

Clear Sky Energy & Cianbro Construction

Wind Energy for Sumner Maine

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Agenda

- * **Clear Sky Energy & Cianbro Construction**
- * **Wind Energy Overview**
- * **Wind Power Maine**
- * **Project Specifics** Adjusted due to Moratorium restrictions
- * **Commonly Asked Questions**
- * **Benefits to the Town**
- * **Cianbro Construction Overview**
- * **Next Steps**
- * **Your Questions**

CSE & Cianbro

- * **Clear Sky Energy, LLC. is a New England based company Developing Wind Energy.**
- * **Clear Sky Energy delivers responsible Wind Energy by being respectful to the environment, rights of neighbors, and communities allowing us to build a Safe, Economically and Environmentally sound project.**
- * **Clear Sky has a seasoned management team with extensive capital project implementation experience as well as key vendor partners who are uniquely qualified for successful wind power installations.**

CSE & CIANBRO

- * **Clear Sky Energy's *Strategic Alliance Agreement* with Cianbro brings longevity and local construction Expertise & Knowledge of Maine projects. Allows both companies to provide safe, environmentally sound wind power projects.**

Wind Energy Overview

Project Foundation

- * **Having a good local ordinance that addresses all topics of concern.**
- * **Providing a process that conveys accurate, balanced, meaningful information about Wind.**
- * **Understanding Peer Reviewed Studies or *Facts versus Opinions***
- * **Taking field trips to existing wind energy projects.**
- * **Demonstrating the financial benefits to the community.**
- * **Keeping the public involved through continuous communication.**
- * **Fostering a cooperative relationship between residents, local government, and wind energy developers.**

