

Indiana Coalition for Renewable Energy & Economic Development

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Indiana Estimated Potential

- 40,000 MW – 400 projects of 100 MW
- \$68 billion investment
- Each project puts \$300,000 - \$500,000 per year into local landowner pockets.
- Each project could pay \$500,000 to \$1,500,000 per year in property taxes.



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Agenda

- **Navitas**
- Why Wind
- Wind Generation Basics
- Equipment Description
- Benefits
- Development



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- Navitas Energy is one of the major wind developers in the U.S.
- Midwestern focus
- Over 2000 MW under development
- 2003 Mendota Hills Wind Farm – Illinois' first commercial wind project
- 2004 – Wisconsin – 98 MW
- 2005 – Wisconsin – 160 MW
- 2006 – Illinois – 240 MW



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Mendota Hills Wind Farm



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Agenda

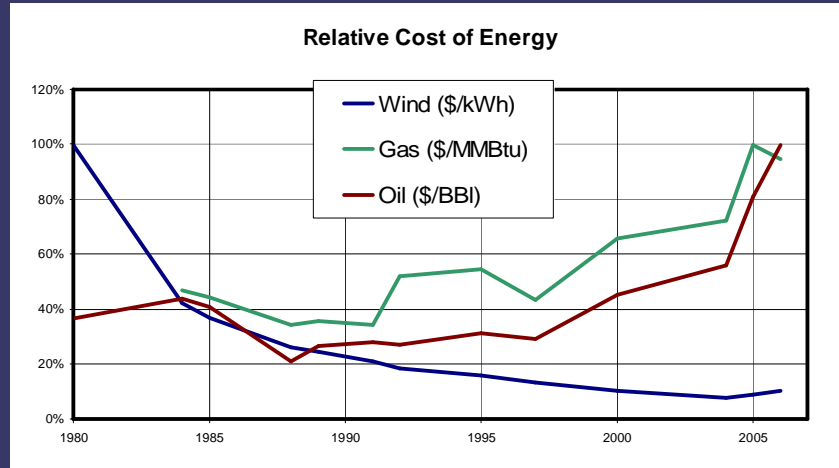
-  Navitas
-  **Why Wind**
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-  Equipment Description
-  Benefits
-  Development Process



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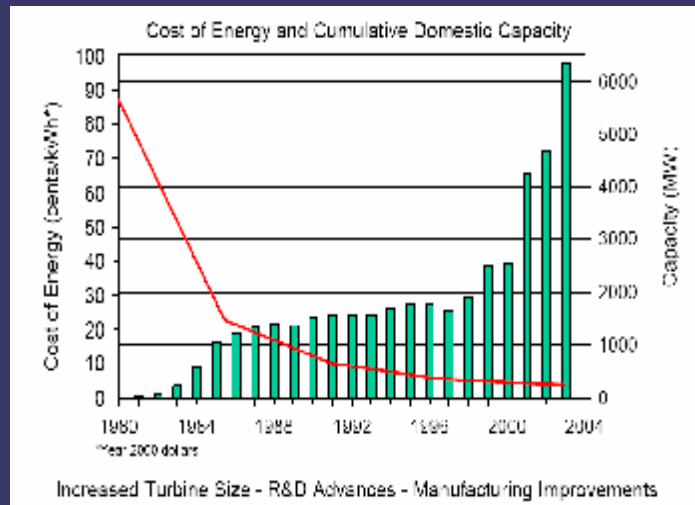
Relative Cost of Wind Energy



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Wind Energy Capacity & Cost Trends

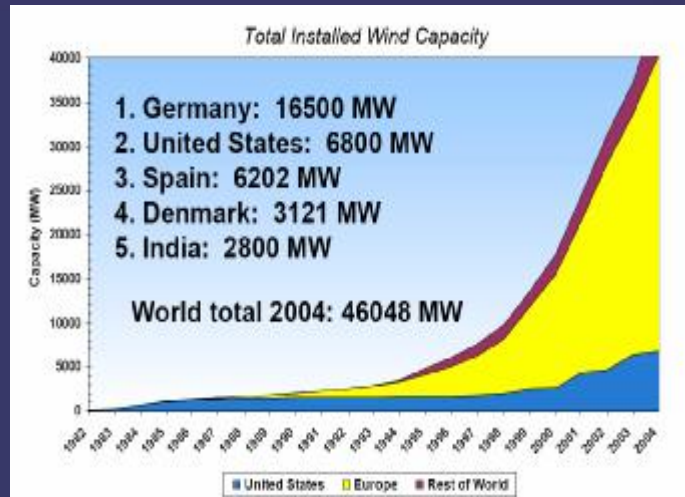


US Department of Energy

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World Growth Market



US Department of Energy

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Wind Energy Market

- Total installed U.S. wind capacity at year end 2005 was over 9,000 MW
 - 2.3 million average American households
- Projections for a record breaking 3,000 MW installed capacity in 2006
- 2nd largest source of new power generation in 2005
- Wind is increasingly recognized as a predictable resource

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Indiana Wind Potential

- Indiana has an attractive mix of wind resource and transmission capacity
- Indiana last year had less than 0.7% of its energy come from renewables leaving large opportunity for growth.



