



GAMESA ENERGY USA

Presentation to the West Virginia Public Utility Authority

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Ellen Lutz
Director of Development
Atlantic Region



WIND ENERGY BENEFITS

• ENERGY INDEPENDENCE

- » Domestically produced
- » 20+% penetration on US electricity grid technically feasible
- » Protects consumers from volatile electricity prices

• ENVIRONMENTAL

- » No air emissions
- » No water usage or water pollution
- » No toxic materials
- » No mining for minerals

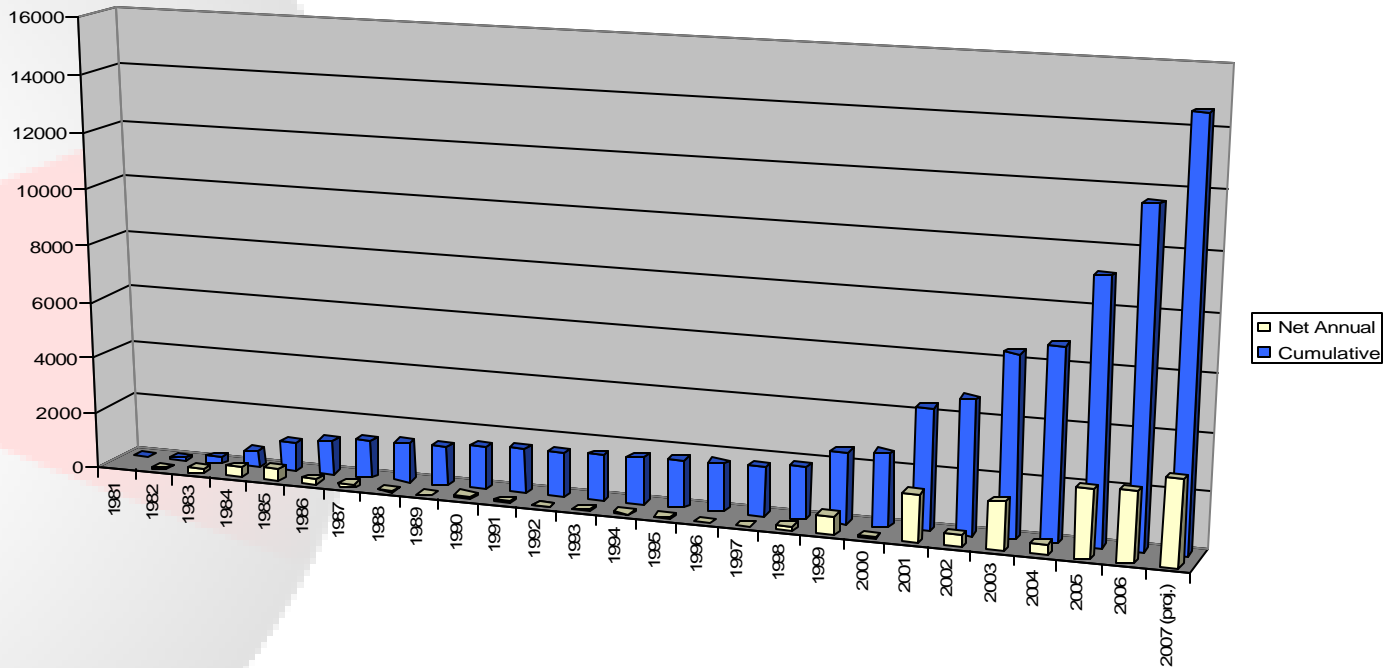
• ECONOMY

- » Industry rapidly growing
- » Revenue for townships
- » Revenue for landowners
- » Local job creation