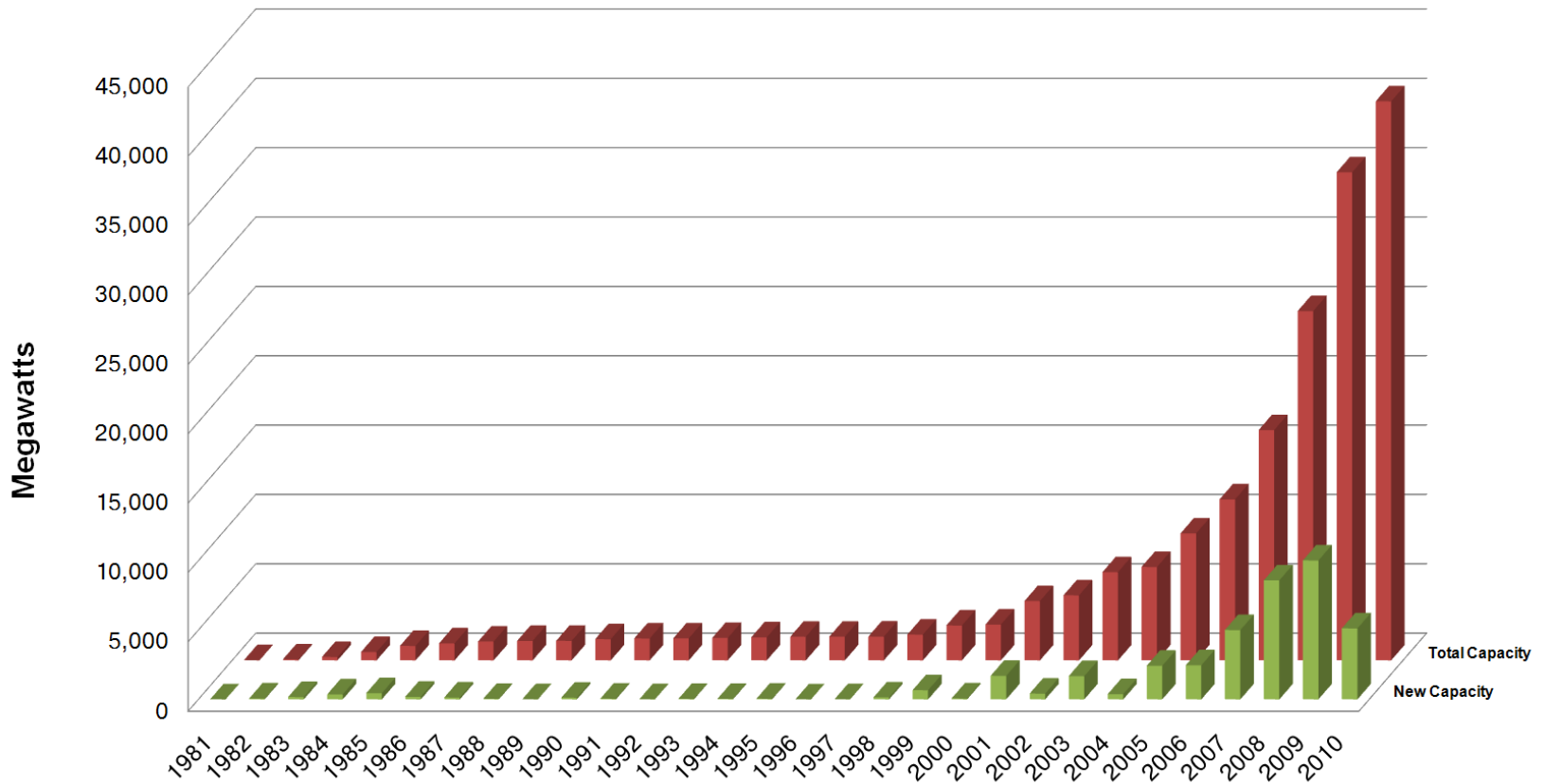
Wind Energy Overview

Wind Energy Facts

- * **At the end of 2011 - USA installed 41,400 Megawatt (MW) of wind energy. Supplying power to 10 million homes.**
- * **37 States have installed utility scale wind power.**
- * **1 MW equals clean energy for 225 to 300 avg. households use**
- * **USA Wind Energy generates tens of thousands of jobs**
- * **Wind Projects boost local tax bases, revitalizing the economy of rural communities by providing a steady income stream.**

Wind Energy Overview

United States Wind Power Capacity



* 1999 = 2,400 MW

* 2010 = 40,180 MW

