

ASTHETIC IMPACT ASSESSMENT

GEORGIA MOUNTAIN WIND PROJECT

September 4, 2009



Georgia Mountain from Route 7 and Arrowhead Mountain Lake

Prepared by

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For

The Vermont Department of Public Service

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I. Introduction

A. Purpose of Report

This report examines the aesthetic impacts of the proposed Georgia Community Wind Project as part of the Public Service Board's review of the project under 30 V.S.A. § 248(b)(1)(5). The Project is located in the towns of Milton and Georgia in Chittenden and Franklin Counties. The Department of Public Service (DPS) serves as the public advocate in the review of utility cases. When expertise is not available within the Department, DPS hires independent contractors to provide technical review of proposed projects. The firm of Jean Vissering Landscape Architecture has been contracted to provide assistance in assessing the aesthetic impacts of the Georgia Community Wind Project.

The report analyzes how the project may affect the scenic resources of the site and surrounding area within a 10 mile radius. The focus of the assessment will be on views from public roads, recreation areas, villages, and cultural sites. Impacts to private residences and camps are discussed generally.

The methodology used in the aesthetic impact assessment generally follows the Quechee Analysis which is outlined below. The report also evaluates visual impact assessment provided by the petitioner's expert witness, including the methodology and conclusions, the extent to which photographs adequately represent the scenic resources within the surrounding area, and the accuracy of the viewshed analysis and simulation photographs provided by the petitioner. A separate viewshed map and simulations are provided in this report in order to 1) verify the accuracy of the petitioner's work; and 2) provide simulations from additional viewpoints.

B. Author's Background and Qualifications

See Appendix 4 (Exhibit DPS-JV-5) for Jean Vissering's Resume. Below is a brief summary.

Jean Vissering is principal landscape architect with Jean Vissering Landscape Architecture in Montpelier, Vermont. Her educational background includes both undergraduate and graduate degrees in landscape architecture. Her practice focuses on visual impact assessment, visual resource planning, community planning and design, and residential design.

Visual assessment and scenic resource planning projects include housing subdivisions, ski areas, transmission lines, and communication towers, and have often been on behalf of Towns, Regional Planning Commissions and citizen organizations. She became involved in wind energy issues in 2002 when she helped facilitate discussions with numerous stakeholders in Vermont in a series of meeting sponsored by the Vermont Public Service Department. She wrote *Wind Energy and Vermont's Scenic Landscape* outlining areas of consensus regarding

the design and siting of wind energy projects in Vermont (available on line at the Vermont PSD website). She also authored a chapter in the recently published *Environmental Impacts of Wind-Energy Projects* by the National Research Council of the National Academies. She has spoken around the country on the issue, and has provided informal and formal assessments for several wind projects including the Deerfield Wind project in southern Vermont on behalf of PPM, the Redington/Black Nubble Wind Project in Maine on behalf of the Appalachian Trail Conservancy, and the Kibby Wind Project on behalf of TransCanada. She has also worked on behalf of Towns and Regional Planning Commissions to provide independent evaluations of proposed wind projects and to ensure a thorough review. She worked with the Town of Londonderry and the Bennington County Regional Planning Commission in independent reviews of proposed wind projects on Glebe Mountain and Little Equinox.

From 1982 until 1997 she taught at the University of Vermont including both undergraduate and graduate courses in visual resource planning, landscape design and park and recreation design. Prior to that and beginning in 1976, she worked with the Vermont Department of Forests, Parks and Recreation as a park planner, state lands planner, and reviewed projects for aesthetic impacts under Vermont's Land Use Law known as Act 250.

The author subcontracted with Stone Environmental, Inc. to provide viewshed analysis maps, and with Saratoga Associates in Syracuse, NY to provide an evaluation of the petitioner's simulations and to create additional simulation photographs. Richard Letty of KM Chng reviewed the petitioner's noise assessment.

C. Aesthetic Assessment Methodology

In assessing projects for a Certificate of Public Good (CPG), the Public Service Board weighs the impacts of a proposed project against the benefits it provides to the citizens of Vermont. Criterion 8 includes the following statement which is used as the basis for evaluating aesthetic impacts:

Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

In order to make this determination, the Board uses an evaluation process known as the Quechee Analysis. The process begins by defining the existing aesthetic resources and characteristics of the area affected. A series of questions is posed in order to first determine if the impacts will be adverse. These questions are as follows:

1) *What is the nature of the project's surroundings? Is the project to be located in an urban, suburban, village, rural or recreational resort area? What land uses presently exist? What is the topography like? What structures exist in*

the area? What vegetation is prevalent? Does the area have particular scenic values?

2) Is the project's design compatible with its surroundings? Is the architectural style of the buildings compatible with other buildings in the area? Is the scale of the project appropriate to its surroundings? Is the mass of the structures proposed for the site consistent with land use and density patterns in the vicinity?

3) Are the colors and materials selected for the project suitable for the context within which the project will be located?

4) Where can the project be seen from? Will the project be in the viewer's foreground, middleground or background? Is the viewer likely to be stationary so that the view is of long duration, or will the viewer be moving quickly by the site so that the length of the view is short?

5) What is the project's impact on open space in the area? Will it maintain existing open space, or will it contribute to a loss of open space?

Second, the Quechee Analysis determines whether or not any adverse aesthetic impacts would rise to the level of "undue adverse impacts." This is determined by the following tests (impacts may be considered "undue" if any one of the three conditions apply¹):

1) The project violates a clear written community standard intended to preserve the aesthetics or scenic, natural beauty of the area. Such standards may for example, be set forth in the local or regional plan, or be adopted in the creation of an historic design district, or be incorporated into a municipal or State scenic road designation.²

2) The project offends the sensibilities of the average person. It is not enough that the Board may prefer to see a different design or style, or a different type of land use, but that the project, when viewed as a whole, is offensive or shocking, because it is out of character with its surroundings, or significantly diminishes the scenic qualities of the area.

3) The applicant has failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the proposed project with its surroundings. Such steps may include selection of less obtrusive colors and building materials, implementation of a landscaping plan, selection of a less obtrusive building site with the project area, or reduction of the mass or density of a project. If there are reasonable alternatives available to the applicant that would mitigate the adverse impact of the project, failure to take advantage of those alternatives may, in some circumstances, render undue an otherwise acceptable project.

This assessment also uses visual assessment principles used in other methodologies including those outlined in the 2007 report of the National Academy Research Council, *Environmental Impacts of Wind-Energy Projects*. Some of the basic

¹ In a ruling the Board determined that a finding of "undue adverse aesthetic impact" may be ameliorated if significant societal benefit would result from the project (Docket 6860 1/28/05 p.80).

² A clear written community standard is one which addresses a particular area (e.g. a part of a town, or a stretch of road), the resources to be protected and the manner in which protection should be provided. General statements about the value of rural character do not constitute a clear written community standard.

principles for evaluation follow. Each of these must be considered in combination. Projects are unlikely to have undue adverse impacts simply because they can be seen or because one or two of the issues below exist. Rather, serious concerns tend to occur when many of the issues below exist and are serious, resulting in a highly prominent project that degrades numerous identified scenic resources.

- Documented Significance of Scenic Resources
- Scenic Quality of Viewpoints
- Viewer Expectations
- Uniqueness of the Scenic Resource
- Duration of View
- Proximity to the Project

The visual assessment is based upon extensive field inventory work including visiting significant public use and recreation areas (e.g., public roads, lakes and ponds, recreation sites, and village centers) and documenting views and their visual characteristics using photographs and written notes. The focus of field work was on areas within 5 miles of the proposed project due to the relatively small size of the project (3-5 turbines), but areas with important scenic resources beyond this distance were also inventoried.

