

# The Wellfleet Wind Turbine a Project of the Voters of Wellfleet

Presentation by Geof Karlson  
Chairman, Wellfleet Energy Committee  
Wellfleet Forum  
March 1, 2010

# the Arenas of Discussion

There are two major “**Arenas of Discussion**”:

- 1) The Arena of  
**Technical** and **Factual** issues
- 2) The Arena of  
**Personal Opinion** and **Preference**

# The Job of the Energy Committee

The **Job of the Energy Committee** is to . . .

- 1) Identify the *personal opinion* issues and the *technical/factual* issues, and ...
- 2) **Investigate the technical / factual issues and make the results of that investigation known to the Town** in a clear, accurate, and understandable way.

**Personal Opinion Example #1 – Is the turbine appropriate in this viewscape?**

720 Ocean View Drive, Looking South, 0.7 miles from turbine



## Personal Opinion Example #2 – Is the turbine appropriate in this viewscape?

Back of White Crest Beach Parking Lot (western edge), looking west  
about ½ mile from turbine (2564')



### Personal Opinion Example #3

**Are the private residences along the bluff appropriate in this viewscape?**

Lecount Hollow Beach, looking northwest, 1 mile from turbine



# Can there even be a dialog?

Question #13 (“personal opinion” arena)

Does Mr. Karlson have any concern for the fracturing of the Wellfleet community, as expressed in Gooz Draz's resignation letter from the WEC? Please comment.

I understand and respect Gooz's concerns.

However, I am hopeful that the discussion concerning the wind turbine proposal can continue in a spirit of mature debate and that all of the parties will embrace the democratic decision-making processes in place.

A spirited and detailed discussion of all aspects of the proposal is valuable and should be encouraged.

## Question #18 – (“personal opinion” arena)

The National Seashore Park in Wellfleet is a summer destination for many families and visitors who are beachgoers, hikers, hang gliders, fishing enthusiasts, bike riders, surfers, and others who find inspiration in its natural beauty. Some are looking for peace and quiet solitude. Has the Town of Wellfleet considered the impact in that a 400 ft Wind Turbine would have on the local tourist industry?

# The Wind Turbine Project

## Technical and Factual Issues

- Includes a **number of technical / factual** issues
- Many of the issues are **complex**
- Many of the facts are **known**
- Some of the facts are still in the **process of being investigated**