* Now 20,000 manufacturing jobs in 42 states in the USA -National renewable energy Lab

Wind Energy Overview

How Clean is Wind Energy?

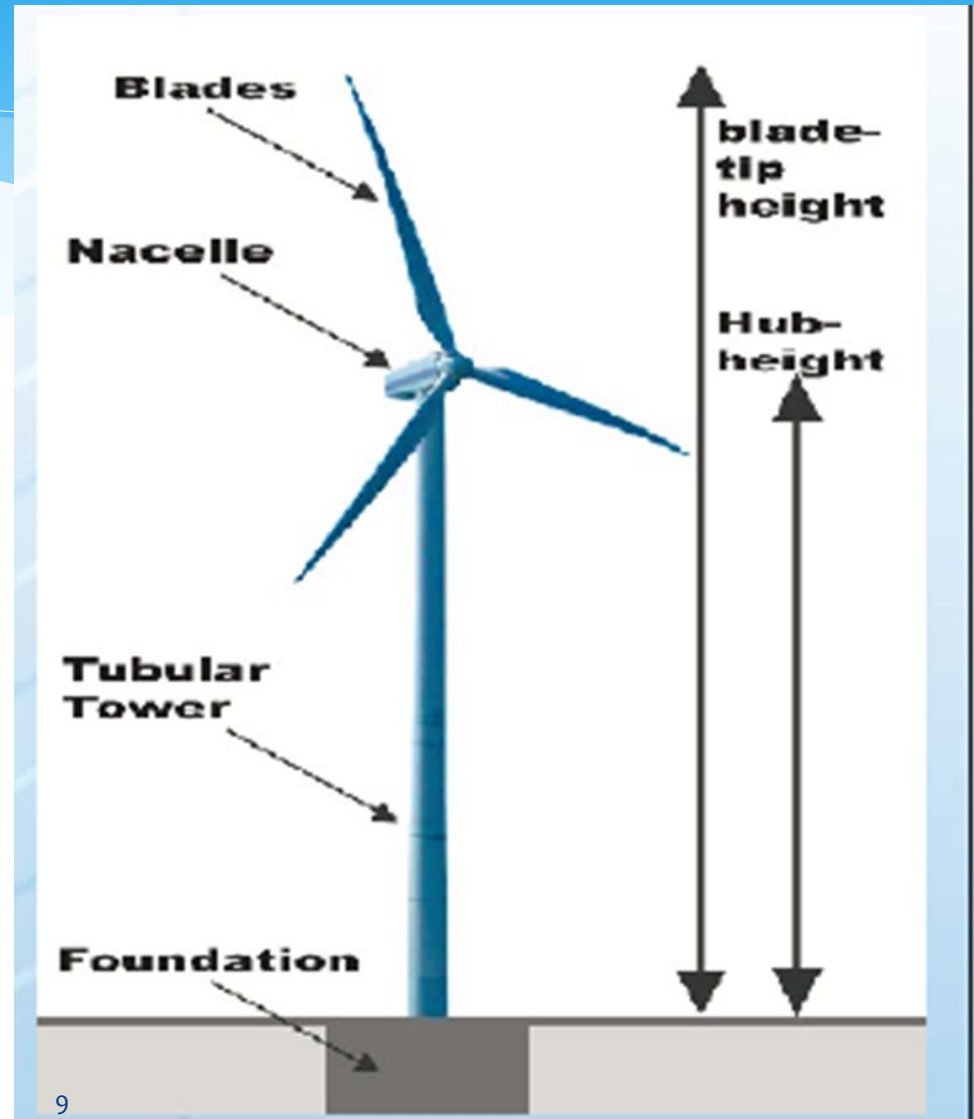
- * A single 1-MW turbine displaces 1,800 tons of carbon dioxide, the primary Global warming pollutant, each year (equivalent to planting a square mile of forest), based on the current average U.S. utility fuel mix.**
- * To generate the same amount of electricity as today's U.S. wind turbine fleet (40,180 MW as of the end of 2010) would require burning 34.4 million tons of coal (a line of 10-ton trucks over 13,700 miles long) or 112 million barrels of oil each year.**