I attended the PSB Site Visit on July 30, and read the transcript of the public hearing at Georgia Elementary School on June 9, 2009. Simulations were prepared both for purposes of verifying the accuracy of the petitioner's simulations and to illustrate other viewing locations as follows (see Appendix 3/Exhibit DPS-JV-4):

- Arrowhead Mountain Lake Overlook (Route 7), Milton (verification of petitioner's simulation using petitioner's original photograph)
- Route 2 Causeway over Lake Champlain (verification)
- Route 104A near Lamoille River Pullout, Georgia
- Georgia Mountain Road, Georgia

10-MILE STUDY AREA

The focus of our analysis was an area roughly 10 miles in radius around the proposed project.

In general at 10 miles away turbines appear very small and normally occupy a very small portion of the view. It is within 10 miles that visual impacts of wind energy projects have a greater potential to be significant. Some more distant viewing locations are also noted due to their high public use and potential viewer sensitivity levels such as Grand Isle State Park.

II. Regional, Site and Project Characteristics

A. Character of the Site and Region

Georgia Mountain is one of many hills and small mountains occurring along the western fringes of the Green Mountains and the eastern edge of the Champlain Valley. Notable landforms in the study area are Arrowhead Mountain, Cobble Hill, Cushman Hill and St. Albans Hill. Georgia Mountain is the highest in elevation at 1,437 feet and is within the Towns of Georgia and Milton. A telecommunications tower is located on the southeast end of the ridge and is about 120 feet high. Fairfax and Westford lie just to the east of Georgia Mountain. The study area extends to St. Albans on the North and to Lake Champlain on the west including portions of Grand Isle and North Hero. Portions of Colchester, Essex, Underhill, Cambridge and Fletcher are also within the 10-mile radius study area, but visibility of the project would be extremely limited in these towns.

The visual character of the area is varied. The terrain tends to be flat to rolling in the western portions around Lake Champlain and much hillier to the east. Open meadows are common throughout the area and permit views toward the Green Mountains and occasionally to Lake Champlain and the Adirondack Mountains in western areas.

The proximity of Burlington and I-89 has resulted in considerable growth over the past decade particularly in Milton. Despite extensive residential, commercial and industrial growth however, portions of Milton remain rural in character with active farming. Increased residential growth is evident throughout the region but most other areas remain generally rural in character. Georgia is characterized by numerous open fields with commercial and industrial development focused near I-89 (Exit 18) and the Husky Corporation. Fairfax and Westford are more rugged in terrain but considerable agricultural land remains especially in Fairfax. Colchester is more heavily and densely developed as it lies just outside of the Burlington metropolitan area. Grand Isle and South Hero are oriented toward the Lake with several State Parks and development often related to recreation and tourism.

Important scenic and recreational focal points within the area include Arrowhead Mountain Lake, the Lamoille River, Colchester Pond, and Lake Champlain.

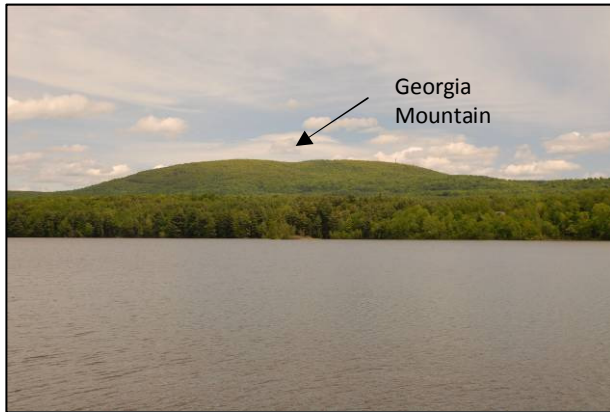


Figure 1. Arrowhead Mountain Reservoir

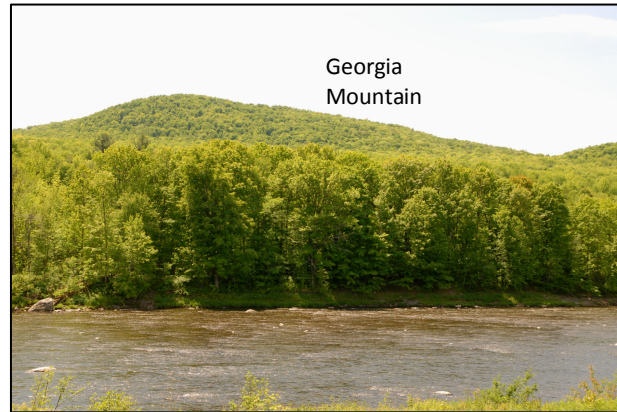


Figure 1: Lamoille River

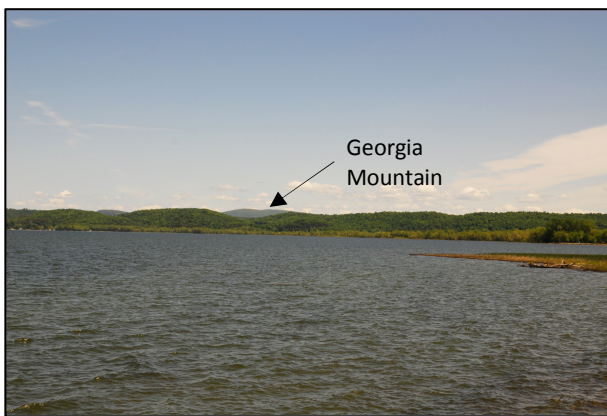


Figure 2: Lake Champlain Causeway

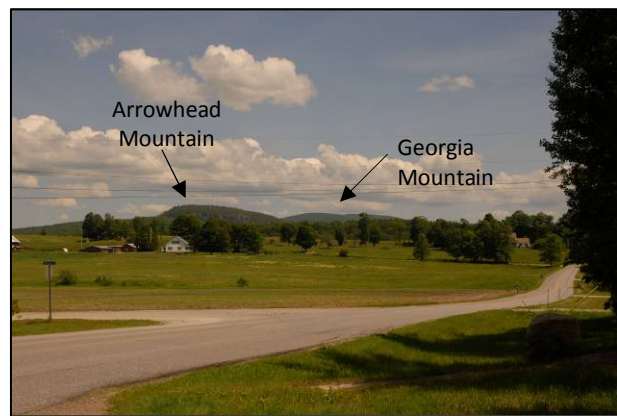


Figure 3: Arrowhead Mountain

B. Project Description

The Georgia Community Wind Project would consist of 3-5 turbines (1.5-2.5MW) extending from northwest to southeast for a distance of approximately $\frac{3}{4}$ mile. The exact turbine model has not been selected, but would be a three-bladed turbine with an off-white color. The turbines will be between 230-328 feet high at the nacelle (70-90 meters) and up between 353 and 443 feet high at the tip of blades. Approximately 3 hazard lights (red L-864 nighttime strobe light) are anticipated to be located on the nacelle of turbines at the ends and middle of the string.

An existing access road to the telecommunications tower on the south side of the ridge would provide access the turbines via Tedd Road off of Westford Road. A total of 2.2 miles of upgraded and new roadway would be required for access to the turbines. Access roads would be 17 feet wide and summit roads 35 feet wide (reduced to 20 feet after construction). Collector lines (34.5kV) along the summit would be buried then run south and west to North Road where they will connect with an existing CVPS 34.5kV sub-transmission line near the Husky Injection Molding facility. Poles are likely to be about 34-40 feet in height. Clearing along the collector line would be 25 feet wide. No substation would be required. A maintenance

building will be located near where the new road leaves the existing road to the communication tower.

