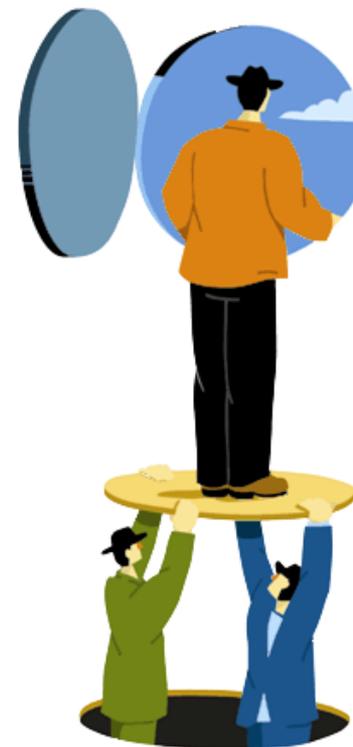


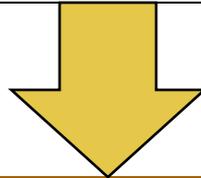
Informing the Development of Energy Siting Criteria in New Hampshire

*May 16 Public Meeting
SB99 Pre-Rulemaking Workgroup Status Report*



Meeting Objectives

- Clarify expected deliverable format
- Provide a status check on working group progress
- Discuss next steps



General Meeting Guidelines

- The 3.5 hour meeting is primarily divided up in four sections, with 40 minutes for each working group
- Each group will present for 10 minutes followed by a 30 minute discussion period
- We ask that everyone be concise with their comments and questions



1. » Aesthetics



2. » Orderly Development



3. » Wildlife, Rare Plants, and Natural Communities



4. » Health & Safety

Aesthetics Areas of Agreement To Date

- Some level of Visual Impact Analysis (VIA) should be required for all proposed facilities.
- The rules should allow flexibility in the level of VIA based on type of facility and level of impact.

General requirements for all VIAs:

- Description of facility.
 - Characterization of aesthetic landscape.
 - Characterization of extent of visibility and aesthetic impacts of project.
 - Description of alternatives considered.
 - Description of mitigation.
- More detailed VIA requirements should be specified for wind power facilities and large transmission lines [to be defined].

General approach for detailed VIAs:

- Define visual analysis zone.
- Delineate visible area within visual analysis zone (both bare ground and w/ vegetative screening).
- Identify sensitive viewpoints/viewsheds from which facility will be visible.
- Assess impact of facility to the aesthetics of sensitive viewpoints/viewsheds.
- Prepare simulations of facility from selected viewpoints.

Aesthetics Areas of Agreement To Date (continued)

- Visual analysis zone for wind power projects should be 10 miles, with ability for SEC to require analysis beyond this distance if warranted.
- Potentially sensitive viewpoints include such things as Scenic Viewpoints [to be defined], town or village centers, major public roads, cultural areas or facilities, major water bodies or rivers, and [residential areas*].
- Assessment of impacts to sensitive viewpoints should include some level of characterization (e.g. Low, Medium, High as is done in Maine) as a starting point for identifying aesthetic impacts of greatest concern.
- SEC should make a site visit to view proposed facility location from sensitive viewpoints. [Strong support for making this a requirement but not clear if this can be done in rules.]
- Specific requirements for the preparation of photosimulations should be included. [Rule should be flexible enough to allow for changing simulation technology without requiring a change in rule.]
- Impact of nighttime lighting should be characterized (how many lights would be seen from different viewpoints, etc.)

*Note: Text in red is an area of disagreement.

Aesthetics – Unresolved Issues

Potential for resolution:

- Definition of “large transmission line” for purposes of detailed VIA requirements. (Should not necessarily include all transmission lines under SEC jurisdiction.)
- Delineation of visual analysis zone for large transmission lines.
- Definition of “Scenic Viewpoints”.
- How cumulative impacts should be defined and considered. (Discussion of this topic has been deferred due to uncertainty of what SB281 might require.)
- Definition of “Best Practical Mitigation” or similar term.
- SEC should be encouraged/required to make a visit to view nighttime lighting on similar projects.

Aesthetics – Unresolved Issues (continued)

Potential for resolution:

Better definition of (or criteria for) what constitutes an “unreasonable adverse effect” on aesthetics. There is strong (but not unanimous) support for an approach based on the three-part “Quechee test” used in Vermont and incorporated in guidance for that state’s Act 250 rules:

- Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
- Does the Project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?
- Has the Applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings?