Wind Energy Overview

Turbine Tower Size 264ft to 330ft

Blade Length ~127 to 137ft

Base to Blade Tip 380 to 446ft



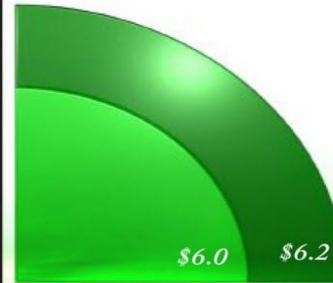
Federal Subsidies (2002-08)

FOSSIL FUELS
\$72.5 billion

RENEWABLE ENERGY
\$29.0 billion

\$2.3 billion
**CARBON CAPTURE
AND STORAGE***

\$12.2 billion
**TRADITIONAL
RENEWABLES**



all subtotals in \$ billions

Tax breaks
(outer ring)

\$53.9

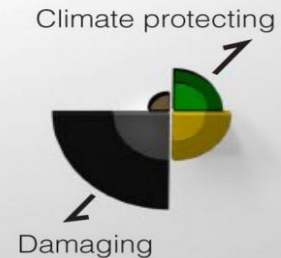
Direct spending
(inner circle)

\$16.3



\$16.8 billion
CORN ETHANOL**

\$70.2 billion
**TRADITIONAL
FOSSIL FUELS**

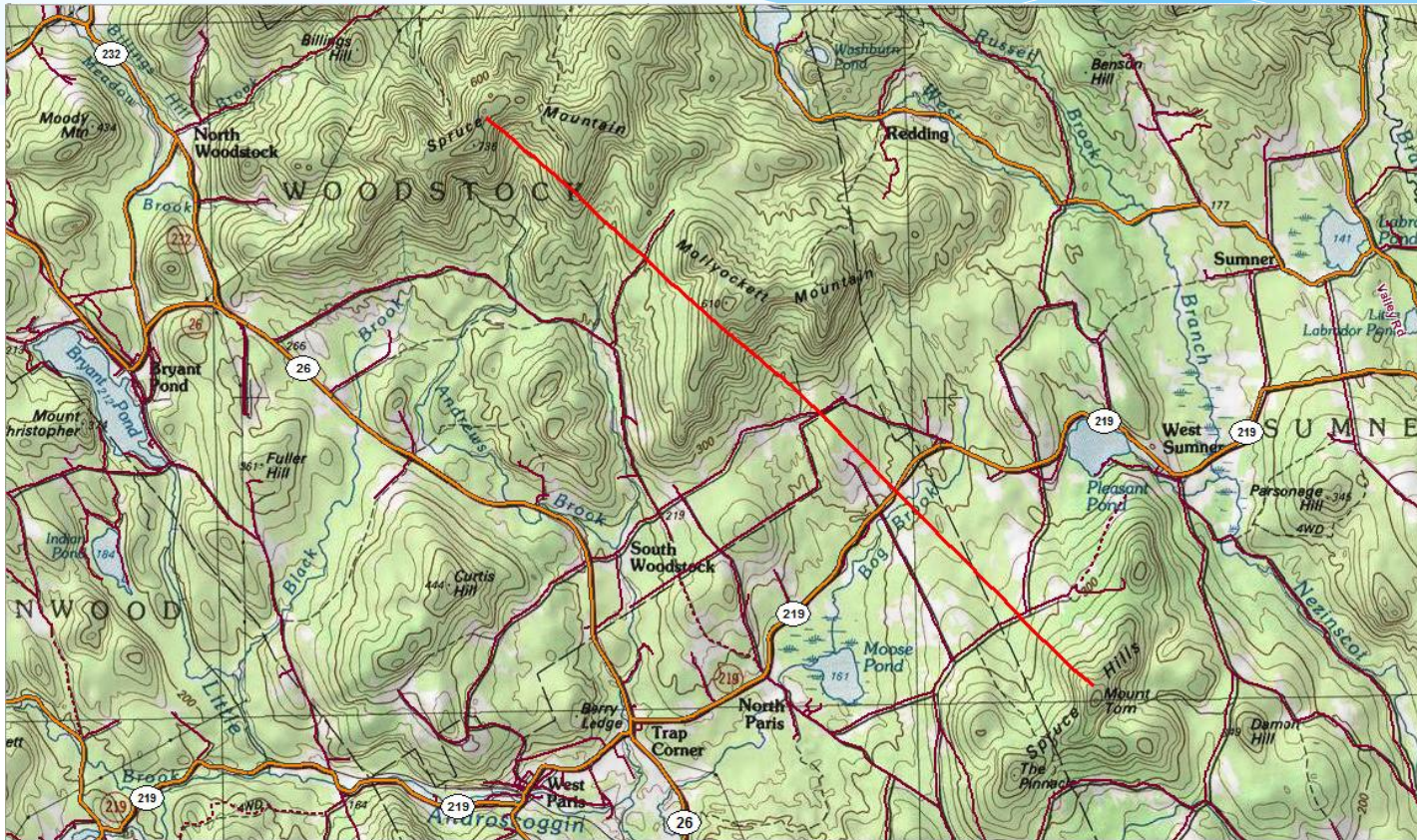


Wind Power Maine

Name	Capacity (MW)	Location (county)	Status
Mars Hill	42	Aroostook	Operating
Kibby Mtn.	132	Franklin	Partial operation
Stetson Mtn.	57	Washington	Operating
Stetson II	25.5	Washington	Under construction
Fox Islands	4.5	Knox	Operating
Longfellow	40	Oxford	Proposed
Oakfield	51	Aroostook	Proposed
Rollins Mtn.	60	Penobscot	Under construction
Record Hill	55	Oxford	Proposed
Beaver Ridge	4.5	Waldo	Operating
Total:	471.5		

Wind Power Maine

Spruce Mountain, Woodstock ME



44°25.538' N

Wind Power Maine

Spruce Mountain, Woodstock ME

- * **18 MW= 8,700 Maine Households**
- * **Tax Benefits- Assessed at \$37 million**
- * **Within 10 Miles from Spruce Hills, Sumner ME**
- * **Community Benefit Fund- \$20,000 per year.**

Wind Energy Project Overview

Wind Project Considerations

- * **Electric utility service and interconnection**
- * **Visual simulations from sensitive locations**
- * **Possibility of shadow flicker**
- * **Sound estimates for local residences**
- * **Wetlands designations**
- * **Zoning setbacks for various reasons**
- * **Sensitivity to ice shedding**
- * **Habitat sensitivities--both during construction and operation**
- * **Site access**
- * **Bird and bat sensitivities**
- * **Other...**

Wind Energy Overview

Permitting to be Submitted:

Maine Dept of Environmental Protection

Site location of development law

Natural Resources Protection Act

Storm Water Management law

US Army Corp of Engineers Wetlands Permit

Maine DEP Studies required:

Detailed wind assessment

Aerial topographic map

Botanical Resource Survey

Wildlife Habitat Assessment

Endangered and Threatened Species Assessment

Wetland delineation and Assessment

Visual and Sound Impact Assessment

Wind Energy Project Specifics

Location Specific Information Removed

- * **5 Wind Turbines and 10-12.5 MW**
- * **This project will produce more than 30 million kilowatt-hours (kWh) of clean, emission-free, renewable energy per year, enough to power about 3,750 homes in western Maine.**
- * **Plan to repair several roads as needed**
- * **Utility Line to follow existing roads**

Wind Energy Project Phases

Pre-Construction

2 to 4 years

- Local community education and communication
- Wind assessment
- Design
- Wildlife studies and environmental studies
- Interconnection studies
- Permitting
- Financing
- Turbine Procurement