III. Visibility of the Proposed Project and Views Characteristics

In assessing visual impacts, the Quechee Analysis asks where the project can be seen from. Visibility does not mean that undue adverse impacts would occur, but the characteristics of the views will be important to consider. In this section we will focus on the relatively objective assessment of visibility, while the degree to which the project could potentially degrade those views will be addressed in the next section.

The proposed project would be visible from many areas throughout the region due to the frequent occurrence of open meadows. It should be noted that there are also many areas throughout the study area from which the project would not be visible, though this is likely to be true of any wind project proposed in Vermont. Note that distances indicated are approximate and refer to the distance between the viewpoint and the nearest turbine.

Following is a list of the roadways and recreation sites from which the project would be visible.

Viewshed Analysis

The viewshed in Appendix 1 (Exhibit DPS-JV-2) illustrates areas of potential visibility. The assumed turbine heights used were an overall height of 405 feet (123 meters). This height represents an average for the various turbine sizes proposed. Field assessment is necessary to determine actual visibility since trees and structures may interfere with visibility.

A. Interstate-89

Visibility of the project from I-89 would be limited to a few glimpses. Visibility is primarily at interchanges at which foreground development is also seen. The project is also briefly visible where the highway crosses the Lamoille River. None of the views are highly scenic. Both Arrowhead Mountain and Cobble Hill appear more prominent along I-89 as they are both closer to the viewer and more distinct in form than Georgia Mountain.



Figure 4: View of Georgia Mountain from I-89 at Lamoille River

B. State Roadways

The project would be visible from Routes 7, 2, 104, 104A, 28, and 15.

▪ Route 7

Heading north on Route 7, the project becomes visible just south of Cozy Corners (4.4 miles away) (see petitioners simulation JLZ-3, Viewpoint #5) and is seen intermittently beyond dense foreground commercial and residential development for just over a mile. The road dips into Milton village with no views up to the dam at the base of Arrowhead Mountain reservoir. This impressive structure dominates the view but further north Georgia Mountain is seen fairly continuously along the lower lake. There is a pullout providing an overlook (see petitioners simulation JLZ-3, Viewpoint #4, and our simulation Exhibit X, A2). Continuing north Route 7 runs along a narrow section of the Reservoir that could be considered to be the Lamoille River. There are

scenic views looking across the river to Georgia Mountain at close proximity (about 2 miles)³. Approaching Exit 18 there is again concentrated highway commercial development, over which the project is viewed heading south. North of Exit 18, the project would be primarily viewed heading south on Route 7. The landscape becomes fairly open and there is a sequence of scenic views heading south from Georgia Center (3.3- 4.8 miles away). The Green Mountains are seen in the distance with Georgia Mountain in the middleground at about 3.2 miles away. The project may be glimpsed heading south from St. Albans but it would be not prominent due to the distance away, and the greater prominence of foreground hills. Views to the Adirondacks in New York are seen to the west south of St. Albans.



Figure 6. Route 7 entering Cozy Corner from south, Milton (4.4 miles)

³ No photographs were taken along this stretch as there are no safe stopping places along this busy but narrow stretch of Route 7.



Figure 7a and b. Route 7 south of Georgia Center: Georgia Mountain is seen over open fields with the Green Mountains beyond (left, 3.7 miles). Near I-89 development increases and the Husky Plant is seen (right, 3.2 miles).

▪ Route 2

The project would be visible from the causeway over Lake Champlain between South Hero and Sandbar State Park. Pullouts are provided on both sides of the causeway for travelers to enjoy the view. The mountain is viewed at 9-10 miles away in a nearly panoramic setting with numerous mountains and hills. The Adirondack Mountains seen to the southwest are a more dramatic feature than the hills to the east which include the project site. Only one other view may be possible along Route 2 just west of the intersection with I-89.



Figure 8. Route 2 View from Causeway over Lake Champlain near Sand Bar State Park

Route 104

Georgia Mountain is viewed frequently along Route 104 in Fairfax and at relatively close distances. Entering Fairfax village from the south the project ridge is viewed across open agricultural fields near the intersection with Route 128, then intermittently from this point to the Lamoille River crossing. At the north end of Fairfax village up to the intersection of Route 104A there are numerous views of the project across foreground meadows. The project would be seen at about 2.5 miles away. Georgia Mountain is also seen along Route 104 south of North Fairfax beginning around King Road heading south to Route 104A. Along much of this road Georgia Mountain is seen behind Cushman Hill but it becomes more prominent near Bailey Road. The project ridge is also briefly visible on Route 104 just west of Cambridge near North Cambridge Road. The Lamoille River is an important focal point in this area.



Figure 9. Georgia Mountain is seen to the right from Route 104 Fairfax at Bellows Farm (2.4 miles)

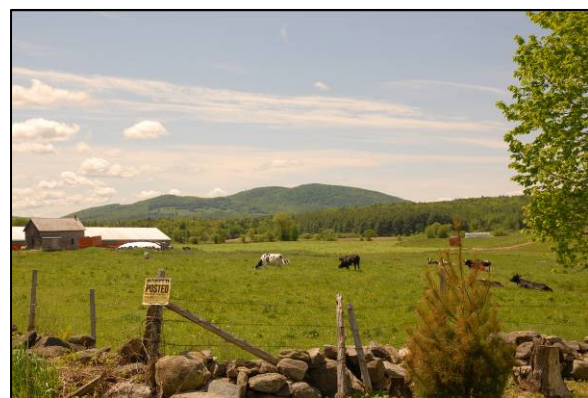


Figure 10a and b. Views along Route 104 heading south from North Fairfax. Left at 4.5 miles, Georgia Mountain is seen behind Cushman Hill, while near Bailey Road (right) it is seen to the southwest (3.8 miles)



Figure 11. Georgia Mountain is seen ahead on Route 104 west of Cambridge (5.2 miles away).



Figure 12. The Lamoille River runs alongside Route 104 at this point.

- Route 104A

Route 104A connects Routes 7 and 104. It runs along the Lamoille River and the northern shore of Arrowhead Mountain Lake. The project ridge would be visible for extended distances along open meadows west of Route 104A. There are also views to the Green Mountains to the east from some locations. The project ridge is seen at relatively close range (1.3 miles) near a riverside access area (see Appendix 3/Exhibit DPS-JV-4, simulation B1), and its western end from the Arrowhead Mountain Lake Boat Access Area.



Figure 13. View to Green Mountains Along Route 104A



Figure 14. Pan View of the Lamoille River with Georgia Mountain (left peak) from fishing access area (1.3 miles).

▪ Route 128

The project ridge is glimpsed very briefly in Essex heading north from which it is seen at a considerable distance (9-10 miles away). The project ridge would be most visible approaching the intersection with Route 104 just south of Fairfax village.



Figure 15. Route 128 near intersection of Route 104 in Fairfax (2.9 miles)

C. Local Roadways

Not all local roadways were inventoried but the following list provides a sense of visibility along roads where open meadows provide a greater potential for visibility of the project. Milton and Fairfax have the highest potential for visibility along local roads due to the presence of numerous open fields and flat or rolling terrain. There are also several view points in Georgia but at greater distances.