WIND ENERGY IS RAPIDLY GROWING

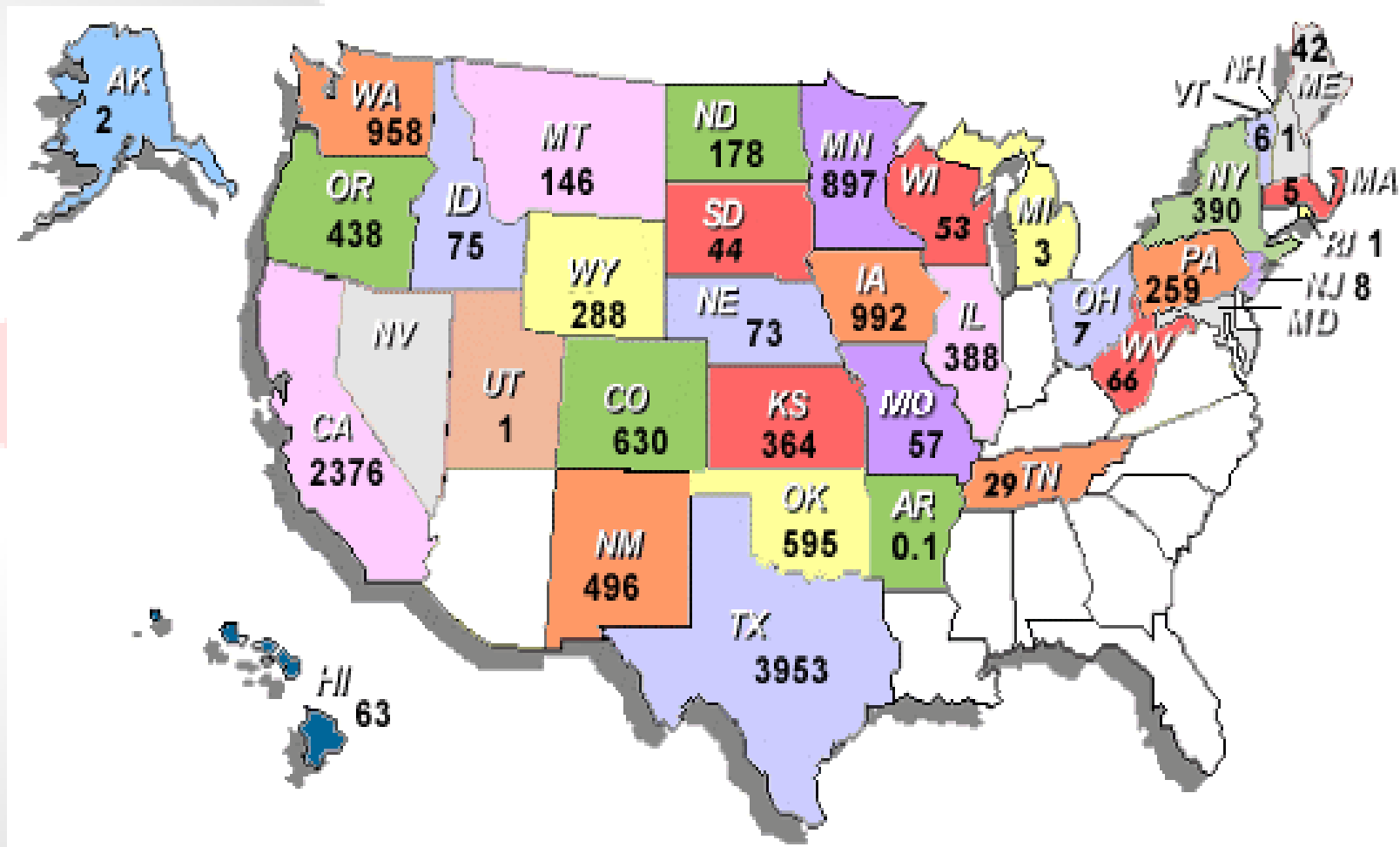


U.S. Wind Power Capacity, Annual & Cumulative (MW)