Construction

1 to 2 years

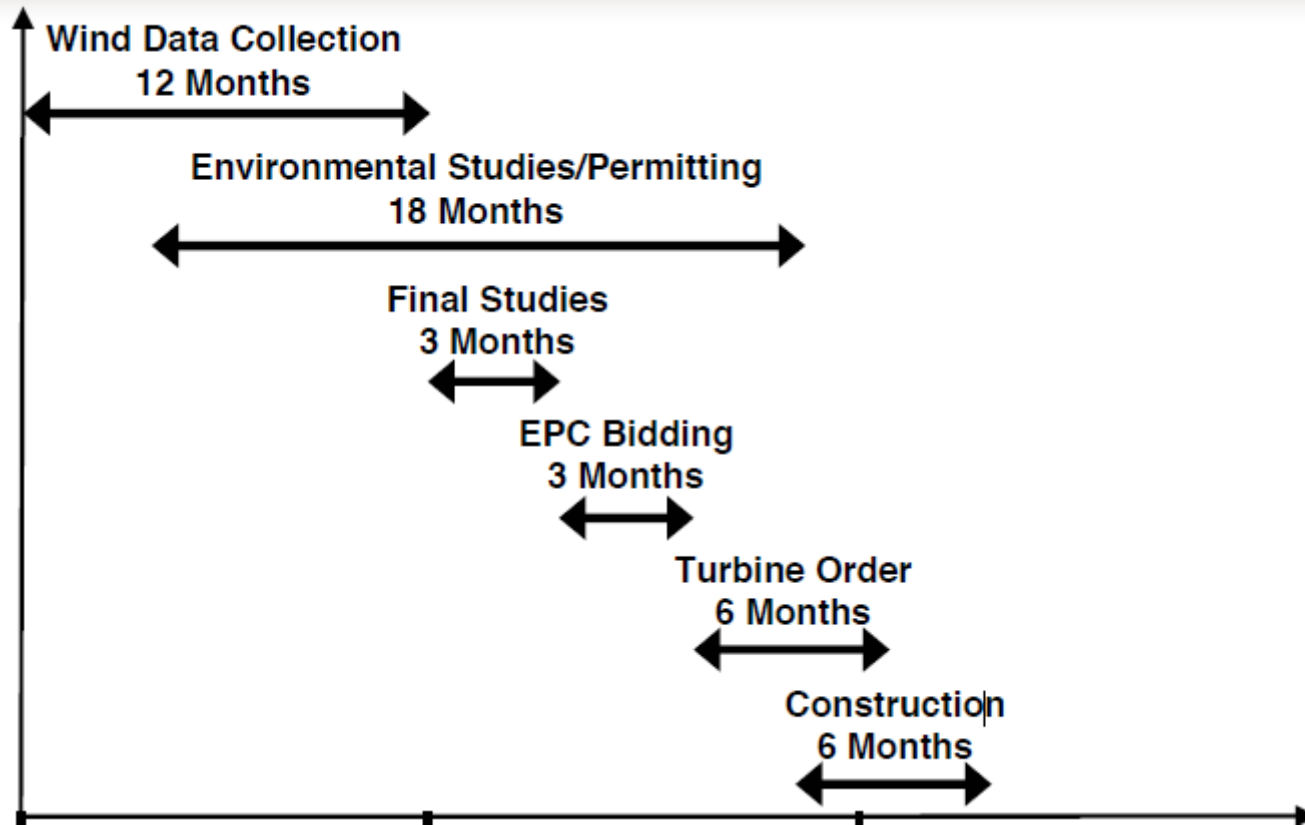
- Work closely and communicate with local community
- Roads
- Foundations
- Collection system
- Turbine Installation
- Facilities

Operations

up to 30 years

- Permanent operation & maintenance jobs
- Decommissioning at end of project life
- If there is interest, project can be repowered with new turbines

Project Timeline



Commonly Asked Questions

Turbine Noise and Health Property Values

Turbine noise and health

- * **Dr. Pierpont:**

- * **Alleged “Wind Turbine Syndrome”**

Low frequency noise and infrasound cause health issues.

This is not peer reviewed research using the scientific method.

Turbine noise and health– Pierpont's work

- * It was based on a case-series study of phone interviews with 10 self-reported households
- * No dose/response relationship determined
- * No cause/effect determined due to nature of study
- * No controlled study yet conducted
- * Impacts to residents are reported similar to those from annoyance
- * Self Published

Source Dr. W David Colby, Associate Professor of Medicine, Microbiology/ Immunology, Physiology, - Schulich School of Medicine, Chatham-Kent Medical office of health

Turbine noise and health– Pierpont's work

- * **Wind Turbine Syndrome, an Appraisal**

Position Paper 2010 Peer reviewed study, Geoff Leventhall, PHD, a specialist in Noise Vibration and Acoustics.

- * **Pierpoint has not made any new discoveries**
- * **It appears there is No specific Wind Turbine Syndrome**

Turbine noise and health

The Acoustic Ecology Institute (AEI)

- * Independent, non profit
- * Tracking public concerns about wind farm noise, while also studying new research, trade journals & reports since 2003
- * AEI's approach has been the same as we've taken to ocean noise issues since 2004: to do our best to cut through the rhetoric and hyperbole from advocates on both sides of the issue
- * Get a clearer sense of the state of understanding of these noise impacts, in order to help inform emerging public policy choices.