# **Technical / Factual Issues**

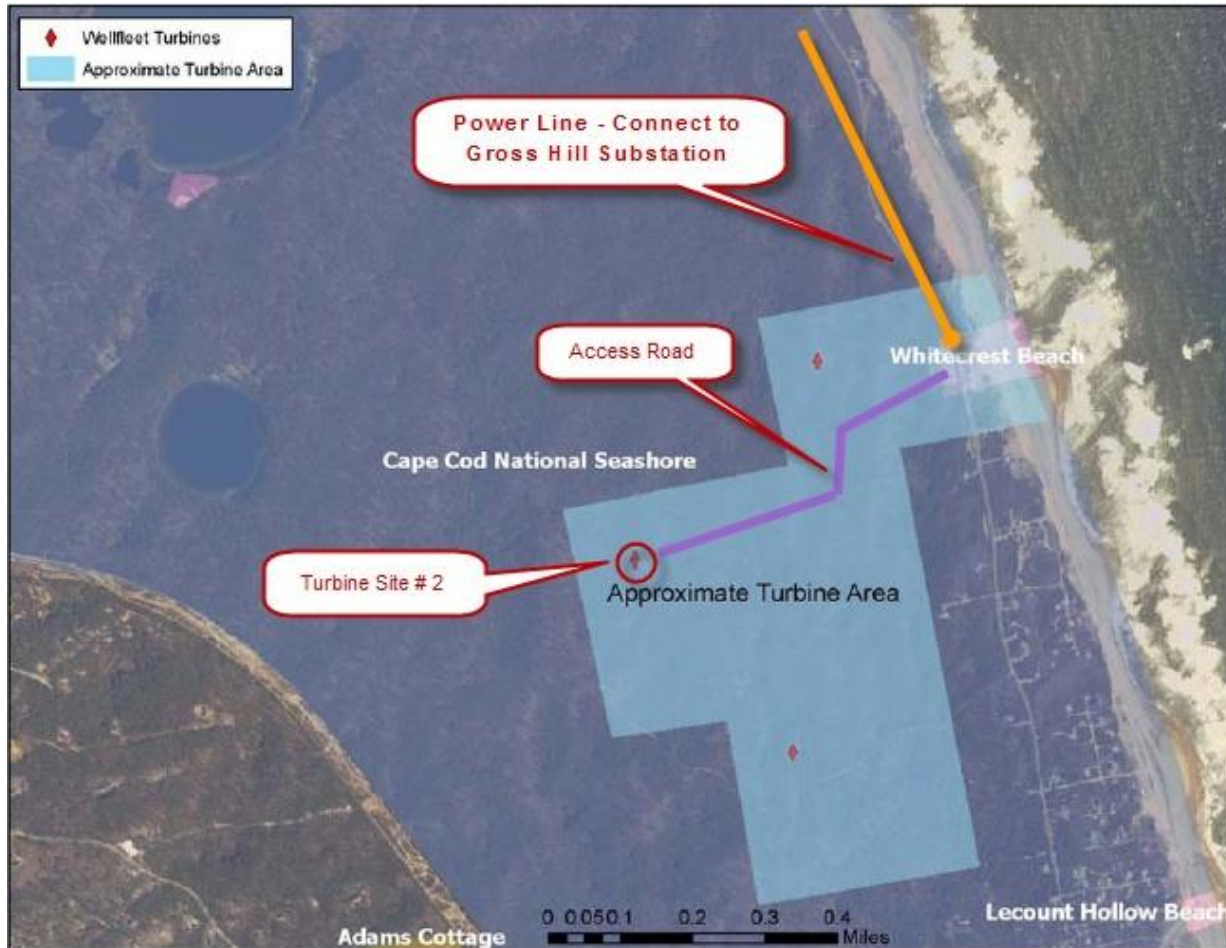
**1. Financial**

**2. Regulatory**

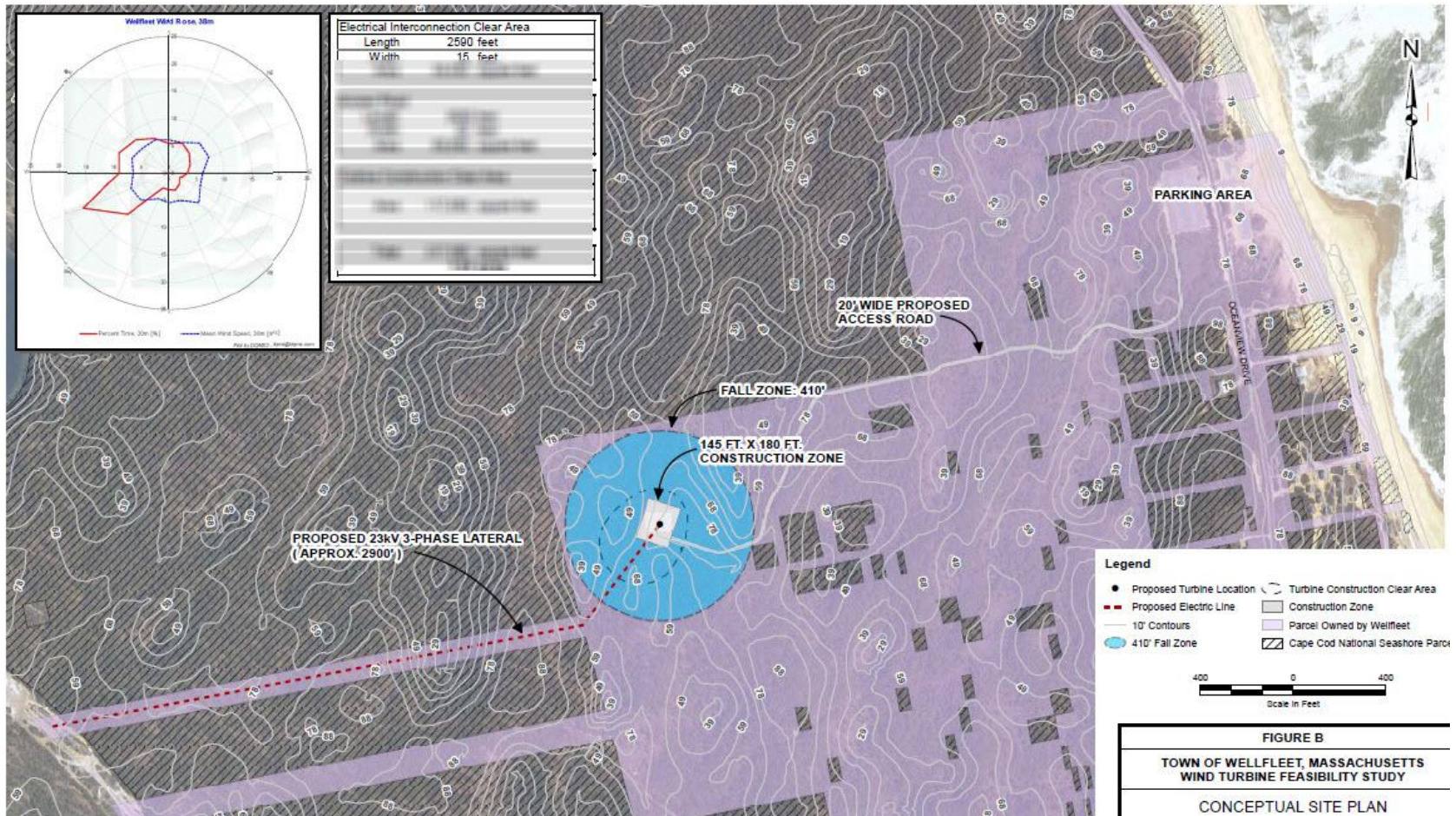
**3. Environmental**

**4. Human Health and Safety**

# Original Site, Access, and Interconnect



# Current Route – the Conceptual Plan Interconnect and Road Access from the West



## Question #19 – (“factual” arena)

The GE Company has a document that warns their windmill users and operators that there is a risk from ice throw from windmills: “General Electric Energy recommends a setback distance from any hiking trails of approximately 180 meters (600 feet) to avoid any potential ice throw danger.”

Will the Town do anything to warn hikers/bikers/hunters, etc. that enter this 26 acres of land to this danger? Will a fence be required now that a road will lead folks right to the windmill?

# The Financial Issue – Part 1

- NSTAR has elected to *pay Wellfleet a monthly check* for the net-metering credits.
- NSTAR has told the Town that the facility qualifies for the “G-1” net-metering rate (the most beneficial). This is currently around 13.95 cents/kWh.
- We’re now using the Vestas V90 turbine as our “model” for financial and energy output projections – same hub height, tip height is 410’.
- For Wellfleet wind, the energy output is estimated to be **18% greater** than for the V82 (the original, no longer available).