Year end 2007- 16,818 MW installed- 45% surge

US INSTALLED WIND ENERGY CAPACITY

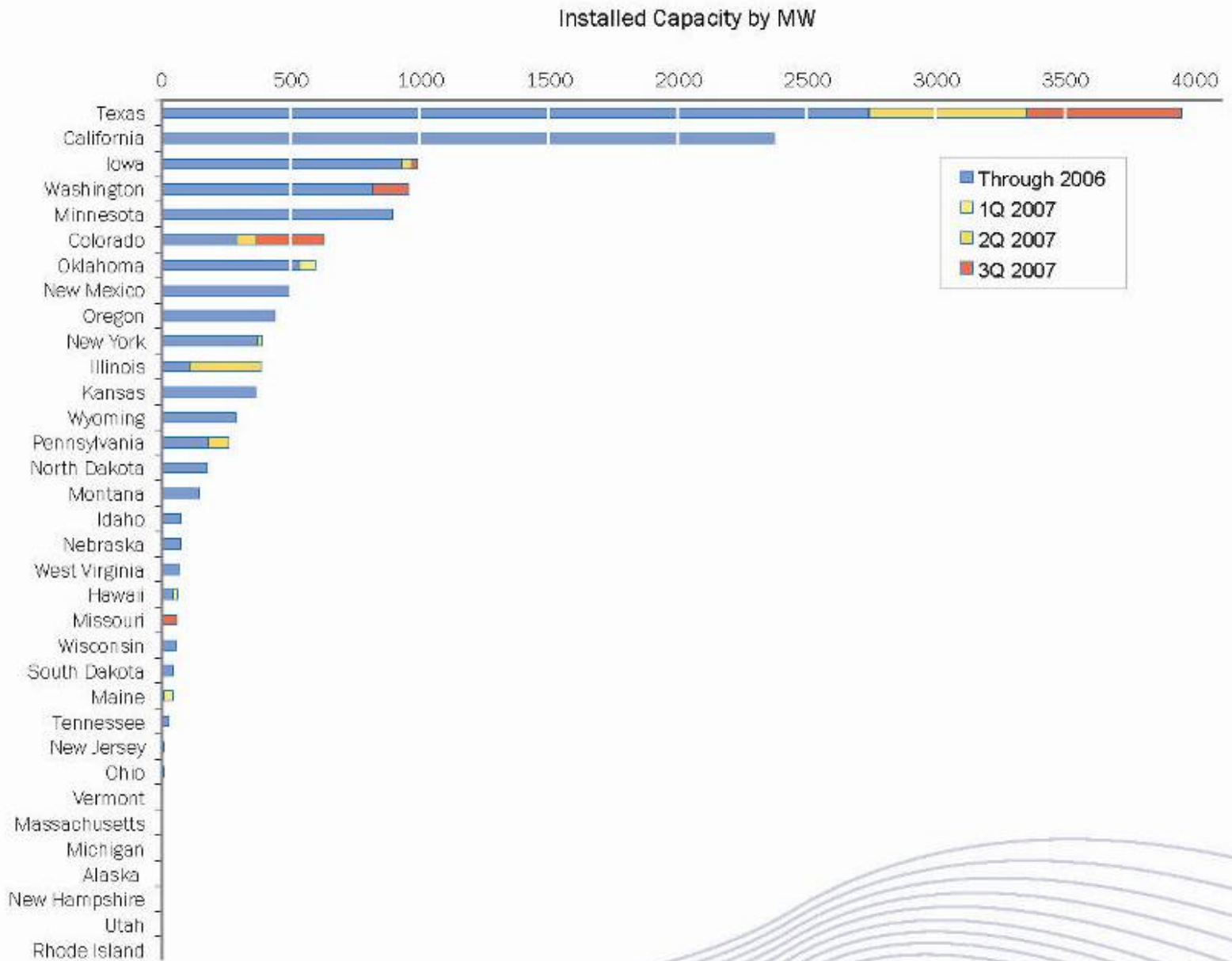


- Total of 787 MW installed out of 16,818 MW nationally (4.6%)
- Most productive wind sites in the East in mountainous areas
- Using most productive sites allows greater production per wind farm – less wind farms needed
- Mountainous areas experiencing opposition in many states
- Coal- rich states prefer use of former strip mined sites

- Unstable soil base from loose spoil
- Can be difficult to find mining sites with good wind – Gamesa is actively seeking such sites
- Gamesa standard is to dig foundations that are 8 feet deep X 52 feet wide, surrounded by compacted soil, to minimize environmental impacts
- Loose spoils require digging to 30-40 feet and anchoring foundations into ground – subsequent environmental impacts from deeper disturbance
- Soil must then be infilled and compacted to depth
- Additional expense makes some projects uneconomic
- Potential to inherit environmental liabilities