Turbine noise and health

The Acoustic Ecology Institute (AEI)

**Acoustic Ecology Institute (AEI), Peer Reviewed:
www.acousticecology.org**

“...it is also clear that wind farm noise is truly not that bothersome to most people who hear it or live near it, and that the vast majority of wind farms never generate any substantial ongoing noise issues. Concerns that dominate public discourse and activist web sites can seem to accentuate the hardest to quantify issues (such as direct health effects, especially of low-frequency noise), while magnifying the extent of problems as communities consider new wind developments.”

Turbine noise and health

Sound Panel Members

- * **David Colby**
Chatham-Kent Medical Officer of Health
- * **Robert Dobie, MD**
Otolaryngologist, UC Davis Health System
- * **Geoff Leventhall**
Consultant in Noise Vibration and Acoustics
- * **Dave Lipscomb, Ph.D.**
President, Correct Service
- * **Robert J. McCunney, MD**
Research Scientist, MIT Dept of Biological Engineering
Staff Physician, Mass General Hospital Pulmonary Division
- * **Mike Seilo, Ph.D.**
Professor of Audiology, Western Washington University
- * **Bo Søndergaard**
Danish Electronics Light and Acoustics (DELTA)

Turbine noise and health

Major Committee Conclusions

**Robert J. McCunney, MD AWEA Position Paper
November 20, 2009 Affiliated with Mass General and
MIT in Occupational Medicine**

- * **Noise from wind turbines does not pose a risk of hearing loss or any other adverse health effect.**
- * **Some people may become annoyed from the sound from wind turbines but this is not a disease.**

Turbine noise and health

Major Committee Conclusions

- * **There is no evidence audible low frequency noise and infra sound or ground bourn vibrations from wind turbines present a risk to health.**
- * **Ground born vibrations from wind turbines are too weak to be detected by, or affect humans.**
- * **Sounds emitted by wind turbines are not unique and there is no reason to believe that sound from wind could plausibly have direct adverse health conditions**
- * **Wind Turbine Syndrome is neither a new disease or accepted medical diagnosis**

Turbine noise and health

***Wind Turbines are getting quieter!**

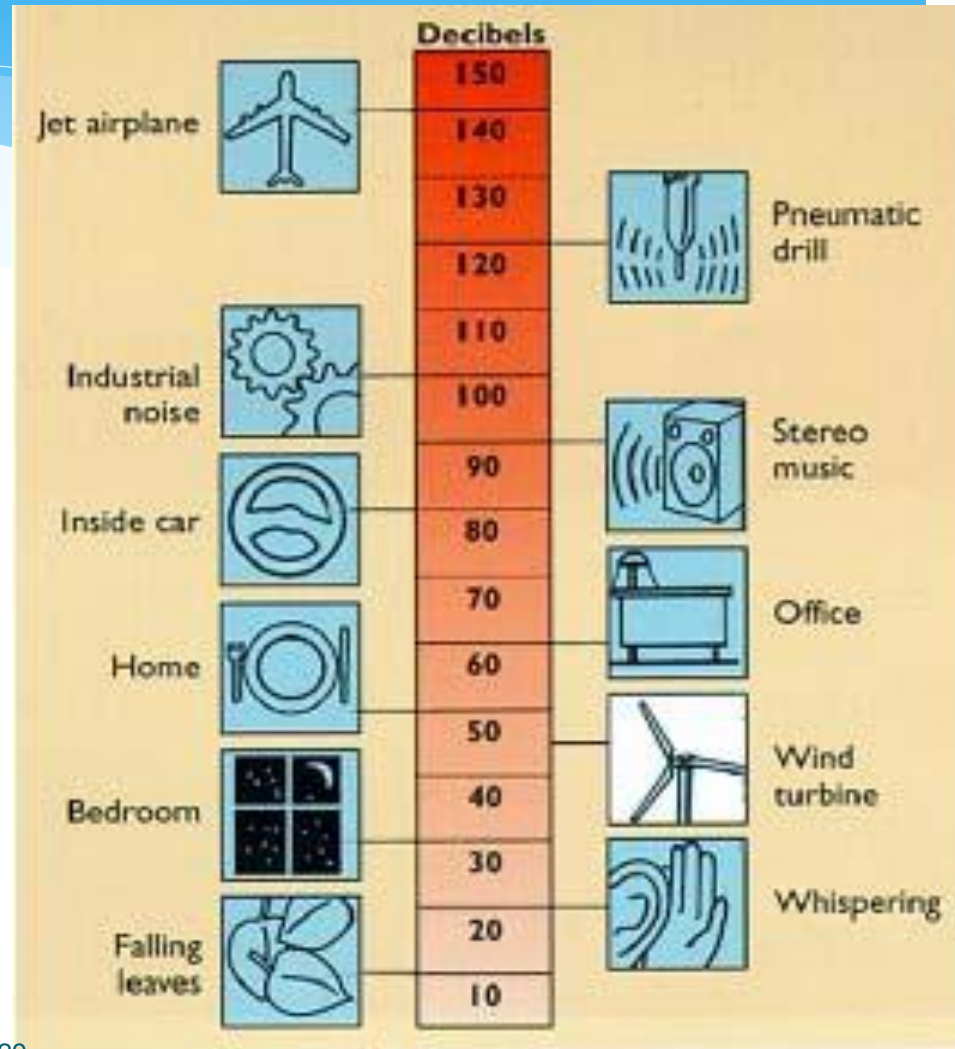
***Noise Reduction designs use sound proofing of gear boxes**