# The Financial Issue – Part 2

- Our most recent projection (based on the V90) has a total cost of \$5.3 million (including \$290,000 authorized in October, 2009), an average net yearly revenue of about \$340,000, giving a total of \$7 million net over 20.5 years.
- The WEC will post the detailed updated proforma budget with documentation after it is reviewed and approved at its meeting of 3/2/10.
- The financial projections will be reviewed by an independent wind industry consultancy.

# Financial Questions (“factual” arena)

Question #2a. How does the town propose to pay for this wind turbine?

General obligation bonds.

Question #2b. How will that affect Wellfleet town taxes (now and into the future) and Mass NSTAR customers (with the surcharge NSTAR will be allowed to attach to electric bills to pay for their participation in the net-metering program Wellfleet is counting on to make money from the turbine)?

Total estimated taxes required before Turbine is completely self-supporting is about \$330,000 (at the end of the second year after construction). It then begins to bring in net revenue each year, with no further town taxes required. NSTAR estimates that the cost for the surcharge will be 0.1% per year (i.e., \$2 if you use \$2000 electricity/year).

# Financial Questions, cont'd

Question #2c. How much downtime are they projecting, and does this increase into the future as the equipment ages? For that matter, when would it be considered obsolete and what would the town's responsibility be toward its removal (and is that figured into the financial projections?)?