Installed Capacity by State

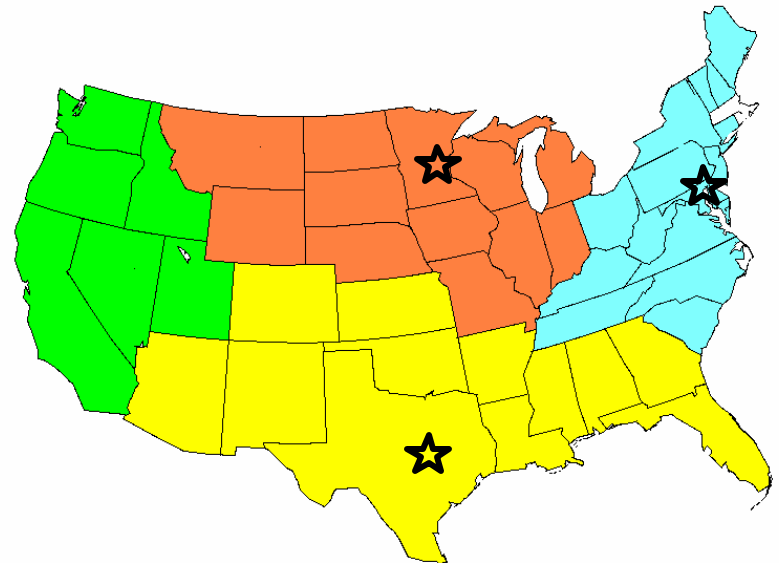
Chart 2 illustrates the rankings of wind power capacity all states with "utility sized" wind turbines. AWEA considers "utility-sized" to be all wind turbines with generators 100-kilowatt (kW) in size or larger.



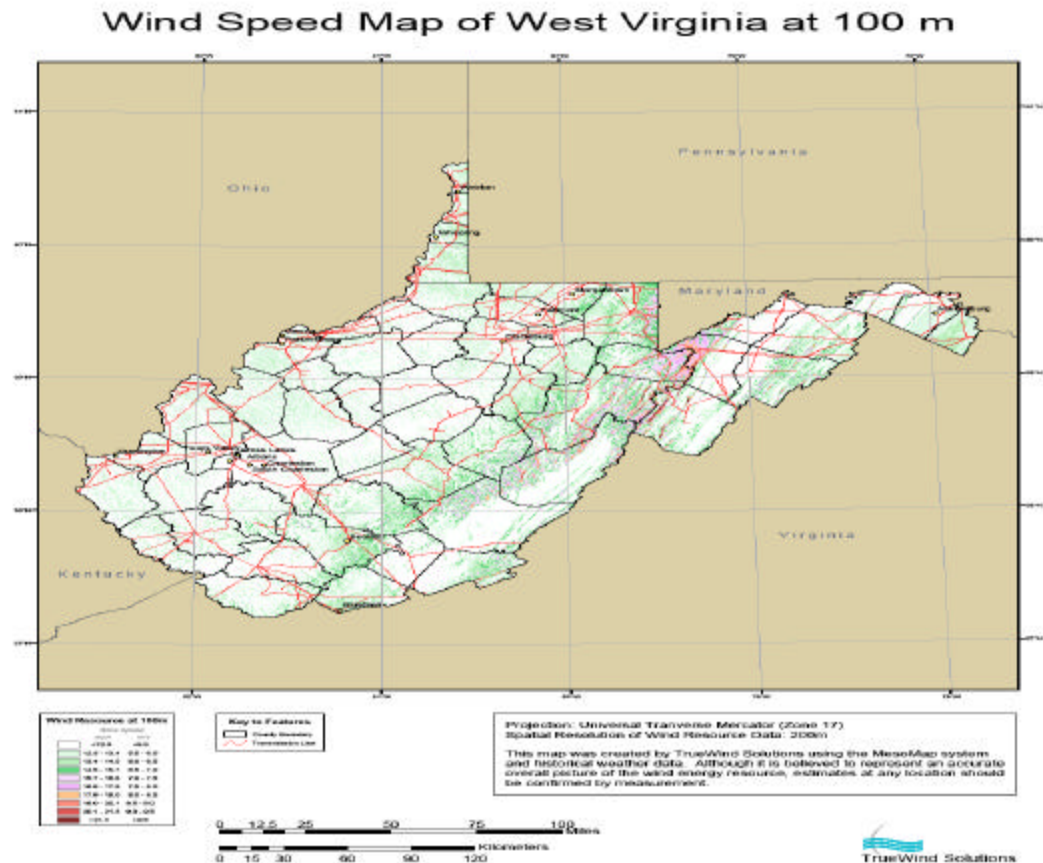
Who is Gamesa?