***Sound dampening limit vibrations being passed to the tower and ground**

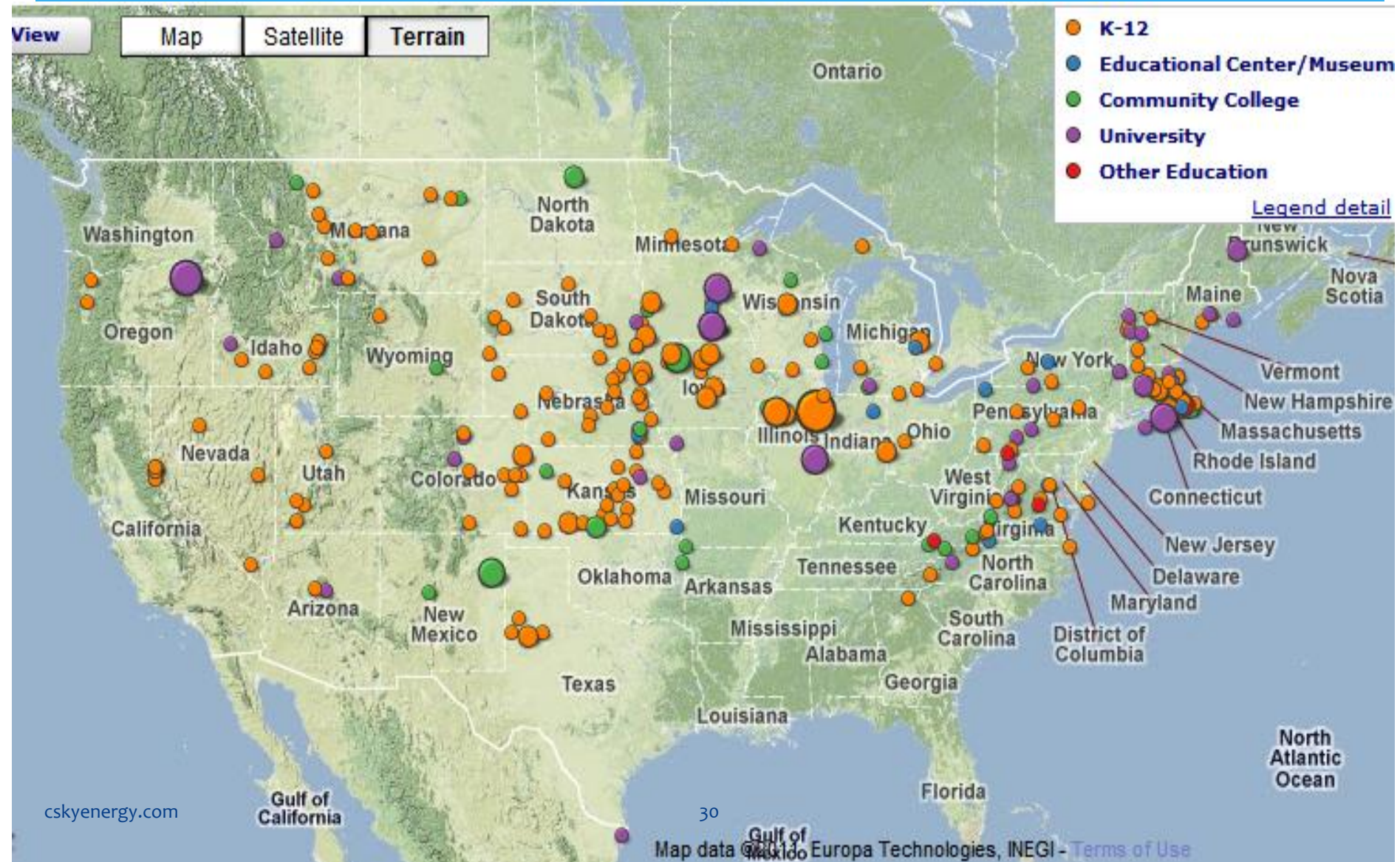
***New Quieter blade designs**

Common Questions about Wind Sounds of Wind Turbines

- Wind turbine ranges in the 35 to 45 dB at a distance of ~1000 feet.
- Sounds produced by wind turbines is similar to the background sound found in a typical home.
- There is no scientific evidence that infrasound at levels below its hearing threshold has an adverse effect on the body.



Wind at Schools in the USA



Wind at Schools in the USA

➤ 167 Wind Project for k-12



Property Values

- * **Property Value Impacts on Residential Property Near Wind Turbines: An Overview of Research Findings.....**
- * **By Ben Hoen Lawrence Berkeley National Laboratory Webinar May 5, 2010**
- * **This presentation was made possible in part by funding by the U.S. Department of Energy**

Property

- * Significant impacts have failed to materialize when actual sales are investigated after construction (Poletti; Hoen; Sims & Dent; Sims et al.)

Economic Benefits for Sumner Maine

- * The project will *lessen the dependence* on existing town revenue by introducing an environmentally sound, energy resource that will provide 100% renewable, emission free electricity.
- * Help Stabilize **Local Electricity Pricing and Hedge** against electricity price volatility. Electricity prices have increased 5% per year since 2000 or 60%+, and oil price incr. 4 x since 2000. Bloomberg Businessweek Aug. 1, 2011
- * It is anticipated that this project will create \$200,000 to \$300,000 per year or \$6.0 million to \$9.0 million in tax revenues for the town of Sumner over the course of 30 years. No town investment required!



Economic Benefits for Sumner Maine

- * **Representing approximately 28% of the \$900,000 Sumner property tax base largest tax payer**
- * **Sumner can elect to use funds to lower taxes or invest in local development projects**
- * ***Thereby a Stabilization or Reduction of property taxes can occur.***



Economic Benefits for Sumner Maine

- * **Local Employment**
 - * \$150,000 increase local spending during construction
 - * Temporary construction jobs
- * **Community Benefit Fund**
 - * Program will be designed to fit the towns' specific needs Example: College scholarships, internships funded by project profits; \$10,000 per year