This approach is also reflected with different wording in the Vissering/CESA document on the OEP web site (*A Visual Impact Assessment Process for Wind Energy Projects*, page 27):

- Does the project violate a clear written standard intended to protect the scenic values or aesthetics of the area or a particular scenic resource?
- Does the project dominate views from highly sensitive viewing areas or within the study area as a whole?
- Has the developer failed to take reasonable measures to mitigate significant or avoidable impacts of the project?

Aesthetics – Unresolved Issues (continued)

Less potential for resolution:

- Inclusion of impacts on private property (especially residences). Strongly supported by non-industry representatives; opposed by at least some industry representatives.
- How can (or should) local views (as expressed in master plans, zoning or town votes) be included in aesthetic criteria (recognizing that this is also part of orderly development/municipal views criteria)?
- Criterion proposed by one participant: “In making a determination, the SEC shall consider the town’s master plan, the town zoning, and the vote of any town within the visual impact zone of the facility on the project.”
- Inclusion of photosimulations of nighttime lighting or representative photographs of other similar projects.
- Inclusion of specific requirement for use of radar-activated aircraft warning lighting once approved by FAA (including post-construction retrofitting). Generally supported by non-industry representatives; opposed by at least some industry representatives.

Aesthetics – General Additional Comments

Legislative and other concerns beyond the scope of aesthetic criteria:

- SEC decision should not trump or preempt local wishes as expressed in master plans, zoning or town votes. Town votes should be definitive
- Towns and citizens must have adequate notification of and information about projects.
- Lots of concern about citizen's ability to participate in the process – intervention can be expensive and time-consuming.
- SEC should be able to make a distinction between essential and non-essential projects.

Other comments:

- VIA should extend to entire viewshed of the project (and not be limited by a specific distance).
- Should evaluation of nighttime lighting extend farther than daylight VIA?
- Evaluation of impacts on residential areas should not disadvantage or discriminate against rural areas with low residential density.
- Should the SEC require an independent peer review of the VIA? Is this part of the role of the Public Counsel?
- Potential definition for “unreasonable adverse effect” – “The impact to the view would not be acceptable to the majority of people who view it from a sensitive viewpoint.”



1. » Aesthetics



2. » Orderly Development



3. » Wildlife, Rare Plants, and Natural Communities



4. » Health & Safety

Orderly Development Areas of Agreement To Date

- Working Group members agreed that a report should be prepared reflecting the variety of the views expressed throughout the process, including the conference calls and email exchanges.

Orderly Development Unresolved Issues

Weight to be Given Municipal Views

- Due Consideration v. Significant Consideration v. Dispositive Consideration

Scope of Inquiry

- Interpret Orderly Development Broadly or Narrowly
- Reliability, Need, State Energy Policy, and Alternatives

Definition of Region

- Rule v. Case-by-Case

Lease Payments to Landowners

- Include or Exclude from Analysis of Economic Effects

Orderly Development – General Additional Comments

- The members of the Working Group wrestled with the issue of whether particular proposals should be pursued through legislation or through rulemaking.
- Lack of time and diversity of parties make it unlikely that any consensus on specific rule language will be reached.



1. » Aesthetics



2. » Orderly Development



3. » **Wildlife, Rare Plants, and Natural Communities**



4. » Health & Safety

Wildlife, Rare Plants, and Natural Communities Areas of Agreement To Date

- Definitions for wildlife, significant wildlife, significant habitat resource, rare plants, and natural communities.
- Wildlife survey protocols should not be included in rules.
- Existing NHDES permitting programs (Wetland, Shoreland and Alteration of Terrain) adequately define and address wetlands, water, soils, and slopes, and additional SEC rules are not needed.

Wildlife, Rare Plants, and Natural Communities Unresolved Issues

- How should application requirements address wildlife issues?
- To what extent should required studies be included in rules?
- How do we ensure the coordination/consultation process with NH F&G, NH NHB and US FWS is transparent to all parties in the SEC process?
- To what extent should “standard practices” currently followed by applicants be codified in rules?
- Whether/how to incorporate adaptive management concepts.
- Whether/how to address cumulative impacts.
- Whether/how to define and address mitigation sequencing.

Wildlife, Rare Plants and Natural Communities General Additional Comments

- The proposed schedule for the pre-application process is too rushed to provide for the thoughtful consideration necessary for a successful outcome. This is a problem for all the sub-groups, but especially for this one as the timing coincides with the busiest time of year for many participants.
- Definitions and rules should not conflict with those in existing regulatory programs, and in particular with the wetland rule revisions which are on a parallel track.