Milton

- North Road: Dense residential development at the south end of North Road overlooks a large farm to the east with Georgia Mountain behind. Husky Corporation is located further north, and views continue of Georgia Mountain from more rural residential areas north of Husky.
- East Road: There are numerous intermittent views of Georgia Mountain along this road. The landscape is rural with increasing development close to Westford Road
- Middle Road: Middle Road runs just west and almost parallel to East Road but vegetation and terrain make the project ridge less visible, with glimpses from several areas.
- Westford Road: Views of Georgia Mountain are limited to the western end near North Road. There are a number of residential subdivisions located along Westford Road along private roads.
- Hobbs Road: The Milton Town offices are located along this road. The project would be seen beyond dense foreground development typical of the Cozy Corner area of Milton.
- Roads West of Route 7: Brief glimpses of Georgia Mountain can be seen along a number of roads in this part of Milton including Murray, Hubbard, Lake, Everest, Caderact, and Paul Mears Roads. Visibility of the project is very limited in southwest Milton.



Figure 16. Views from North Road to Georgia Mountain (1.9 miles)



Figure 17. Residential development (left) west of North Road faces Georgia Mountain.



Figure 18. The Husky Plant (right) is located further north along North Road.



Figure 19. Westford Road at Hunting Ridge Lane, Milton looking toward Georgia Mountain (2.1 miles)



Figure 20. Georgia Mountain viewed along East Road in Milton (2.8 miles)



Figure 21. Lake and Hubbard Roads, Milton with Arrowhead Mountain in foreground (left, 4.5 miles)



Figure 22. Caderact Road, Milton (6.4 miles)

Georgia

The most proximate views in Georgia are along Georgia Mountain Road. A large dairy farm owned by the Wimble Brothers is in close proximity (.7 mile) with open meadows extending up to the slopes of Georgia Mountain. There are also views along Silver Lake and Skunk Hill Roads to Georgia Mountain. West of I-89 most views extend about a half mile along Sand Hill Roads across open meadows associated with a large dairy farm (a 115kV transmission line crosses the foreground in this view). Views of limited duration occur along Plains, Middle, Pattee, and Sandy Beech Roads.



Figure 23. Georgia Mountain Road, Georgia
Views from the Wimble Brothers dairy farm are seen at approximately .7 mile.



Figure 24 a and b. Georgia Mountain is seen ahead on Silver Lake Road in Georgia (left, 1.6 miles away) but to the east (right) are dramatic views of the Green Mountains



Figure 25. Sand Hill Road, Milton (5.2 miles)
Cobble Hill is a significant focal point in many views in the surrounding area.

Fairfax

The project will be visible along some secondary roads such as Sam Webb, Buck Hollow, Huntville, and McNall Roads. Views illustrated elsewhere along Route 104 will be similar to the views from these roads but at a slightly greater distance.



Figure 26. Cambridge Road, Fairfax (5 miles)

Westford

Views of Georgia Mountain in Westford are limited and mostly of short duration. There would be views at relatively close range along Westford Road, King Hill Road and to some extent along Mountain Road (primarily visible from a few residences).



Figure 27. Westford Road Milton Road (1.9 miles)



Figure 28. Old Stage (King Hill) Road (2.7 miles)

Colchester

Views from Colchester are extremely limited with a possible glimpse along Farnsworth Road.



Figure 30. Intersection of Middle and Farnsworth Roads, Colchester (6.8 miles)

D. Lakes, Ponds, and Recreation Areas

The project would be visible from portions of Lake Champlain in Colchester, South Hero, Grand Isle and St. Albans. State Parks on Lake Champlain from which the project would be visible include Kill Kare and Burton Island. It is also likely to be visible from Grand Isle State Park just beyond the 10-mile viewshed limit. Foreground trees in these State Parks would limit most views within the Parks. From Burton Island views to the project site are seen primarily from the marina. Most other views are toward the Adirondack Mountains. A wind project across the lake in New York is also visible (at a considerable distance). The Georgia Wind Project may be visible from the beach at Sand Bar State Park during low water levels. All views from Lake Champlain would be 9-10 miles away. (See photograph on page 10 and PET –JLZ-3 Viewpoint 7A Route 2 Causeway and PET 1-51 Supplemental Burton Island State Park).

The project would also be visible from nearly all of Arrowhead Mountain Lake including the Access Area off Route 104A. It is possible but unlikely to be visible from very limited stretches of the Lamoille River, but would be visible from an informal fishing access area along Route 104A (see Appendix 3/Exhibit DPS-JV-4, Simulation A2). There may be some visibility from Colchester Pond but at a distance of about 9 miles away.

The project may also be glimpsed from portions of the Champlain Valley Bikeway, but is unlikely to be a prominent feature within views.



Figure 31. Arrowhead Mountain Lake Boat Access Area (1.4 miles)

E. Village Centers

The project ridge would be seen intermittently from Milford's village centers including the Municipal Offices and Library located on Hobbs Road near Cozy Corners as well as from the High School and Elementary Schools. In all three cases foreground buildings and trees reduce the overall dominance of Georgia Mountain. The historic village center of Milton is in a dip in the road and views will be minimal until the village outskirts around Arrowhead Mountain Lake and north near Westford, North and East Roads.

Fairfax village is tightly knit with foreground buildings and trees obscuring views are likely from many areas including around Bellows Academy, and from the nearby Park and playground in relative close proximity (about 3 miles away).

Views are possible but unlikely from the village centers of Georgia, Westford, and Colchester. The project would be visible from the Georgia Public Library but this is not located in a village center.



Figure 32. View of Georgia Mountain from Milton Municipal Offices and Library (3.8 miles)



Figure 33. View of Georgia Mountain from Milton High School (3.3 miles)



Figure 34. View of Georgia Mountain from Bellows Academy in Fairfax (3.1 miles)

F. Historic Sites

Historic sites were not specifically inventoried or considered in this assessment. The project is not known to be visible from any historic sites for which views of Georgia Mountain are critical to the experience or interpretation of the resource.

G. Private Residences and Camps

The proximity of the project site to the Burlington metropolitan area as well as to Interstate 89 results in a relatively densely developed area and a greater potential for project visibility from residences. Residential areas with the greatest proximity and potential for viewing the project are located along and near portions of Route 7, Westford Road, North Road, Georgia Mountain Road, Fairfax village, and Route 104 in Fairfax.

IV. Adverse Aesthetic Impacts

The characteristics of the surrounding area, the characteristics of the project and the potential visibility of the proposed project have been discussed in detail above. To summarize, the project would consist of 3-5 wind turbines with an overall height of 388-443 feet located along the ridge of Georgia Mountain in the towns of Milton and Georgia. The surrounding area is fairly densely developed in portions of Milton, but elsewhere is largely rural in character. The project would have limited visibility from I-89, but would be visible from portions of State Routes 2, 7, 104, 104A, and 128 in the surrounding area as well as from a number of local roads. It would be visible from Lake Champlain and Burton Island State Park at distances of 9-10 miles away.

Wind projects will inevitably be visible from numerous locations including recreation areas such as rivers, lakes, ponds and hiking trails. In determining whether or not the views of the project would have “adverse visual impacts” it is necessary to examine a number of factors which affect the degree of prominence and degree of contrast of a particular wind project. Some factors relate to characteristics of the site and surroundings, while others have to do with characteristics of the project itself. In determining the degree of impact, it is very unlikely that any one of the factors described below would result in a determination of undue adverse impacts. However if there are significant issues with multiple factors, especially those involving very sensitive viewing areas, there may be reasons for concern.