- * **Developers in Maine can sell power directly to the consumer at a discount from retail rates**
- * **Clear Sky will make best efforts working with Electricity Maine to ensure power generation will be used in Sumner at discounted rates.**



Economic Benefits for Sumner Maine

- * **Tax Increment Financing or TIF's**
- * **TIF is a financing program whereby taxes on the incremental or NEW value of development is used to fund economic development programs and projects**
- * **Shelters against adverse adjustments to State education and revenue sharing subsidies based on total valuation**



Economic Benefits for Sumner Maine

- * **Tax Increment Financing or TIF's**
- * **TIF funds can be used for tourism grants, economic development planning grants commercial revolving loans and capital project funds**
- * **Examples are: Fire or Police Public Safety buildings or equipment, Hiking Trails, Commercial Revolving Loan Fund, Commercial buildings, Cell towers and Snowmobile trails.**



Health Benefits for Summer Maine

- * **Generating energy from wind turbines means *less energy from foreign oil and coal*, both major contributors to global warming pollution, resulting in diseases and deaths to heart attack, cancer and asthma.**
- * **Maine has the *highest in the nation rate of asthma and cancer*, thought to be partially due to pollution from fossil fuels.**
- * **Source- Dora Anne Mills MD, MPH Main CDC/DHHS**

Where to get good, detailed information

- * • **Wind Energy Center**
- * – **Community Wind Fact sheets: www.umass.edu/windenergy/**
- * • **www.windpower.org**
- * – **Lots of accessible, technical information**
- * • **Others:**
- * --**University of Maine**
- * – **AWEA: www.awea.org**
- * – **Wind Power America: [www. windpoweringamerica.gov](http://www.windpoweringamerica.gov)**
- * – **Utility Wind Interest Group : www.uwig.org**
- * – **Links: www.fresh-energy.org**
- * – **Database of State Incentives for R.E.: www.dsireusa.org**
- * – **NREL Publications Database: <http://www.nrel.gov/publications>**

Cianbro Review

Sumner Maine Sky Next Steps-

- **Clear Sky will Continue to Schedule Follow up Informational Meetings Fostering Communication with Town Residents**
- **What Questions do you have?**

THANK YOU