Gamesa is a worldwide leader in Wind Farm Development and Wind Turbine Manufacture

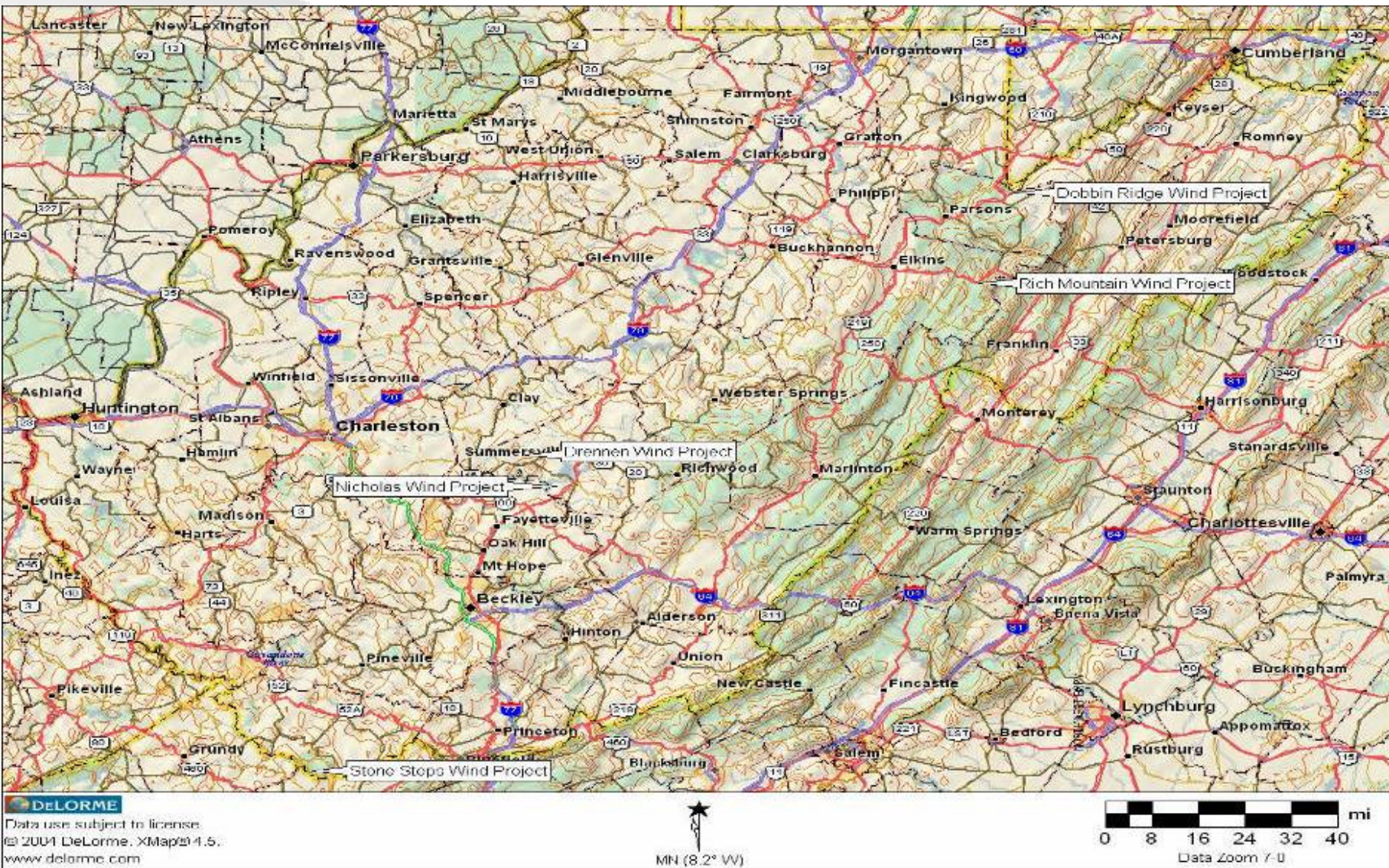
- Worldwide headquarters in Spain
- US headquarters in Philadelphia
- 4 Manufacturing facilities in Pennsylvania
- Development offices in Philadelphia, Ebensburg, Minneapolis and Austin
- 12,000+ MW installed around the world by the end of 2007
- Recently added to the Dow Jones Sustainability Index for corporate responsibility