Downtime and other adjustments are using an industry-standard of about 12%. Generally, good maintenance should keep estimated downtime within the original range. Usually, the value of the turbine as "scrap" covers removal (decommissioning) – our projection is a minimum 20.5 life.

# The Regulatory Issue (“factual” arena)

The Wellfleet Town Counsel has advised the Town, in a letter dated 3/1/10, that a community-scale wind turbine sited on Town-owned land within the Seashore is an allowed municipal use according to local, state, and federal regulations and bylaws.

Attorney Lane states in the letter: “In my opinion, should a special permit for the construction and operation of a wind turbine on Town-owned land within the CCNS issue, and should the Secretary or the Superintendent, on his behalf, choose to challenge the permit, such a challenge would be subject to dismissal by the courts for lack of standing.”

# Regulatory Questions (“factual” arena)

Question #1a. Has it been legally tested on a national level whether towns building industrial size energy equipment within the boundaries of a National Park is within the congressional guidelines regulating the National Park Service?

Unknown – but it would appear that the Seashore believes it is legal because the Seashore is investigating a turbine of their own at a site in Truro.

#1b. It took an act of Congress, whose intent was clearly to protect the land within the CCNS against further development. How can a local community ignore a Congressional Act?

Because the Town of Wellfleet preceded the Seashore, it has certain rights relating to its own land within the Seashore. This is has been confirmed by Mr. George Price, Superintendant of the Seashore.

#1c. If this turbine is built within the CCNS I am concerned about the precedent the Wellfleet turbine would set on a national level. I fear for our entire National Park system. Do the members of the WEC know for certain that what they are proposing is legal at a national level?

The opinion of our Town Counsel is that it is legal.

# Regulatory Questions, cont'd

Question #7b. Every major conservation organization – Mass Audubon, the Sierra Club, the Nature Conservancy, the NRDC and the National Park Service – state unequivocally that installation of wind turbines within or abutting such conservation areas and sensitive habitats – including national parks - should be prohibited.

Broad-brush policy positions do not necessarily take into account the special status of the CCNS as a national park that was set down in the midst of a number of existing municipalities.

Mr. Dick Elkin has communicated the following: “Both Mass Audubon and the Nature Conservancy have responded to me disagreeing with Eric Bibler’s characterization of their position. “

Mass Audubon has issued a statement that reads, in part, “It is premature for Mass Audubon to take a position on this project until the wildlife and avian assessment is completed.”

# Regulatory Questions, cont'd

Question 7e. The proposed turbine lies within a half mile of Ocean View Drive, which has been officially designated by the Town of Wellfleet as a “Scenic Drive,” where it will dominate and dramatically alter the scenic landscape in an area where the tallest trees are only 20 to 30 feet high.

- From ½ mile, the turbine appears to be approximately on the scale of the telephone poles. The designation of a road as “scenic drive” actually relates only to the changes that are allowed on the road itself – here’s the substantive language from Chapter 40, Section 15C of the General Laws of Massachusetts:
- “After a road has been designated as a scenic road any repair, maintenance, reconstruction, or paving work done with respect thereto shall not involve or include the cutting or removal of trees, or the tearing down or destruction of stone walls, or portions thereof, except with the prior written consent of the planning board, . . .”

# The Environmental Issue (“factual” arena)

- A complete environmental assessment (“Avian & Wildlife Study”) was funded by Town Meeting.
- RFP issued and contract to be awarded mid-March. Assessment to begin April, 2010.
- Study to include migratory and non-migratory species, botanical survey, assessment of habitat fragmentation impacts, post-construction monitoring, and other issues of concern identified by NHESP. Mitigation plans will be developed, if necessary.
- The V90 turbine is configurable to support mitigation related to bat migration.

# Human Health and Safety Issues ("factual" arena)

Two main issues:

## 1. Sound

Will Wellfleet be the same  
as Vinalhaven Maine?

## 2. Shadow flicker

# Acoustic Impact - Introduction

- There is a place called Vinalhaven Island in Maine where three GE 1.5 turbines were installed, based on an acoustic analysis that allowed a higher level of sound than was appropriate for the area.
- Is the acoustic impact in Vinalhaven comparable to what would be the impact of the Wellfleet proposal?

