Review of the Silver Maple Wind Farm Visual Impact Assessment

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Prepared for

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May 20, 2020

INTRODUCTION

Strum Consulting submitted a revised Visual Impact Assessment (VIA)for the Silver Maple Wind Farm dated May 6, 2020 to Maine Department of Environmental Protection (MDEP). Scenic Quality Consultants has been retained by MDEP to provide an technical review of this VIA.

PROJECT DESCRIPTION

The project is described as follows in Section 1 of the application, which was placed online on November 18, 2019.

> The Silver Maple Wind Project will be a twenty (20) megawatt wind energy project, located in Clifton Maine, directly adjacent to the existing Pisgah Mountain Wind Project. This project will be developed, owned, and operated by SWEB Development USA, LLC. The project will consist of five V136 turbines, which will stand on steel towers either 105 meters (344.5 ft) in height, or 117 meters (383.8 ft) in height. The fiberglass blades of the V136 are 68 m (223 ft) in length, giving each turbine a total tip height of 173 m (567.6 ft) to 185 m (607 ft) respectively. The project parcel is owned by the applicant: SWEB Development USA, LLC, and totals 163 acres. The project currently holds all necessary rights to the land, along with all required mitigation waivers and easements for construction and operations.
>
> This project will directly abut the Pisgah Mountain Wind Project, which is a 9 MW project which began operations in December of 2016. The Silver Maple project will share common ownership with the Pisgah Mountain project, although both projects will have unique interconnection facilities (via Emera Maine) to the 115 KV lines on site. The Pisgah Mountain Project consists of 5 Vestas V 90, 1.8 MW turbines on 95-meter towers. The existing project also hosts a unique point of interconnection to Emera Maine and ISO New England via a substation on the southwest corner of the parcel.

In order to conduct the VIA, it is necessary to have accurate dimensions of the wind turbines. Page 1 of the VIA indicates that two turbine models are under consideration, they are “largely the same, with the exception of the hub height [100m (328 feet) and 117m (384 feet)]. The taller of these two turbine models will be used for this analysis.” The total height, rotor diameter and turbine models are not disclosed. In the VIA sections 2.0 Project Description and 3.0 Methodology there is no description at all of the turbines’ dimensions.

On the other hand, the viewshed maps for the blade tip indicate the total height is 185 m, but there is no description of this in the VIA text. The viewshed maps for the turbine hub lists two heights—95 m and 117 m. The visibility information on the map can only be for one of the hub heights—not both. In addition, the 95 m hub height conflicts with the hub height of 100 m given in the VIA text.

The project description in the VIA is incomplete and includes contradictions. The turbine specifications used for this review are listed in Table 1.

Table 1. Comparison of Pisgah Mountain and Silver Maple turbine dimensions.

	Pisgah Mountain Wind	**Silver Maple Wind**
Turbine Model	**V-90**	**V136**
Nominal generation	1.8 MW	**
Tower/Hub	95 m (312 ft)	117 m (384 ft)
Rotor diameter	90 m (295 ft)	136 m (446 ft)
Total Height	140 m (459 ft)	185 m (607 ft)

** The Vestas 4 MW platform has a V136 3.45 MW and a 4.2 MW model, but there is not a 4 MW model.

PROJECT VIEWSHED

Chapter 382.G(1) requires that the VIA "identify all areas of the SRSNS from which the project is visible using a bare earth terrain model, and … a VIA that considers the screening effect of land cover may also be prepared using a digital surface model that measures the elevation of topographic elements, such as building roofs and forest canopies. A height of 40 feet may be assigned to the forest cover in the absence of a true digital surface model."

It appears that the terrain viewshed was properly conducted. However, there is some question whether the screened viewshed was. The VIA text does not make clear whether 40 ft were added to the terrain elevation, and if so for what land covers.

Terrain viewsheds of the project's upright blade tips and turbine hubs were prepared for this review and are included in Appendix 1 as maps 1 and 2. The elevation data are the 1/3 arc-second National Elevation Data (NED) obtained from the National Map.

