Board decision that describes what has become known as the Quechee Analysis.⁵ Maine’s Wind Energy Act and Vermont’s Act 250’s Quechee Analysis do not share the same scenic standard or evaluation criteria, therefore these questions are not directly relevant.

⁴ These questions appear to be selectively edited and interpreted from those presented in *Vermont’s Scenic Landscape*.

⁵ Vermont Environmental Board’s Findings of Fact, Conclusions of Law and Order for Land Use Permit Applications #3W0411-EB “Murphy Farm” and #3W0439-EB “Newton Inn”.

In addition and perhaps most importantly, *Vermont's Scenic Landscape* was prepared to address issues associated with land use planning of residential and commercial development, not grid-scale wind development. In Maine, the Wind Energy Act has determined that “generating facilities are a highly visible feature in the landscape [and this] 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.” As a result, a different set of evaluation criteria have been specified that rely less on turbines being big and visible, and more on how people’s scenic enjoyment and continued use will be affected.

Detailed Comments

1. Cover, page 1. There is a Grand Lakes watershed, but there is no recognized scenic designation for a Grand Lakes Scenic Watershed. This appears to be an unsupported rhetorical device. See Detailed Comment 15 below.
2. Page 6. In the list of criteria for eligibility for state or nationally significant scenic resources, property listed on the National Register of Historic Places is absent. There is one such property within 8 miles of the Bowers Wind Project—the Springfield Congregational Church. In addition, the “Public Reserved Land in Lakeville that abuts Duck Lake” and Keg Lake should not be mentioned since it was not identified by BPL as a SNSSR.
3. Page 7. The scenic impact standard of the Wind Energy Act is unreasonable adverse, not undue adverse effect.
4. Page 8. This graphic key to the photographs in the report is very helpful (Exhibit-6). It is noted that all of these views are within the 8 mile threshold where views of the wind turbines have the potential to be significant.
5. Page 9. Several lakes of SNSSR are not so indicated on the map (Exhibit-7): Bottle Lake, Duck Lake, Keg Lake, Lombard Lake and Shaw Lake. Norway Lake is shaded, but not labeled. West Musquash Lake is not even shown but is a SNSSR and a portion of it is clearly within 8 miles of the project. These inconsistencies are not related to whether a lake has potential visibility—Upper Sysladobsis does not have visibility, but is identified as a SNSSR and Bottle, Duck, Keg and Shaw Lakes will have visibility and are not identified as SNSSR.
6. Page 10. It is helpful to indicate the proper viewing distance for the photographs and photosimulations. However this distance depends on the size of the image. Twenty inches is too far away when the VIA is printed on standard letter-size paper. An alternative is to state viewing distance as a proportion of the image’s width.

7. Page 11. The reflected turbines stand out more than the reflected hillside, or the turbines on the ridgeline in Exhibit-9 on page 11. One would expect the reflection to be more degraded. Nonetheless, the attempt to represent the reflection is worthwhile. It might be helpful to have illustrative photographs of the reflection of existing turbines in lake water to demonstrate what this effect looks like. This would help support the validity of the simulation.
8. Page 12. The VIA is in error to state that Shaw, Bottle, Keg and Duck Lakes are not SNSSR lakes.
9. Page 14. The reflection of the turbines seems inappropriate in Exhibit 11 on page 14. The darker area in the water above the reflected turbines appears to be ripples in the water, not the reflected hillside. On the other hand, the subtler portrayal of the turbine reflection seems more realistic and may be more appropriate technique to use for Exhibit-9 on page 11.
10. Page 15. Shaw, Duck, Keg and Bottle Lakes are SNSSRs. The Act's definition is "One of the 280 great ponds in the State's unorganized or deorganized areas designated as outstanding or significant from a scenic perspective in the 'Maine Wildlands Lakes Assessment' published by the Maine Land Use Regulation Commission in June 1987."
11. Page 15. Bottle Lake is one of the most densely developed lakes within LURC's jurisdiction. Most shoreline residences are not "well screened," as shown in LandWorks' VIA (2011a, Exhibit 5: Photo Inventory—Bottle Lake).
12. Page 17. The notes to the left and right of the simulation are a useful way to alert the observer that additional turbines will be visible.
13. Page 19. Exhibit-15 shows "public boat launches" and "public camp sites." In general these are private facilities that may be available for use by public. Maine Department of Conservation maintains a web site to locate "public boat launches."⁶ Only the boat launch on Lake Sysladobsis in Lakeville is publicly owned. In addition, there does not appear to be any launch on Keg Lake or the southern end of Junior Lake.⁷ Similarly, there is no indication that the campsites are publicly owned. The distinction is important because it speaks to the public's right to access, and normally to a certain standard of construction and maintenance.
14. Page 22. Which of these sporting camps, lodges and youth camps are within 8 miles of the project? There is no indication of which comments are made about experiences or views

⁶ <http://www.maine.gov/doc/parks/programs/boating/sitelist.html>

⁷ DeLorme's *Maine Atlas and Gazetteer*.

within 8 miles of a turbine. For instance, “the view from the screened porch just a few feet from the shore” at the Grand Lake Lodge is over 17 miles from the nearest turbine.