1. » Aesthetics



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4. » **Health & Safety**

Health and Safety Areas of Agreement To Date

Four areas of focus

1. Noise emissions
2. Shadow Flicker and mitigation
3. Safety setbacks
4. Transmission setbacks

Health and Safety Areas of Agreement To Date

Noise emissions

- **Reliance on professional standards:** Ensure reliable/predictable results
- **Pre-construction baseline survey:** Identify the lowest sound level (L_{90}) consistently present year-round. Also include L_{10} and L_{eq} levels.
- **Predictive modeling:** Predict level of environmental noise introduced into a community once a facility is constructed.
- **Post-construction compliance monitoring:** Determine whether noise emissions from the operating facility are within permitted limits.

“Adverse impacts occur when the new noise from a project significantly exceeds the background level at sensitive receptors and becomes clearly audible.”

– G. Hessler and D. Hessler (Baseline Environmental Sound Levels for Wind Turbine Projects)

Health and Safety Areas of Agreement To Date

Pre-construction baseline survey (details)

- ANSI/ASA S12.9-2013 Part 3 standard – Short-term attended
- ANSI S12.9-1992/Part 2 with audio recordings – Long-term unattended
Frequencies above a certain level filtered out
- Full octave-band frequency content collected
- Sound measurements should be omitted when:
 - When wind velocity is greater than 5 m/s (11 mph)
 - During precipitation events
 - Temperatures below instrumentation limits
- Microphones 1-2 meters above ground. Proper wind screens required
- An anemometer to be co-located with each microphone

Health and Safety Areas of Agreement To Date

Predictive modeling (details)

- Commercial modeling products based on the ISO 9613-2 standard
- Adjustments required to correct for prediction uncertainties

Health and Safety Areas of Agreement To Date

Post-construction compliance monitoring (details)

- Multiple locations pre-selected where noise measurements will be taken
- Specific to wind energy:
 - Measurements taken with turbines operating and turned off. SCADA data used to record hub height wind speed and turbine power output
 - Monitoring performed at night under appropriate wind conditions (above 5 m/s at hub height) but calm on the ground

Health and Safety Areas of Agreement To Date

Shadow Flicker

- Pre-construction modeling may understate distance of SF impact (models assume 10 rotor diameter)
- Modeling relies on average weather conditions and wind direction which could under predict hours of impact
- Mitigation methods that shut down turbine are effective and can eliminate the problem
- German limit: maximum of 8 hours per year on a residence
- Danish limit: 10 hours per year on a residence

Health and Safety Areas of Agreement To Date

Safety Setbacks – ice/blade throw, turbine collapse

- Safety setback distances are tied to levels of acceptable risk
- Icing risk depends on # of days per year when ice events occur
- No icing data available at elevation in NH; Rime icing elevation dependent
- Significant evidence that rime ice forms symmetrically on operating turbines
- Turbine debris (by the math) can be cast 1300-1700' or more

Rotating turbine blades may propel ice fragments up to several hundred meters if conditions are right depending on turbine dimensions, rotational speed and many other potential factors.

– GE Wind

Health and Safety Areas of Agreement To Date

Transmission Setbacks

- No known causal link between magnetic field (MF) exposure and demonstrated health effects.
- NH has no standards limiting MF levels (milligauss or mG) at edge of ROW
- Other states have adopted thresholds for limiting mG levels that can serve as a model for New Hampshire (ex: Massachusetts, New York, Florida)

Health & Safety – Unresolved Issues

Noise Emissions

- Are long-term unattended surveys (pre- and post-) adequate alone?
- What background sound level should new noise sources be compared to?
- What adjustment factors are required to correct for modeling uncertainties?
- Should sound limits be relative/absolute or both? What limits are appropriate?
- Where do project sound limits apply (property line/wall of an occupied building)?
- Are interior noise limits recommended? If yes, how are they measured?
- When, and how many post-construction surveys should be conducted?

Shadow flicker

- How many hours of flicker should be permitted on a property? On a home?
- Should all projects include mitigation technologies?

Turbine safety setbacks

- Deterministic vs. probabilistic risk assessments
- What level of risk is NH willing to accept?
- Is it appropriate for a project to cast ice/debris on non-participating properties?

Transmission mG limits

- What limits on mG levels, if any, are reasonable to set at edge of ROWs?

General

- What complaint protocols should be recommended?

Health and Safety General Additional Comments

- Excellent progress with helpful contributions from participants
- Still much work to do, but benefiting from work in other States
(special thanks to our invited guests)
- Awaiting guidance on other project types
- Goal: standards that will lead to less SEC review time

The four Working Groups will continue to engage in dialogue to develop initial draft siting criteria for the May 28th call.



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