Forest screened viewsheds were also prepared and appear in Appendix 1 as maps 3 and 4. Areas identified in the 2016 National Land Cover Data (NLCD) as 41.Deciduous Forest, 42.Evergreen Forest, and 43.Mixed Forest are assigned a nominal height of 12 m (approximately 40 ft). This height is added to the NED and visibility is determined. The result shows were the tip or hub are visible to a viewer standing atop the forest canopy or on bare ground. Obviously a person would not be found standing on top of the forest canopy, but in the forest where visibility would be screened by the trees. Therefore a second step is to mask (i.e., remove) visibility in areas with forest cover.

The analysis was conducted in ArcGIS with the same base data as used in the VIA. However, there can be some variation depending in how the data are projected and resampled. In addition, it is unclear which land covers were assigned a 40 ft height by the VIA. Appendix 1 maps 5 through 8 compare the results prepared for this review and those prepared for the VIA. The differences are slight, and primarily are areas where the VIA shows no visibility that

correspond to 52.Shrub/Scrub or 90.Woody Wetlands. The reason for these differences is not apparent, but they do not seem to be significant.

SCENIC RESOURCES OF STATE OR NATIONAL SIGNIFICANCE

The original VIA failed to identify all 17 SRSNS and considered some locations that were not SRSNS. This situation appears to have been corrected in the revised VIA.

In addition, there are two Great Ponds identified in Maine's Finest Lakes as having outstanding scenic value that are not addressed in the VIA: Burnt Pond and Flood Pond. However, both lakes are surrounded by lands owned by the Bangor Water District to protect the water supply. As such, the public does not have a legal right of access. This should be explained in the VIA.

FIELDWORK

The identification of additional SRSNS required additional fieldwork documentation. This fieldwork and photography appear to have been conducted by CES Inc. Their work is summarized in two memos:

- Re: Report on additional photographs for Visual Impact Assessment | Silver Maple Wind Project, Clifton Maine, dated April 13, 2020.

- Re: Visual Impact Site Analysis | Silver Maple Wind Project | Clifton, Maine, dated May 6, 2020.

These memos document the efforts to obtain photography that represents a clear view of the project from each identified scenic resource. They also explain why some locations may have been identified as having potential visibility by the viewshed analysis but the fieldwork indicated that they would not have visibility. This determination is given increased accuracy since the existing Pisgah Mountain turbines will usually be visible at the same locations the Silver Maple turbines are visible. I believe that these memos represent a good faith effort to collect the requisite documentation.

VISUAL SIMULATIONS

The photograph specifications are shown in Table 2. One location, Holden Town Hall, was taken with a Canon EOS 5D Mark IV, which is a full frame camera. The photograph metadata indicates that a 50 mm or "normal" lens was used and the resolution was 6720 x 4480. The horizontal angle of view (HAoV) for a 50mm lens is 39.6º. The photosimulation technical information indicates that a 31.25 mm lens was used and that the resolution was 6720 x 2500. This error is unlikely to be problematic.

The rest of the visual simulation photographs were taken with a Canon EOS 800D camera and a zoom lens. The technical information with the photosimulations reports the resolution of the Canon EOS 800D photographs as 6000 x 2500 when it is actually 6000 x 4000. Again, these errors are unlikely to be problematic

The Canon EOS 800D camera uses a APS-C format sensor (similar to the Nikon DX format). This smaller form affects which focal length has a 40º HAoV. The target focal length is 31 mm, but two of the photos (i.e., East Eddington and Hopkins Pond) used a 28 mm focal length, which is equivalent to a 45 mm lens on a full-frame camera. This is misrepresented as equivalent to a 50 mm lens in the technical information that accompanies the photosimulations. The HAoV of a 45 mm lens is 43.6º or 10 percent wider than the viewer might expect based on the other photographs. The effect is to slightly diminish the apparent size of the turbines.