- Wind speed
- Access to electricity transmission lines
- Environmental compatibility
- Site constructability



Proposed Wind Project Sites in West Virginia



1) Dobbin Ridge Wind Project

- Grant & Tucker Counties, West Virginia
- 50 turbines, 100 MW

2) Drennen Wind Project

- Nicholas County, West Virginia
- 30 turbines, 60 MW

3) Rich Mountain Wind Project

- Randolph County, West Virginia
- 75 turbines, 150 MW
- Project location would be on 17 miles of privately owned mountain top land composed of primarily uninhabited forested areas

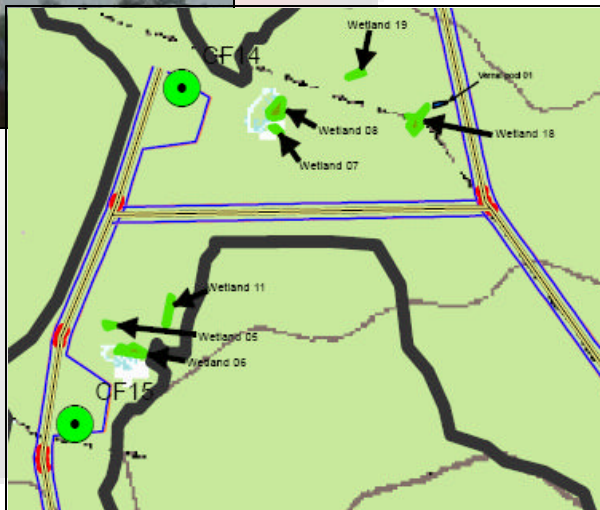
4) Stone Steps Wind Project

- McDowell County, West Virginia & Tazewell County, Virginia
- 30 turbines, 60 MW

Windfarm Design

Steps to design wind farms include:

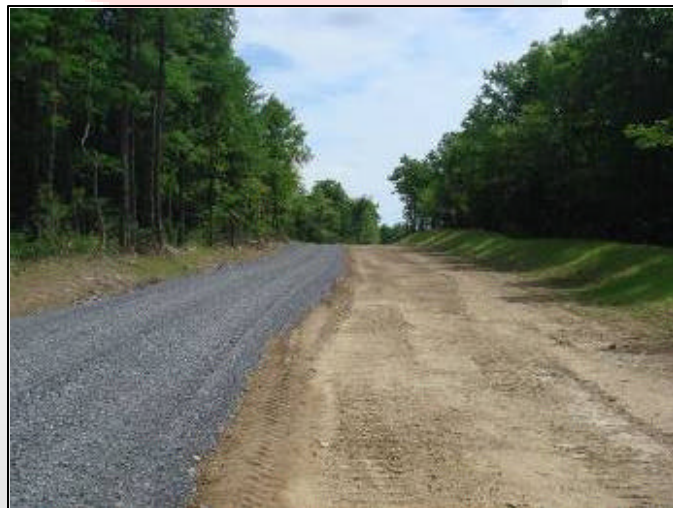
- Installation of meteorological masts to assess wind speed and consistency
 - Tells where to site windmills
- Roads are sited between windmills
 - Minimize impacts to water resources
 - Follow existing road/trails where possible
- Design electricity collection system
 - Buried within project along roads
 - Interconnection substation
- Design transmission line upgrades where necessary