A. Factors Relating to the Site and Surrounding Area

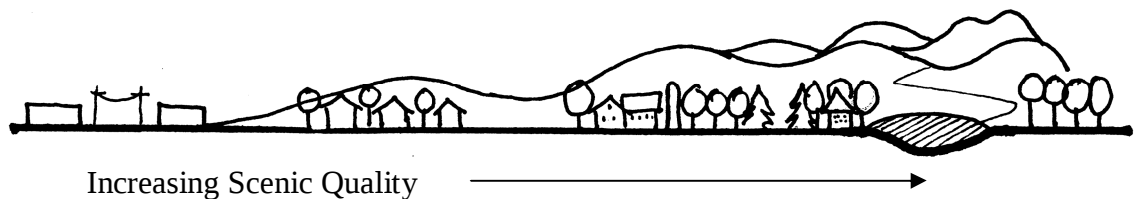
- Focal Point/Scenic Quality
Relative scenic quality can be systematically assessed. Exceptional views constitute a valuable resource and can be negatively impacted by inappropriately designed or sited development. Some measures of scenic quality and their relationship to viewpoints within the study are discussed below. Much of the study area can be considered to have moderate to high scenic quality, though only a few have exceptional scenic quality.

Focal Point: Strong and compelling focal points often enhance scenic quality. These tend to be elements that contrast with their surroundings and are often used as landmarks. In some cases, a mountain may appear as a focal point simply because it is seen in isolation. Within the project study area both Cobble Hill and Arrowhead Mountain are more distinctive in form, while Georgia Mountain, although taller is similar in form to other surrounding hills.

Another question is whether the proposed project might degrade views of other important focal points in the surrounding area. As noted above these include Lake Champlain, Arrowhead Mountain Lake, the Lamoille River, and in some locations views toward the Green Mountains. From Lake

Champlain the project occupies a small part of panoramic views and the Adirondack Mountains seen to the west are far more distinct in form. The project will be a notable feature seen in views on and around Arrowhead Mountain Lake where it will be viewed in close proximity. The project will also be seen in several instances in conjunction with the Lamoille River. In views heading south on 104 A the project will feature prominently in what is now a dramatic view of the river. The project would be seen in only one brief location adjacent to the Green Mountains along Route 7 in Georgia. In most instances the Green Mountains would be seen in the opposite direction and would not be impacted.

Visual Diversity: In general, landscapes with greater visual diversity in terms of topography, vegetation, water features or rock outcrops tend to be more scenic than those that are less diverse. Most of the study area is sufficiently diverse to result in landscapes of moderate to high scenic quality, but the views toward the project ridge do not rise to the level of spectacular scenery. By contrast, views to the Green Mountains from some areas in Fairfax, and to the Adirondacks from Lake Champlain can be considered exceptional views, but these would be most often seen facing away from the proposed project.



Intactness: In the built landscape, development and other changes can erode natural and cultural patterns and detract from scenic quality by increasing visual clutter. The project ridge was previously developed with a communications tower. The tower is relatively low in elevation and is not highly prominent. The addition of 3-5 turbines will focus more development on a ridgeline that has already been altered to some extent, but should not result in visual clutter since the repeated pattern of white turbines will appear separate and distinct. Trees along the ridge are likely to appear intact with no obvious disturbance at ground level, reducing the apparent degree of degradation of the natural features of the mountain ridge.

Uniqueness of Resource: Georgia Mountain appears as one of the larger landforms in the area and is identified as “noteworthy” in the Georgia Municipal Plan. From a few viewpoints it appears as the most prominent mountain. But from most vantage points, it is seen as one of many hills and mountains within the view.

- Viewing Distance/Proximity

Proximity to a wind project can affect its relative prominence in views. Generally views within ½ mile are considered to be foreground views and are locations where details can be perceived such as leaves on trees. Middleground views which extend from ½ mile to 5 miles away are views in which vegetative and land use patterns are visible, and in clear weather conditions even individual trees can be identified. Background views are those over 5 miles away in which details become less clear and landforms begin to take on a bluish color.⁴ As one moves away from a wind project, it will generally appear smaller and occupy a smaller part of the overall view.

There are no public viewpoints within a ½ mile of the proposed project. The closest views of the project from public areas are seen along Georgia Mountain Road (see DPS-JV-3-B2b). This road is not a heavily used route by the public, but for a few property owners the project would be visible at very close proximity. Seen from this distance the project ridge is a relatively prominent landform. Views within 3 miles include Arrowhead Mountain Lake, Fairfax village and outskirts along Route 104, Route 104 A, and the outskirts of Milton village to the east along North Road and East Road. Due to their relative proximity the project will appear more prominent from these areas.

- Viewer Expectations

Certain landscapes are valued for particular aesthetic experiences such as being surrounded by a natural landscape with little or no evidence of human alteration, seeing a dramatic scenic view, or providing a unique example of a cultural landscape that retains historic settlement patterns. For example, motorized craft are restricted on some water bodies for the express reason of providing a natural setting. Some trails and parks were protected expressly for providing a particular experience. Most landscapes, however, are part of the “working landscape” and there is a general expectation that it will change and evolve incorporating new development and technologies.

Within the study area no documentation has been found that would indicate that viewing a wind project would interfere with particular experiences or values associated with the land. Georgia Mountain itself has been developed with a communications tower and the mountain itself is used recreationally for ATVs and snowmobiles. There are no Wilderness Areas, natural areas or identified scenic overlooks within close proximity to the mountain. Views from Lake Champlain include numerous human-made elements.

- View Duration

Some views are seen as quick glimpses while driving along a roadway or hiking a trail, others are seen for a more extended duration. When there are extended

⁴ These viewing distances were developed by the U. S. Forest Service and serve as a general guide for understanding the visual characteristics of landscapes and how alterations may affect them.

views especially from significant scenic areas visual impacts may be exacerbated. Examples include hiking trails with views extending over open rocky ridges with highly scenic distant views; or where there are numerous documented highly scenic and sensitive viewpoints throughout a region. Open agricultural meadows in the area provide a number of locations where views tend to be extended over distances of over a mile such as along Route 104. However, the project ridge is generally not viewed directly ahead and is not an important focal point within the views.

- Number of Users
Areas that receive large numbers of users may be considered more sensitive since more people are likely to view the proposed project. Arguments have been made on both sides of this question: where there are few people, arguments are made that “no one will see it” but conversely, that the area has “remote” values. By contrast where many people are located one can argue that there would be numerous viewers, or that the project is appropriately located in an already developed area. Unless there is documented evidence that “remoteness” is a valued resource in the surrounding area, or that throngs of people are coming to view the project ridge or its immediate surroundings for its scenic value, the factor of numbers of users may not be particularly relevant.
- Documentation of Scenic or Recreational Importance
When there is public documentation of particular scenic or recreational resources, especially in local, regional or state planning documents, it is an indication of broad public consensus of the value of a particular resource. This issue is addressed in more detail in the next section under “Community Standard”. The only documentation found was in the Georgia Municipal Plan which identifies Georgia Mountain as a “noteworthy” resource. No other descriptive evidence is provided. While references to Arrowhead Mountain Lake, the Lamoille River and Lake Champlain are common, few or no references to Georgia Mountain were found in available literature or on web sites.
- Impacts on Open Space
Except for occasional ATV use the summit of Georgia Mountain has not been publically accessible. While the appearance of an undeveloped ridgeline will be altered resulting in some impacts to perceptions of open space, from public vantage points the turbines are likely to appear to be rising above an undisturbed forest since the roads and clearings should not be visible off site.

B. Factors Relating to Project Characteristics

The design and visual characteristics of a proposed project can exacerbate or mitigate visual impacts. The following factors need to be evaluated, but must be examined also in terms of the context in which they are viewed as described above.