The photosimulations are created using WindPRO software. A significant problem with using this WindPRO is that the registration of the existing conditions photograph with the digital model of the turbines relies primarily of matching up the terrain ridgeline. However, in Maine forest cover often obscures the ridgeline. For instance, it is unclear how the registration of the photograph to the turbines is done for Cliffwood Hall. Looking at the documentation in Appendix H of the VIA there do not appear to be visible registration elements. At viewpoints where substantial portions of the Silver Maple turbines will be visible, it seems likely that there will be some visibility of the existing Pisgah Mountain turbines. However, this is not useful at Cliffwood Hall. In addition, a slight adjustment in the viewpoint might make the proposed turbines visible, even though the shorter existing turbines remain screened by the trees.

The variation in focal length is awkward and clearly a shortcoming, and is why a prime lens with a single focal length should be used for all simulation photography. However, I do not anticipate it to significantly affect the findings in this case.

Table 2. Simulation photography specifications.

Location	Camera	Focal length	Resolution	Full Frame
Chemo Pond	EOS 800D	31 mm	6000x4000	50mm
Cliffwood	EOS 800D	31 mm	6000x4000	50mm
East Eddington Hall	EOS 800D	28 mm	6000x4000	45mm
Holden Town Hall	EOS 5D Mark IV	50 mm	6720x4480	50mm
Hopkins Pond	EOS 800D	28 mm	6000x4000	45mm
Parks Pond	EOS 800D	31 mm	6000x4000	50mm

Note: Canon EOS 800D image sensor size: Approx. 22.3 x 14.9 mm. 35mm-equivalent angle of view is that of a lens with approx. 1.6x the focal length indicated.

In the visual simulations, it appears as though the existing Pisgah Mountain wind turbines are approximately the same height as the Silver Maple wind turbines. This seems counter intuitive, since the proposed turbines are much larger than the existing turbines. Table 3 lists the ground

elevation of each turbine, plus their hub and upraised tip elevation. As it turns out, the average base elevation for the Silver Maple turbines is approximately the same as for the Pisgah Mountain turbines. However, the average hub height is approximately 20 m higher and the upright blade tip is 65 m higher. As a point of fact, the Silver Maple turbines do reach an elevation higher than the Pisgah Mountain turbines. The apparent similarity in the simulations may be due in part because the hub heights are much closer and the tips are not all oriented in the same way. It is also difficult to tell which turbines are closer or further away from them viewer.

Table 3. Ground, hub, and tip elevations for the Silver Maple wind turbines.

Turbine	Ground Elevation (m)	Hub Elevation (m)	Tip Elevation (m)
Silver Maple #1	229.3	346.3	414.3
Silver Maple #2	207.8	324.8	392.8
Silver Maple #3	213.4	330.4	503.4
Silver Maple #4	207.0	324.0	392.0
Silver Maple #5	193.7	310.7	378.7
Pisgah Mountain #1	191.9	286.9	331.9
Pisgah Mountain #2	216.7	311.7	356.7
Pisgah Mountain #3	234.6	329.6	374.6
Pisgah Mountain #4	214.5	309.5	354.5
Pisgah Mountain #5	200.4	295.4	340.4

It is unclear how the nighttime simulations were created, since it is not documented in the VIA. However, it is clear that this is not a dark star-lit night. I believe that the reason for requiring the nighttime simulations is to represent the effect of the flashing red FAA aviation warning lights. The VIA states that a “radar-based obstruction lighting control system” will be installed. This is fine, unless there are frequent flights that trigger the system. The VIA should include information about the frequency with which the FAA lighting for the Pisgah Mountain turbines is activated and for how long they remain on. If it is on a regular basis, then the effect should be simulated. The simulation needs to represent the flashing of the lights, since that is a big part of what makes them so prominent. This will require animating the still photograph. The actual light level is not very high, but it is easily seen when it is dark. As a result, accurate nighttime simulations must be viewed in the dark after the eyes have adjusted to the low light level for 10 minutes or more. It is not possible to view accurate nighttime simulations in the daylight. In addition, as one looks toward the turbines across a body of water at night when there is a light wind, the lighting creates red streaks on the water.