# Acoustic Impact – cont'd

- Because this is a “factual/technical” issue, the basis for discussion is the acoustic engineering study for the Wellfleet wind turbine.
- Based on the acoustic study, the Energy Committee believes that the acoustic impact of the Vinalhaven project is in no way comparable to what is proposed for the single turbine site in Wellfleet.

# Acoustic Impact – cont'd

- An in-depth discussion of acoustic impact requires more time than is available tonight – but there will be a an extensive discussion and question and answer with our acoustic consultant at our April 10, 2010 informational meeting.
- The next slide shows the equivalent sound levels corresponding to “decibals” (“dbA”):

## VARIOUS INDOOR AND OUTDOOR SOUND LEVELS

<u>Outdoor Sound Levels</u>	<u>Sound Pressure (<math>\mu</math>Pa)</u>	<u>Sound Level (dBA)</u>	<u>Indoor Sound Levels</u>	
Jet Over-Flight at 300 m	6,324,555	-	110	Rock Band at 5 m
		-	105	
Gas Lawn Mower at 1 m	2,000,000	-	100	Inside New York Subway Train
		-	95	
Diesel Truck at 15 m	632,456	-	90	Food Blender at 1 m
Noisy Urban Area--Daytime	200,000	-	85	
		-	80	Garbage Disposal at 1 m
Gas Lawn Mower at 30 m	63,246	-	75	Shouting at 1 m
Suburban Commercial Area		-	70	Vacuum Cleaner at 3 m
Quiet Urban Area -- Daytime	20,000	-	65	Normal Speech at 1 m
		-	60	
Quiet Urban Area--Nighttime	6,325	-	55	Quiet Conversation at 1m
		-	50	Dishwasher Next Room
Suburban Area--Nighttime	2,000	-	45	
		-	40	Empty Theater or Library
Rural Area--Nighttime	632	-	35	
		-	30	Quiet Bedroom at Night
Rustling Leaves	200	-	25	Empty Concert Hall
		-	20	Average Whisper
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	Human Breathing
Reference Pressure Level	20	-	0	Threshold of Hearing

Sound levels at Lowest Wind Speed  
When Ambient Sound is Lowest & Turbine Most Audible

**DEP NOISE POLICY COMPLIANCE AT NEARBY RESIDENCES AND THE BEACH  
FOR THE VESTAS V82  
CUT-IN WIND SPEED CONDITION (dBA)**

Residential Location	Ambient L <sub>90</sub> Level	Maximum Project Sound	Combined Sound Level	Net Increase
Ocean View Dr. Residence North of Beach	29.6	24.8	30.8	1.2
White Crest Beach	29.6	28.0	31.9	2.3
Sea View Road Residence	29.6	28.1	31.9	2.3
Ocean View Dr. Residence South of Beach	29.6	29.7	32.7	3.1
Priscilla Road Residence	29.6	30.0	32.8	3.2
Ocean Road Residence	29.6	27.9	31.8	2.2
Woodlot Road Residence	23.0	26.5	28.1	5.1
Pineneedle Road Residence	23.0	25.0	27.1	4.1

# The Vinalhaven Standards

What are the standards that are in place for Vinalhaven?

“Sound from the wind turbines is not to exceed **55 decibels** between 7 a.m. and 7 p.m. and **45 decibels** between 7 p.m. and 7 a.m. beyond the boundary of the wind-power property, according to the project's state Department of Environmental Protection permit.”

# Flicker Shadow Impact ("factual" arena)

- According to the Flicker/Shadow study, residences beyond 1000 meters are not affected.
- Main area affected would be houses to the east of the turbine, from White Crest Beach parking lot south about ½ mile.
- Most houses would be mitigated by existing trees to the west.

# Shadow Flicker, cont'd.

- Most of the impact occurs in fall, winter, and spring, during low-use periods.
- Usually just a few minutes a day, a total of a few hours per year.
- See the details on April 10, 2010 informational meeting at the Senior Center.

## More Details . . .

- Will be available on April 10, 2010 at the COA presentation, for in-depth discussion of all of the technical / factual issues.
- Details will be posted.