- Project Scale

The height of turbines makes them very visible elements in the landscape. Despite their large size however, it is often difficult to tell just how high they are. In assessing scale the relevant factor is how they appear in the context of their surroundings and whether or not their size overwhelms the height of the mountain on which they are located. Georgia Mountain is relatively small compared with other mountains that have been considered for similar projects. Therefore, the turbines will appear proportionally larger on Georgia Mountain, especially if the larger 2.5MW turbines are used. Nevertheless, the overall mass of the turbines would not overwhelm the visual prominence of the mountain itself. Moreover, a maximum of 4 of the larger turbines could be used, thus reducing the “horizontal scale” of the project (see below).

- Number of Turbines within the View

The relatively small number of turbines proposed would result in a small “horizontal scale,” so that the project would occupy a limited overall area in most views. From a few vantage points Georgia Mountain appears as a more dominant feature. These would include portions of Arrowhead Mountain Lake, and some sections of Georgia Mountain Road, North Road, East Road, Route 104A and from some areas within Fairfax village including the Bellows Academy.

- Visual Clutter

One of the reasons many people find wind energy projects attractive is because the repetition of like objects creates a sense of order and simplicity that minimizes discord. A well designed project will ensure that other infrastructure such as roads, power lines, storage areas and substations are screened from view from important viewing areas. This provides a sense that the turbines are rising above an intact forested landscape. In general this would be true for the Georgia Mountain Community Wind Project despite the presence of an existing communications tower. This tower is relatively small and is located at the far end of the ridge so that it will appear to be a separate and significantly less dominant visual element.

- Color

The white color of wind turbines is preferred by the Federal Aeronautics Administration (FAA) to facilitate visibility to aircraft. Daytime lighting is not required if turbines are white. This color may also make wind turbines more visually appealing as it is a clean and cheerful color rather than the industrial gray of most communications towers for example. Both white and gray work equally well against clouds and are equally likely to be silhouetted in certain lighting conditions.

- Movement

The rotation of the blades may tend to draw attention to turbines but the very slow rotational speed is not overly distracting and is considered by many to be part of

the visual appeal of wind turbines. When they are moving, the blades reinforce the connection to the ridgeline by making the wind observable. Studies show they are viewed as more attractive when in motion than when still.

- Lighting
Approximately three red strobe lights are likely to be required by FAA. For those who find wind turbines generally attractive, lighting often remains one of the most intrusive characteristics. Except for navigational lights on Lake Champlain, no other similar red strobe lights are known to exist in the study area. Nevertheless, there is a sufficient amount of development within the surrounding area that lights in general are likely to be a common and frequently observed occurrence. At night lights are seen in isolation and not as part of a larger landscape context. The lights are designed to be visible to airplanes but not to light up the surrounding area so they do not contribute to sky glow. There are no known remote camping areas in close proximity to the project from which night lighting could degrade the experience of a natural setting. From campsites on Lake Champlain at distances of 10 miles or more, the lights would be visible but difficult to see. There may also be impacts to residents who may have outdoor use areas with views oriented to the project site. The number of instances where this might occur is not known.
- Noise (See Noise Assessment Report, Exhibit DPS-RL-1)
Noise can affect the character of an area and is therefore an aesthetic as well as health consideration. Noise analysis reports show that noise levels will not exceed recommended day and night time levels. However, it is possible that the turbines will be audible during certain atmospheric conditions. This is likely to be an infrequent occurrence, especially at distances greater than 1 mile away, but may be noticeable to some people.
- Shadow Flicker:
Shadow flicker is seldom problematic at our latitudes beyond a half mile away⁵. Studies appear to indicate that there would be no effects of shadow flicker on any residences in the area.

C. Conclusions Regarding Adverse Aesthetic Impacts

The proposed Georgia Mountain Community Wind Project will have adverse aesthetic impacts. The project would be seen from numerous areas including locations in relatively close proximity. Many of these views are very scenic and include other local focal points such as Arrowhead Mountain Lake, the Lamoille River and Lake Champlain. Georgia Mountain itself is not a regionally important focal point but it is a notable feature in many views. Although relatively small in size (number of turbines) the project will contrast in form, color, texture and scale with

⁵ National Research Council of the National Academies, *Environmental Impacts of Wind Energy Projects*, Chapter 4, p. 160.

similar land uses in the surrounding area. Its ridgeline location will make it particularly prominent.

While it is true that many people will find the project visually appealing, it is the author's belief that the evaluation of aesthetic impacts should not be made on whether or not people find wind turbines beautiful or not. These opinions will vary from person to person. Rather, the determination should be made on the characteristics of the site and surrounding landscape. The extent to which the project ridge is a valuable scenic resource, the extent to which the project would interfere with identifiable and/or documented scenic resources in the surrounding area, and the extent to which it would dominate views are more relevant questions.

V. Undue Adverse Aesthetic Impacts

The question to be addressed below is whether the adverse impacts described above would extend to "undue adverse aesthetic impacts". The Quechee Analysis employs three tests discussed in detail below (see the Introduction for the full text of the three tests).

A. Would the Project Violate Clear Written Community Standard?

A clear written community standard is a statement appearing in publically adopted planning and/or zoning documents which identifies specific aesthetic or scenic resources to be protected and providing adequate guidance to developers concerning the manner in which they should be protected. The project would be located in the Towns of Milton and Georgia and the plans of those two Towns provide the primary guidance. The Towns of Fairfax and Westford are affected towns in relative close proximity. Their planning documents cannot determine what would be acceptable development in a neighboring town, but no statements were found pertaining to views to Georgia Mountain or to aesthetic impacts of wind energy projects. Therefore there would be no undue adverse impact related to the local or regional planning recommendations or requirements.

• Milton Comprehensive Plan (April 12, 2008)

The Plan begins with a general Vision Statement (Chapter 1, Introduction to the Plan: Vision Statement and Goals, Resource Use and Protection, pages 3-4) as follows:

Emphasis is placed on preservation of Milton's scenic ridgelines and water resources including the Lamoille River and Lake Champlain watershed and wetlands.

The proposed project would be located in a "Forestry/Conservation/Scenic Ridgeline District", and within the "East Milton Planning Area". The ridges along the eastern edge of the town including Georgia Mountain, Cobble Hill and Arrowhead Mountain

are included in the Forestry/Conservation/Scenic Ridgeline District. The plan states that the delineation is based on topography and that there are areas within these districts that “may not include sensitive areas”, and that these should be considered “transitional areas” suitable for conditional uses typical occurring within the Agricultural/Rural Residential District. The Plan mentions a “windshield survey” of scenic resources but the results are not part of the Plan or endorsed by the Planning Commission (Chapter 7, Resource Use and Protection: Aesthetic Resources, Page 75). Although the District title implies that Georgia Mountain has scenic value, no guidance is provided as to the factors that contribute to its scenic character or how the resource should be managed

On page 97, the Plan describes the goals for the East Milton Area as follows:

The area has the highest potential for resource utilization and the highest concentration of resources in need of protection.

This section continues by noting the importance of agriculture as the primary resource use in this area. Goals include encouraging agricultural uses as well as low density residential development that enhances the character of the area.

The Plan’s Energy section (page 30) specifically mentions a potential wind project on Georgia Mountain, but makes no other statements. The Energy goals do not address wind energy referring only to energy efficiency and transit.