EVALUATION CRITERIA and the CONSIDERATION of EVIDENCE

The VIA lists the evaluation criteria found in the Wind Energy Act (§3452.3.A-F) and Chapter 382. Though not described in the VIA, Chapter 382 stresses the need to present evidence to support conclusions concerning visual impacts. It is the applicant's burden to "demonstrate by substantial evidence that the criteria for approval are satisfied" (§685-B.4); in this case that the visual impacts are not unreasonably adverse. Evidence as used here does not refer to judicial rules and procedures, but the information used to make an administrative decision. In general, I would suggest this evidence should be relevant to the evaluation criteria, a statement of fact rather than opinion, and demonstrable or supported by documentation. The following summarizes my understanding of the kinds of evidence expected by Chapter 382.

Evidence about Scenic Character

Several of the criteria are based on procedures to formally assess landscape character. The WEA lists the formal assessment procedures to be used to identify the **Significance of a SRSNS** (§3451.9). Chapter 382 leaves open the possibility of submitting results from additional recognized formal scenic assessments procedures as evidence to support a SRSNS having particularly high scenic significance, or of having suffered scenic degradation. The **Existing Character of the Surrounding Area** applies the criteria from the formal procedures used to identify SRSNS (e.g., in the Maine Wildlands Lakes Assessment) to the viewshed of the SRSNS. In general, research has found that visual impacts from a wind energy development are higher if the surrounding are more scenic and lower if they are less scenic. However, this criterion also makes it clear that Maine's is a working landscape and forest management using appropriate silvicultural practices is not incompatible with scenic character. Nonetheless, visible roads and structures associated with forest management may detract from scenic character.

Evidence about Project Visibility

The criterion **Scope and Scale of the Potential Effect** describes two sources of evidence, a mapped viewshed analysis and photo-realistic simulations of how the project will appear. Best professional practices have evolved through repeated application to wind energy projects in Maine. It is required that the viewshed of the upright blade tips over bare terrain be mapped. The screening effect of forest cover may also be assessed by assigning a nominal height of 40 feet to forest land cover, but not to other land cover types. It is desirable to also repeat the viewshed analysis for other visible portions of the turbines, such as the hub or the rotor sweep.

Where there are potential views of the project from a SRSNS, photosimulations must be prepared to represent those views. It can be assumed that all views from a SRSNS need not be simulated, that would be unreasonable. However, the selected view should represent "worst-case" conditions, which is from a location where people can reasonably be expected to view the project, and the project occupies more of the visual field than at other locations. The view should not include foreground vegetation that partially screens the project if it could be avoided by using another viewpoint in the same general area.

The viewshed analysis and the photosimulations have a greater effect if they are used in a complementary way. For instance it is required to describe the proportion of a SRSNS with views of the project and a photosimulation can be created to represent the visual impact to this area. Similarly, it is required to describe the HAoV occupied by the project turbines as seen from the SRSNS. The range of possible HAoVs can be determined from the visibility analysis, and a photosimulation can represent a specific HAoV occupied by the project.

Evidence about Viewers

When evaluating potential **Impacts to Scenic Character**, **Expectation of the Typical Viewer**, and **Public Use and Enjoyment** of a potentially affected SRSNS, the Department will take into consideration all relevant evidence, including but not limited to:

- **User intercept surveys** conducted and recorded using generally accepted professional standards.

- **Systematic field observations** conducted and recorded using generally accepted professional standards.

- **Written public comments** submitted by users of the SRSNS or other interested persons.

- **Oral statements** made at Department public meeting.

- **Sworn testimony** at public hearings.

Each of the above sources of evidence are documented, and the veracity of statements about them can be verified by a diligent reviewed. While statement concerning scenic character may be considered subjective, if they come from existing users of the scenic resource then they are relevant. The quality of the statements can be assessed from the independence by which they are made and their consistency. Sources of evidence about the extent, nature and duration of existing public uses may seem more objective, but they still must be supported by evidence.