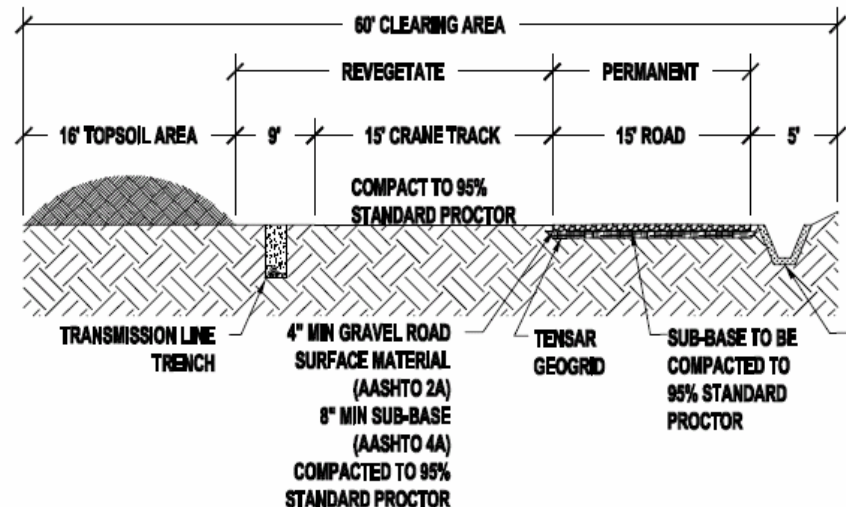
Wind Farm Access Roads



- Permanent gravel roads are 15 feet wide
- Initial clearings are 60 feet wide
- Erosion controls are maintained throughout construction and operation



CRANE ROAD & CABLE TRENCH





Windmill Foundations

- 52 feet wide and 8 feet deep
- Octagonal shape
- Once backfilled the foundation will have a cement ring with a diameter of 15 feet exposed

Power Lines

- Cables buried between windmills along road corridors
- Overhead cables will span streams to eliminate impact to the stream



Erosion and Sediment Controls



- Rock-lined swales – slow water flow and prevent erosion
- Vegetative matting – prevent erosion in disturbed areas
- Waterbars in roads – divert water to prevent erosion
- Open bottom culverts – have no impact to streams



Revegetation of Wind Farm

- Non-gravel areas are reseeded with proper seed mixture both during and after construction



Gamesa's Allegheny Ridge Wind Farm - Assembly

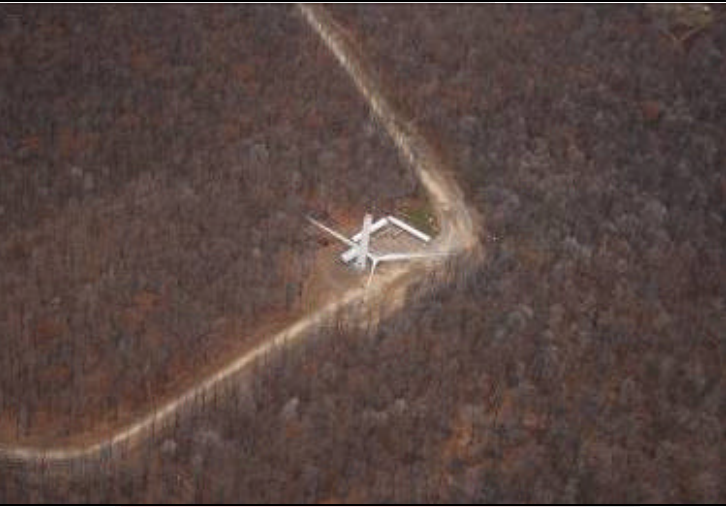
- Towers are made of four sections
- Blades are installed individually – reduces area which must be cleared at the base of the windmill