• **Georgia Comprehensive Municipal Plan (September 2006)**

In Section II the Plan describes the existing conditions of the community and identifies goals and objectives, with Section L focusing on scenic resources within the Town that are “noteworthy features” (pages 25-26):

- *Goodrich Hill, Georgia Mountain, St. Albans Hill, and Bradley Hill. These forested slopes are prominent features, whose scenic quality are subject to degradation by development or cover change.*
- *Lake Champlain Viewshed. The views from and the views to the lake are both important.*
- *I-89 Viewshed. The interstate may be considered a scenic corridor.*
- *Route 7 Viewshed. Particularly from Georgia Center north, this viewshed plays a key role in peoples' perception of the town.*
- *Areas adjacent to Arrowhead Mountain Lake and Lamoille River.*
- *Georgia Plains and the Lowlands Areas. The area between Middle Road/Cline Road and Route 7, transversed [sic] by Mill River, Polly Hubbard, Reynolds, Pattee Hill, and Georgia Plains Roads contains a characteristic and historic Champlain Valley landscape.*
- *River and Stream Beds. These are also part of the visual landscape. While they are protected through state and federal legislation, they are nevertheless vulnerable to physical and thus visual alteration.*

Georgia Mountain is specifically mentioned as one of four “noteworthy” landforms. However, the Plan provides no specific reasons for its scenic value or guidance as to how it should be protected from degradation. Therefore, this cannot be considered a clear written community standard. Nevertheless it should be noted that the project would be visible from many of the areas identified in Georgia’s Plan including Arrowhead Mountain Lake, the environs of the Lamoille River and from many of the roads identified.

Discussion of wind energy within the Plan is minimal with only one brief mention (page 52) as follows:

We should begin to look more seriously at alternative energy sources for our future needs. Emphasis should be placed on renewable energy sources such as wood, methane, ethanol, wind, solar, and hydro.

Regional Plans

• Chittenden County Regional Plan

The project is located in a Rural Planning Area. These areas are “intended to be places that preserve Vermont’s traditional rural character.” The policies are general and do not constitute a Community Standard:

- *Promote the use of land for recreation, conservation, agriculture, silviculture, and other resource-extraction industries through private activities, public land management, and the designation of natural areas.*
- *Be developed in accordance with local plans and bylaws and cooperative efforts among government agencies, nonprofit organizations, and landowners to retain the character of Vermont’s traditional rural landscape and ensure ecosystem health.*
- *Encourage residential development to be small-scale and to cluster on small lots so as to aggregate areas of open space.*
- *Not provide the same level of services as the other Planning Areas, instead providing most local services for Rural Planning Area residents and agricultural businesses in nearby Village Planning Areas, while other needs will be met by uses in the Metropolitan Planning Areas or Enterprise Planning Areas.*
- *Have a lower priority for public sewer and water infrastructure investments and programs.*

• Northwest Regional Plan

The Plan opens with the following **Vision Statement** (Page i):

Continued improvements in the quality of the region's natural and built environment, including improved air and water quality and the protection of the region's most important natural, cultural and scenic features.

In Chapter 3, Natural and Cultural Environment Resources Georgia Mountain is noted on page 3.2 as one of the three most prominent hills within the Green Mountain foothills.

On page 3.22-3.23 in discussing Scenic Resources, the Plan quotes a publication of the Vermont Agency of Natural Resources, *Vermont's Scenic Landscapes: A Guide for Growth and Protection* (VANR 1991) noting several types of scenic landscape types including Ridgelines, hilltops and peaks, for which the following recommendation is made, - *locate new development down-slope - provide screening to prevent visual dominance of the landscape.*

Scenic and Aesthetic Goals and Policies are outlined on pages 3.26-3.27. These include recommendations for lighting and high elevation structures.

Scenic And Aesthetic Resources Goals:

3.14 To preserve significant scenic and aesthetic resources of the region for the benefit of current and future generations.

3.15 To encourage land uses that enhance the image of a working, sustainably managed, natural resource based economy balanced with settled towns and wildlands.

Policies:

3.32 Support the use of donations or purchase of scenic easements by public or private groups.

3.33 Support local efforts to designate important scenic areas or corridors.

3.34 Encourage efforts to improve sites that have an existing structure, use or development that diminishes the scenic view.

3.35 Encourage the scale, siting, design and management of new development to be in keeping with the character of the landscape and the area's built environment.

3.36 Discourage development along prominent ridgelines and hilltops.

3.37 Encourage developments to use vegetative and landscaping screens to reduce their visual impact.

3.38 Encourage the use of incentives for preservation of scenic views and scenic corridors.

3.39 Exterior lighting should employ technologies and designs that minimize light leaving the site, particularly by down shielding lights, arranging them so that they are not directly visible from nearby roads, residences or distant vantage points, and limiting the need for additional exterior lighting.

3.40 Creative methods of arranging lighting to reduce overall foot candles, improve true color rendering and provide for even lighting which minimizes overly bright areas, or "hot spots", are encouraged.

3.41 Discourage development that will significantly increase the degree of "light pollution", which is understood to mean lighting that illuminates the night sky.

3.42 Discourage exterior lighting on prominent physical features and landscapes that adversely impacts the nighttime landscape.

3.43 Telecommunications towers and other prominent high-elevation structures should minimize their impact on scenic resources by reducing their size or location so that exterior

lighting is not required, by seeking opportunities for co-location, and through choice of site, shape and color of the structure that reduces the visual impact of the development.

None of the Policies are mandatory but two deserve further discussion as they address prominent ridgelines. 3.36 discourages development along prominent ridgelines. Georgia Mountain is noted as a prominent ridgeline in discussions of Natural and Cultural Resources (page 3.2) but it is not specifically mentioned in discussions of aesthetics and the policy is not mandatory. The project would not contribute to light pollution (Policy 3.41) as the hazard lighting is intended to be seen but not to light up surrounding areas. The light intensity is relatively low. With regard to 3.43, the project's horizontal scale is relatively small though its vertical scale will require hazard lighting. This will result in adverse impacts on scenic resources but the project is co-located with an existing communications tower and is within an area where night lighting is relatively common.

Chapter 6 addresses Energy and wind energy in particular on pages 6.4 - 6.5. The benefits and potential for wind energy are noted along with the following caution concerning the potential for aesthetic impacts. No specific recommendations are made.

While the benefits of wind power are substantial, the location of utility-scaled wind energy turbines and associated facilities can adversely interfere with scenic, natural, and historic resources. Much like other power generation facilities, not all wind generation sites are appropriate to every setting. Although currently critical to commercially viable wind generation sites, ridgelines are the more visible portions of the Region's landscape and aesthetically valued by many. Both the Vermont Environmental Board and the Public Service Board have identified upland areas and ridgelines as having particularly sensitive landscapes. The region and individual municipalities should understand the Section 248 review process, so that in the case a proposed commercial project, the local community will have maximum participation for a positive outcome.

B. Would The Project Offend the Sensibilities of the Average Person?

Although the project would have adverse aesthetic impacts, it would not offend the sensibilities of the average person. Georgia Mountain is not distinctive in form or a focal point in views. It is generally seen as one of several hills and mountains within most contexts. From most vantage points the landscape is rural in character, and although often very scenic, it is a landscape that is characterized by a mixture of cultural and natural features, and often the use of renewable natural resources plays a role in the existing landscape. The project is relatively small in breadth and would not overwhelm the visual presence of Georgia Mountain. The mountain itself as well as other scenic resources will continue to contribute to the character of the area. Some individual property owners will be more adversely affected, particularly in situations where Georgia Mountain is a prominent feature viewed from indoor or outdoor living spaces and seen in relative proximity. Night time hazard lights could also be more disturbing in these instances. The most significant visual impacts will

affect some property owners along Georgia Mountain Road as illustrated in DPS-JV-4 (B2b). But for the “average person” living in or traveling through the surrounding towns, the project will be a noticeable element but would not significantly degrade the experience of the scenic landscape.