Evidence of Good Design

It is recognized that the production of renewable energy is important, but that "energy production alone will not be considered as a significant mitigating factor." The criterion **Purpose and Context of the Proposed Activity** requires evidence that the project's location provides a high quality wind resource compared to other areas, that necessary infrastructure exists which reduces associated facility impacts, and that topographic context is used to adjusted siting so as to minimize visual impacts. These are generally good siting principles that reduce the visual impacts of associated facilities, lower visual exposure, and cluster development. This criterion also recognizes that any proposed visual impact mitigation should benefit the affected SRSNS, for instance by improving access or correcting sources of scenic degradation.

Evidence of Cumulative Scenic Impacts

Cumulative Scenic Impacts consider other wind energy and associated development that has been constructed, approved, or has an accepted permit application. Cumulative impacts consider all such projects within 8 miles of each SRSNS. These may be impacts of multiple projects to a specific SRSNS, or they may be impacts of a specific project to multiple related SRSNS. It is expected that the type of evidence to be considered is the same as described above. Cumulative visual impacts may be to a single view, multiple views from a single location, or a succession of view along a route.

The baseline for the consideration of cumulative impacts is the visual condition prior to any wind energy development. Impacts associated with existing wind development are in comparison to the baseline condition. The comparison of the proposed and existing wind energy developments determine the proposed project's incremental visual impacts. The comparison of all existing and proposed wind energy development to the baseline condition describes the cumulative visual impact.

EVIDENCE PRESENTATION by the VIA

It is MDEP's responsibility to determine "whether the development significantly compromises views from a scenic resource of state or national significance such that the development has an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the scenic resource of state or national significance" (§3452.1). It is the applicant's burden to "demonstrate by substantial evidence that the criteria for approval are satisfied" (§685-B.4). Based on the evidence presented, MDEP is directed to rate the value of the SRSNS and the impact to the SRSNS as High, Medium, or Low (Chapter 382.3.I). In previous VIAs the applicant has presented a summary of their ratings (often in five steps as H, H-M, M, M-L and L) for each criterion and each SRSNS in a table. The VIA's methods section describes the indicators and thresholds used to make the ratings. The evidence to support the ratings is presented in the text covering each SRSNS. If the VIA fails to present this evidence, then it has not met the applicant's burden. Others may also present evidence for MDEP's consideration concerning visual impacts. If there is conflicting evidence, then MDEP must evaluate the credibility of the sources and the methods they used to develop their evidence.

The VIA fails to identify formal methods to provide evidence in response to the evaluation criteria. It is acknowledged that both the viewshed mapping and the visual simulations are evidence. However, there is no formal procedure that responds to the evaluation criteria that gives meaning to these two pieces of evidence.

Evidence about Scenic Character

Silver Maple Wind submitted a VIA dated September 19, 2019. In my review dated January 21, 2020 I indicated that there were SRSNS that were missing from the analysis as well as included locations that were not SRSNS. It was also noted that photosimulations are needed to represent the view from each SRSNS with potential visibility. This seems to have been corrected in the VIA dated May 6, 2020.

The VIA does not describe or apply a procedure (i.e., indicators and thresholds) to distinguish the high, medium or low **Significance of a SRSNS**, or of the **Existing Character of the Surrounding Area**. In most cases, the VIA does not provide ratings at all, and what few ratings are presented appear arbitrary. For instance, Mountainy Pond is described in the VIA as undeveloped and is identified in *Maine's Finest Lakes* as having an outstanding scenic resource. The VIA assigns it a High rating for Significance of a SRSNS. On the other hand, the VIA makes a point that Chemo Pond has substantial development and its scenic value is rated significant, not outstanding, in *Maine's Finest Lakes*. Nonetheless, Chemo Pond's rating is High for Significance of a SRSNS, just like Mountainy Pond.

There are similarly no indicators or thresholds to determine the ratings for the **Existing Character of the Surrounding Landscape**. While there is a general descriptive characterization of the area, evidence of silviculture is identified at several SRSNS even though Chapter 382 explicitly directs that forest management is not to be considered incompatible development.