15. Page 28. Ted Williams is a famous sportsman; certainly not a typical viewer. He ends his article with “And as you’re fishing keep looking around you. That’s the way it can be in Maine and everywhere in the Northern Woods.” His article seems to be saying that this is a wonderful place, but then he makes sure the reader understands that it is not a unique place—all of the Northern Woods has this potential.
16. Page 29. The Darrow Wilderness Base Camp, on Birch Island in West Grand Lake is approximately 14 miles from the nearest turbine.
17. Page 30. Birch Island is over 4 miles to the east of where “The Birches” is indicated on Exhibit-26.
18. Page 31. This photosimulation (Exhibit-27) is misleading. First of all it is a time exposure of a view at night, which does not resemble what one would actually see. The Birches is approximately 14 miles from the nearest turbine and is thus not relevant to the evaluation of scenic impacts. However, compare Exhibit-27 to the simulation from Junior Lake in Exhibit-75 on page 76. The closest turbine is less than 7 miles away, about half of that from The Birches, yet the relative size of the turbines in Exhibit-27 are larger—note particularly the turbines on the left side. Perhaps the photograph used for Exhibit-27 was taken with a telephoto lens; if so it should be noted in the caption.
19. Page 32. MLA quotes from “outdoor Guide” on www.trails.com: “during a morning paddle from Scraggly up into Pleasant Lake.” It does not appear possible to paddle from Scraggly Lake (elevation 298’) to Pleasant Lake (elevation 320’); a portage is required.
20. Page 33. There are anecdotal figures about the contribution of fishing guides to the economy of the Grand Lakes watershed. This is an opportunity to demonstrate the extent and importance of fishing guides to the local economy, however no supporting data or citations are presented.
21. Page 34. What is the “22,000 acre, \$24,000,000 project on West Grand Lake that will look right at the proposed turbines”? Is it within 8 miles of the turbines? What is its purpose? How will views of the turbines impact this project, and how is this known? It is not possible to even consider this project without some basic information.
22. Page 35. Bottle Lake should be added to Duck and Keg Lakes as being largely developed.

23. Page 35. Clearly the project's purpose is to generate electricity from a renewable resource, not "build 27 windturbines." However, it is acknowledged that it is not up to an opponent to justify this project.
24. Page 36. Identifying the five separate clusters of turbines seems helpful. It might be useful to be able to separate out each cluster in the visibility analysis and simulations as a way to facilitate consideration of whether it is the whole project or just specific portions that viewers might find scenically most adverse.
25. Page 37. Why is so much information about the local streams and fish relevant to a VIA? No information is presented in a VIA about how the turbines might affect these resources.
26. Page 42. MLA states that "because of their wide spacing and irregular groupings, in many places where two or more groupings are visible, individual towers will appear to overlap one another. They will have a haphazard, jumbled appearance. Their enormous vertical scale and sheer numbers will dominate the landscape." Perhaps—but an alternative interpretation is that they will create interest as a viewer's position changes relative to the turbines, much like the rocks in a Zen garden.⁸ While their scale is large, even in relation to the height of the hills, it is difficult to see how a turbine would be perceived as visually dominant when viewed on an expansive lake from several miles distance. More explanation is needed for this assertion to be widely accepted.
27. Page 45. The analysis of the scale of the turbines to local topography, and the magnitude of the cut and filled areas is appreciated. However, it appears from the section that the openings and filled slopes will be screened by surrounding forest trees and not be visible from any lake.
28. Page 48. The approach to creating the visibility map, as described on page 60, is novel and appropriate for a study that is focusing on lake views.⁹ It seems inappropriate for a developer to use a tree height of 60 feet because it increases the chance of the analysis finding a viewpoint is screened from the turbines when it actually has visibility. On the other hand, an opponent may be willing to accept this error in order to show that even assuming greater screening the turbines are visible from too large an area. The result is to show that at least the center of the turbine hub of many turbines will be visible from Junior, Pleasant and Scraggly Lakes. [At this time I have not had access to the data used in the analysis to verify it.]

⁸ This interpretation is presented as a reasonable alternative that might be proposed by a design professional. It is not presented as Dr. Palmer's opinion.

⁹ This approach is to ring each lake with a 60-foot wall representing shoreline vegetation. The alternative used by in most VIAs is to assign a height of 40 feet to all forested areas. While MLA makes no attempt to justify this height, my field measurements found shoreline trees to generally be between 55 and 65 feet high.

29. Page 51. It does not appear that the 60 foot high shoreline vegetation is shown in the Exhibit-50 illustrations, just their shadow. Is this correct? The depth of a shadow from shoreline vegetation would change as the sun angle changes, so this is not very informative.
30. Page 51. I agree that visual absorption capacity (VAC) was not intended to be used to evaluate structures the size of wind turbines. In addition, VAC is not really a relevant tool since the Wind Energy Act acknowledges that wind turbines are highly visible.
31. Page 54. I agree that the middle distance for wind turbines should extend further than for other landscape elements, such as trees. I anticipate that for wind turbines the background distance zone may begin at approximately 8 miles in clear weather.
32. Page 57. “Fit harmoniously” and “undue adverse effect” are not the standards set by the Wind Energy Act and are inappropriately used here.
33. Page 57. The assertion that the wind turbines, seen at a distance of several miles will change the character of these lakes “to a place with a feeling of ‘industry’” is simply asserted without support; no evidence that users will feel this way is presented. Further, it is not at all clear how the “quiet” character of the lakes will be changed by the presence of the wind turbines many miles away.
34. Page 57. No evidence is presented to support the assertion the turbines will “[cause] people to abandon plans to return.”
35. Page 61. The Olympus E-500 camera with a 25mm lens focal length records a digital photograph with a 38.2° horizontal angle of view. When printed on an 11-by-17 inches sheet of paper, the large photographs and photosimulations in MLA’s VIA measure 9.25-by-12.38 inches. Their appropriate viewing distance is 18 inches, just a bit closer than the 20 inches recommended on the photosimulations. [I assume that the focal length is as reported, and that the photosimulations are based on a single-frame photograph, but have been unable to verify this.]
36. Page 61. The photosimulation methods seem appropriate, but I have been unable to check the process.
37. Page 62. There are no references, even for directly cited work such as *Vermont’s Scenic Landscapes: A Guide for Growth and Protection*.

References

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