C. Has The Applicant Failed to Take Adequate Mitigating Steps?

Siting is critical to mitigation of wind energy projects. A poorly sited project may not be able to be adequately mitigated through design and micro-siting techniques. Georgia Mountain provides a reasonable setting for the 3-5 turbine project proposed. Design features which may influence the relative aesthetic impacts of a project may include:

- Turbine Selection: most turbine designs and colors are relatively similar. Modern turbines have been able to increase power output with little increase in overall size of the turbines. This means that three or four 2-2.5MW turbines could produce the same or more power than five 1.5MW turbines. The difference in overall size of the turbines would be difficult to perceive and the larger turbines would result in few numbers.
- Access and Summit Road Design: In examining proposed grading plans, it does not appear that the project would result in any off-site visibility of turbine pads, roadways or fill slopes.
- Collector Line Siting and Design: The proposed pole size and clearing width are relatively small and any significant visibility is unlikely. However, there could be some minimal visibility of the line clearing along portions of North Road.
- Substation and Switchyard Siting and Screening: The size of the project will not require a substation and a very small switching facility will be installed near the Husky Plant and should be relatively unobtrusive.
- Siting and Design of Storage Areas and other Support Structures: These appear to be well sited for minimal off-site visibility.
- Recreational Access to Site: It is presumed that current ATV access will continue on the site, although it is possible that it would require some rerouting.

VI. Conclusions

The proposed Georgia Community Wind Project would result in adverse aesthetic impacts but would not result in undue adverse aesthetic impacts.

The project would introduce new and contrasting structures along the ridgeline of a notable geographic feature in the area. The project would be frequently viewed throughout the area, often across scenic foreground settings including the Lamoille River, Arrowhead Mountain Lake and scenic farmlands. It would also be visible from a relatively large area of Lake Champlain though at a considerable distance of 9-10 miles. The project site is not a distinct landform or strong focal point within the surrounding

area and would occupy a small part of most views which include many other hills and mountains. There are no viewing areas within the surrounding area identified as scenic viewpoints or features, or those for which an entirely natural or intact landscape is documented as a critical resource.

VII. Evaluation of the Petitioner's Aesthetic Impact Assessment

Landworks provided written Aesthetic Assessment and mapping for the proposed project on behalf of the Petitioner and Vermont Environmental Research Associates (VERA) provided simulated photographs. The conclusions drawn by Landworks as represented by David Raphael are, in my opinion, sound. The report addresses the key components of the Quechee Analysis and provides adequate illustrative support materials including a Viewshed Map, Cultural Resources Map, View from the Road Map and photographs illustrating viewpoints within the surrounding area. There were however a few issues in the descriptions of the visual character of the surrounding area and in the factors used in drawing conclusions. These are outlined below.

- o Eight pages of the report are devoted to general studies regarding public opinion regarding wind power in Vermont and worldwide. Public opinion is an important consideration especially since utility scale wind turbines are new to the Vermont landscape and are very different in form and location compared with most traditional development. The opinions of affected parties are also appropriately considered by the Public Service Board as it relates to a particular project. But in preparing a professional visual impact assessment the focus should be on the particular characteristics of the site, the surroundings and the characteristics of the particular project as it relates to this context.
- o Considerable emphasis is placed in the Report on the extent of commercial and industrial development within the surrounding area. Little time and acknowledgement is made to the numerous scenic areas and resources that occur within the project surroundings. Arrowhead Mountain Lake is viewed primarily as a "hydroelectric project" and "industrial landscape" (pages 6, 15, 17, 26, 32, 33, and 36) and its scenic values are not discussed. The Lamoille River is never mentioned, nor are Burton Island and Kill Kare State Parks. The scenic rural character of Georgia and Fairfax both of which are in relatively close proximity to the project are given little attention. See for example the "Sampling of Photos of the Project Environs" (pages 19-23) which do not illustrate any of the numerous scenic views toward the project ridge. Similarly on page 26 (*Is the Project Compatible with its Surroundings*) no mention is made of scenic views toward the project ridge.

Generally a visual assessment methodology begins by identifying the scenic resources within an area as well as visually sensitive sites. It is the purpose of the assessment to examine the extent to which the proposed project may affect existing scenic resources. The presence of high and

even exceptional scenic quality in an area does not mean that a wind project would be inappropriate. But these views must be identified and the relevant characteristics of the views discussed (e.g. proximity, duration of view, uniqueness, etc.).

- o Similarly the visibility of Georgia Mountain and hence the project is downplayed in the report (although well represented on the View from the Road Map). Compared with settings where wind projects have been proposed to date (Sheffield and Deerfield) this area has many open agricultural fields which permit views of fairly long duration along some public roads. Here again, visibility does not necessarily mean undue adverse impacts, but visibility needs to be clearly discussed as well as the manner in which the project is seen in those views.
- o Views from residences are not typically analyzed in detail in Visual Assessment Reports which emphasize the public landscape. But assumptions can be made and discussed about the likelihood of visibility from residences. Here again, the fact that there will be views from residences should not be interpreted as problematic, but do need to be acknowledged.
- o Discussion of climate relative to aesthetic impacts is irrelevant (see pages 27, 34 and 51) in my opinion. A wind energy project in a very sunny area with few cloudy days is unlikely to have greater impacts due to the lack of clouds (e.g. Colorado). Indeed, one can argue that the presence of cloudy days only makes the views on clear days all the more valuable. I believe we need to stop using the weather argument and focus on the visual characteristics of the site and project.
- o The “clustering effect” is mentioned on pages 33, 34, 35 and 38 as a mitigating property. I am unaware of any evidence that people find turbines viewed behind one another as any more pleasing than in a horizontal array. In fact, this characteristic was identified as a negative attribute in a hearing in Maine.
- o Table 3 (page 40) Matrix of Viewpoints from Public Investments within the 10-Mile Radius does not mention either Burton Island or Kill Kare State Parks.
- o Appendix 2 contains numerous photographs of the surrounding area. I believe these misrepresent the visual character of the context by overemphasizing the extent to which development occurs within views rather than illustrating the scenic resources which exist in the area. Mr. Raphael seems to include power lines, signs, trees and other built elements in nearly every photo. While this is a topic of potential debate, I believe it is the purpose of a visual assessment to represent the scenic resources in the best light and by contrast to examine the worse case scenario with a project. Photographs because they are still tend to over-emphasize foreground clutter.
- o Evaluation of Petitioner’s Simulations and Viewshed: The Petitioner’s simulation at Arrowhead Mountain Lake (PET.JLZ-3 Viewpoint #4) was duplicated in order to verify its accuracy. Both were found to accurately

represent the proposed project with 1.5MW turbines (see DPS-JV-3). We also requested a version from the Petitioner illustrating the maximum turbine size (2.5 MW) and a simulation from Burton Island State Park. Both were provided (see PET.1-50 and PET.1-51 Supplemental).

The viewpoints selected by the petitioner represent a range of distances and angles of view and include several community gathering places such as Georgia Public Library and BFA High School in Fairfax. They under-represent, in my opinion, the scenic resources of the area and focus too heavily on developed locations rather than those where the natural landscape predominates and which can be considered to have high scenic quality. In particular Viewpoint #5 from Route 7 illustrates one of the least scenic stretches of Route 7 in the study area. It is important to use simulations to illustrate impacts to the most scenic areas within an area as these represent the areas which could potentially be of the greatest concern.

- o We found the viewshed analysis and other maps prepared by the petitioner to be accurate and useful. It is generally typical in visual impact assessments to identify and illustrate all viewpoints and to indicate specific viewpoints on maps.