Evidence about Project Visibility

The project includes terrain and forest screened visibility analyses for upright blade tips and turbine hubs. As described above, the viewshed prepared for this review differ somewhat from those presented in the VIA, but the difference does not seem significant.

For each SRSNS, there is table indicating the visibility of the five Silver Maple wind turbines, and of the 10 Silver Maple plus the Pisgah Mountain wind turbines. However, it is unclear what these table represent. For instance, consider the tables for Cliffwood Hall and the Harold Allen Schoolhouse. First of all, the tables do not indicate in their title which SRSNS is being evaluated. In Table 3.16 it states that 0 Silver Maple turbines are visible, but in Table 3.17 it states that 10 Silver Maple and Pisgah Mountain turbines are visible. The criteria for visibility seems to have changed between tables—the first is field based and the second is from the computer viewshed, but this is not made clear in the table titles. Establishing formal procedure to measure indicators and interpret thresholds would eliminate such confusion.

Great Ponds are open areas where visibility tends to be higher than in the surrounding landscape. The VIA presents a table that indicates the percent of a Great Pond's area with visibility of 1, 2, 3, 4 or 5 wind turbines. No thresholds are described to interpret the meaning of this indicator. However, there is visibility of five turbine hubs above the forest canopy from 70 percent Chemo Pond. This impact is described as Minimal—what is the basis of this determination? The HAoV occupied by the turbines at the photosimulation viewpoint is approximately 7º. This is compared to a reference of 360º, but no information is given in the VIA methods to describe why 360º is an appropriate reference point or supporting HAoV threshold for a Minimal rating.

The VIA presents photosimulations from a viewpoint within each SRSNS with apparent visibility of the project. A wireframe simulation is presented for each SRSNS in the project viewshed, even though trees will screen the view of the project. As described above in the section on

visual simulations, there are still potential problems, but overall the simulations appear reasonable.

The visibility analysis and photosimulations are the primary "evidence" included in the VIA. Even without useful interpretation, they indicate that there are three SRSNS with potentially adverse visual effect: Chemo Pond, Hopkins Pond, and East Eddington Public Hall. However, without a formal procedure to measure and interpret indicators for each of the WEA and Chapter 382 evaluation criteria it is unclear how to reach a determination that the visual impacts are not unreasonable.

Evidence about Viewers

None of the sources of evidence about viewers identified in Chapter 382 are presented in the VIA. Rather there is the supposition that certain activities occur and that viewers will have certain expectations, or that it will effect viewers in a certain way. No supporting information is provided to support these suppositions. No credentials are presented that these suppositions are made by subject-matter experts with experience in evaluating how views of wind turbines affect people.

Evidence of Good Design

The project does benefit from existing infrastructure, and it is located in sufficient proximity to the existing Pisgah Mountain project that the total of 10 turbines will be seen as a single project. The total project is compact, which is also desirable.

There is a commitment to use radar-activation for the FAA aviation waring lighting. This is a significant mitigation. However, no information about how frequently it might be activated is presented. This is particularly disappointing, since it is expected that such a system is employed by the existing wind turbines and such information would be available.

On the other hand, no comparative information is presented as to why this location is better than other potential locations. No mitigation to improve the access to or experience of affected SRSNS is offered beyond the radar-activated lighting, which would be required by MDEP as a permit condition in any case.

Evidence of Cumulative Scenic Impacts

The cumulative analysis is limited to the visibility of the combined 10 turbines. The photosimulations are prepared to represent the incremental visual impact of the project; the existing condition includes the existing Pisgah Mountain wind turbines, and the proposed condition add the Silver Maple turbines. In order to assess the cumulative impact it is necessary to compare the 10 turbines to the baseline condition without any turbines.

The same difficulty exists for all the criteria. There is no evidence of the cumulative effect to Scenic Character, to Viewers, or whether the original choice of this site was an example of Good Design.