Weights

Class	IEC IIA Dibt WZ II	IEC IIA Dibt WZII	IEC IIA
Tower height	67 m	78 m	100 m
Tower (tubular)	153 T	200 T	286 T
Nacelle	65 T	65 T	65 T
Rotor (incl. hub)	38 T	38 T	38 T
TOTAL	256 T	303 T	389 T



Gamesa's Allegheny Ridge Wind Farm



Benefits to Local Communities

Published: August 19, 2007 11:30 pm   

Turbines mean revenue windfall for townships

BY KATHY MELLOTT
The Tribune-Democrat

BLUE KNOB — The \$3,000 annual municipal host fee paid by Gamesa Energy USA is providing a financial boost to townships in the Allegheny Ridge Wind Farm.

Now, officials are looking for ways to keep more money in taxpayer pockets or use the windfall to improve services.

With the \$69,000 coming from Gamesa, supervisors in Juniata Township, Blair County, are taking a bold step: Effective Jan. 1, the 2.5-mill municipal real estate tax will be eliminated.

"There are people who don't like the windmills and those who do," Supervisor Dave Kane said. "Why shouldn't everybody get at least something out of them?"

Kane estimated the decision will save the average property owner \$30 to \$40 per year.

Meanwhile, this year's windmill revenue was used to stabilize and pave Lilly Road — the connecting route with Washington Township's Mountain Road at the county line.

Washington Township's windmill revenue totals \$42,000.

While officials in the Cambria community say they can't yet eliminate a tax, the money expected during the next three decades will be used for a host of improvements. Supervisor Ray Guzik said.

"We're going to keep taxes down so everyone benefits," he said.

Officials have dedicated \$3,000 to pay for increased police patrols, while much of the money will go toward improving roads, Guzik said.

During the next three to five years, Washington officials will spend \$150,000 on road improvements rather than the usual \$40,000 to \$50,000 available prior to the windmill revenue.

"Hopefully we can get some of these people out of the dirt and dust," Guzik said.

Portage Township has fielded numerous residents' suggestions — including some from individuals who want the money to be used for a municipal police force. But the revenue appears to be headed elsewhere.

"I'd like to drop taxes by 1 mill," Supervisor James Kovach said. "But roads are going to be a top priority. We want to pave the roads around the windmills and take care of other roads."

Portage Township's windmill revenue is \$69,000 annually.

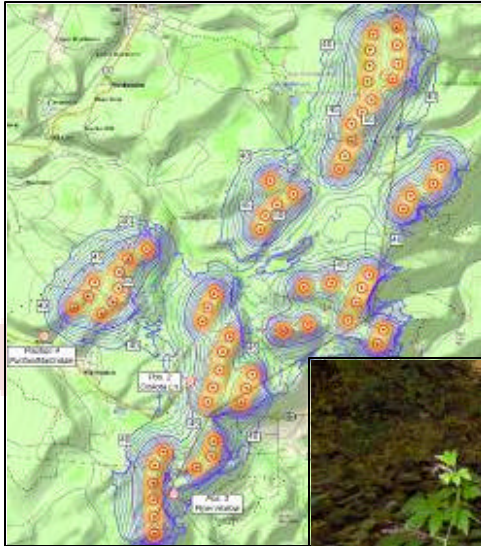
Cresson Township has received revenue for seven turbines. While there has been no formal discussion among officials, board Chairman Scott Decoskey said the revenue will probably be made part of the general fund.

"It will probably go to keep us from raising taxes," he said.



QUESTIONS?????

Preconstruction Environmental Assessments



Assessments include:

- Environmental studies are performed to assess impact to wildlife
 - Site is surveyed to locate habitat for threatened or endangered species
 - Bird and Bat risk assessments are performed
- Wetlands and streams are identified within project area
- Ambient noise is recorded throughout the site and analytically modeled maps are generated to simulate a windfarm

Timbering Activities



Standard timbering practices employed

- Road clearing areas are surveyed and staked
- Harvesting takes place
 - Landowners and Gamesa coordinate timbering efforts
- Erosion controls are employed