EXPECTED SUMMARY OF EVIDENCE

As described above, it is the applicant's responsibility to present the evidence necessary for MDEP to determine that the project will not have "an unreasonable adverse effect on the scenic character or existing uses related to scenic character of the SRSNS" (Chapter 382.3.I). The VIA must describe the methods used to develop this evidence. It is then helpful to summarize the evidence in a way that assists MDEP and interested parties in understanding the applicants assessment for each SRSNS across all of the criteria. A blank sample of how this has been done in most of the VIA for Maine's wind energy projects is shown in Table 4. The criteria are color coded to represent criteria used by MDEP to assess the significance of the SRSNS (in blue) and the significance of the visual impacts (in orange). This summary, based on evidence that needs to be presented in the VIA, which can then be synthesized by MDEP according to the instructions in Chapter 382.3.I. Table 5 provides a template to organize this information, which will additionally help in identifying multiple impacts to a SRSNS and the effect on multiple SRSNS. Similar tables might need to be prepared to fully consider cumulative visual impacts.

Table 4. Summary of scenic impact criteria ratings for the Silver Maple wind energy project.

SRSNS	Project Visibility	A. Significance of SRSNS	B. Existing character of the surrounding area	C. Expectations of typical viewer	D. Purpose and context of project	E.1. Extent, nature & duration of public use	E.2. Effect on continued use and enjoyment	F. Scope and scale of effect on views
Chemo Pond								
Hopkins Pond								
Mountainy Pond								
Parks Pond								
Upper Union R. Focus Area								
Bald Bluff River Focus Area								
West Branch Union River								
Cliffwood Hall								
Harold Allen Schoolhouse								
East Eddington Public Hall								
Holden Town Hall								

Table 5. Synthesis of scenic impact criteria ratings to determine reasonableness of Silver Maple Wind's visual impact to SRSNS.

SRSNS	Value of SRSNS	Significance of Impacts	Reasonableness of the impact
Chemo Pond			
Hopkins Pond			
Mountainy Pond			
Parks Pond			
Upper Union R. Focus Area			
Bald Bluff River Focus Area			
West Branch Union River			
Cliffwood Hall			
Harold Allen Schoolhouse			
East Eddington Public Hall			
Holden Town Hall			

CONCLUSIONS

This review was conducted to determine whether the Silver Maple Wind Farm VIA was reasonable and technically accurate. The primary concern was that it meet the requirements of Maine's WEA and Chapter 382.

The initial VIA submitted in November 2019 had substantial shortcomings in the identification of SRSNS, the viewshed analysis, and the preparation of photosimulations. Those fundamental problems have been largely corrected.

A second revised VIA submitted in May 2020 is reviewed in this document. It correctly identifies the SRSNS, it has reasonably identified the project's viewshed, and has prepared reasonable photosimulations. The applicant is required to submit this evidence describing the project's visibility. However, procedures that define the indicators and thresholds to meaningfully interpret this evidence are not described in the VIA methods. In addition, the VIA does not describe methods to systematically evaluate scenic character, viewers, good design practices, or cumulative impacts. These methods should define indicators that measure the WEA and Chapter 382 evaluation criteria, and thresholds that describe how to distinguish adverse from unreasonably adverse visual impacts. A summary of this information should be presented that facilitates the decisions that MDEP must make. Other than present viewshed maps and photosimulations, the VIA does not present adequate evidence to assess the Silver Maple Wind Farm's potential visual impacts.

Appendix 1: Viewsheds

1. Terrain Viewshed for Blade Tips
2. Terrain Viewshed for Turbine Hubs
3. Forested Viewshed for Blade Tips
4. Forested Viewshed for Turbine Hubs

5 Comparison of VIA and SQC Terrain Viewsheds of Blade Tips

6 Comparison of VIA and SQC Terrain Viewsheds of Turbine Hubs

7 Comparison of VIA and SQC Forested Viewsheds of Blade Tips

8 Comparison of VIA and SQC Forested Viewsheds of Turbine Hubs