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Basic Elements

 We need three physical elements:

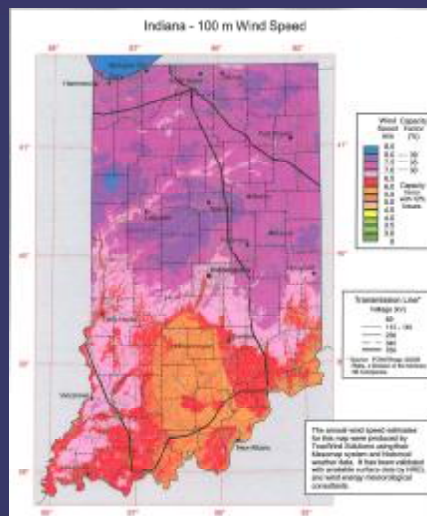
- Wind
- Electrical Infrastructure
- Land



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Public Information – Wind Maps



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Public Information – Wind Maps



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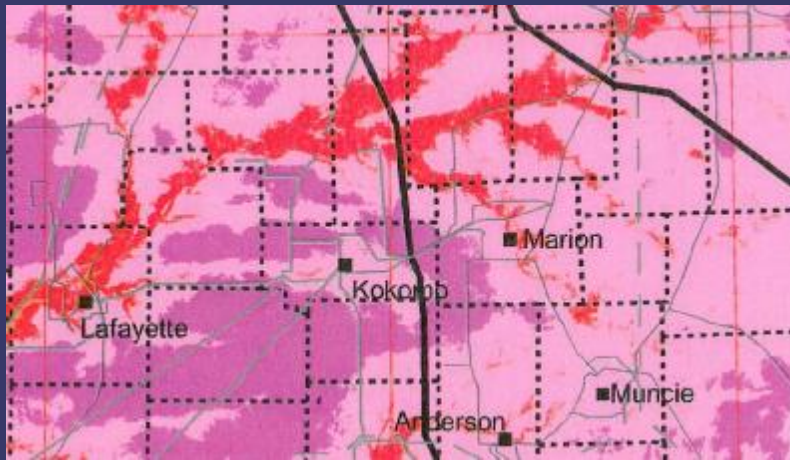
Meteorological Mast



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Public Information - Transmission



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Land

- Review plat maps
- Identify large tract owners
- Calls to determine interest or competition
- Typical project (100 MW) requires 5000-6000 acres of leased land
- Typical project would remove 30-50 acres from production



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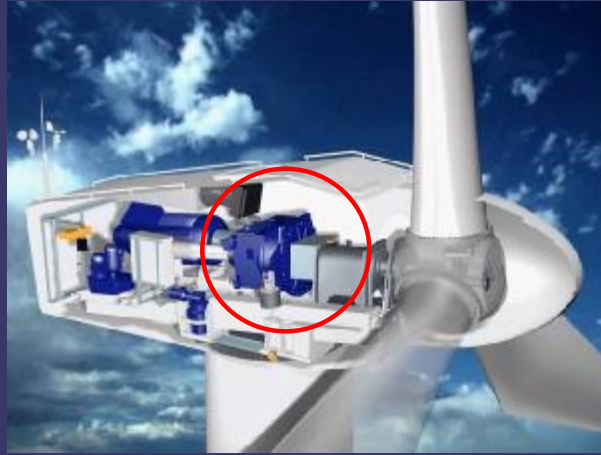
Mendota Hills Machines (G52)



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Mendota Hills Machines (G52)



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Mendota Hills Machines (G52)



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Mendota Hills Machines (G52)



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Mendota Hills Machines (G52)



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Outside



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Typical Wind Farm Configuration

- Turbine generator size: 2 MW
- Number of machines: 50
- Tower height: 255 feet / 328 feet
- Rotor diameter: 263 feet / 285 feet
- Blade length: 128 feet / 139 feet
- Base diameter: 15 feet
- RPM: 9 - 19



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Private Access Roads

- Access from public roads
- 15 feet wide (permanent)
- 12" base course material
- Crane pad
- Landowner access
- Maintained by wind farm operators



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Collection System

- Connects turbines to substation
- 100% underground
- No visual impact



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Substation

- Substation to evacuate power output
- Located adjacent to transmission system
- No additional high voltage lines



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Benefits - Local

- New income source for landowners
- Tax revenue to local governments
- Creates high skilled permanent jobs
- Creates short term jobs ~ 9 month construction (50-100 workers)
- Tourism



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Benefits – State/National

- Provides emission-free electricity generation (no CO₂, SO_x, NO_x, Hg or nuclear waste)
- No fuel price risk
- Generation without water consumption
- Displaces fossil fuels – annual energy equivalent (100 MW):
 - 1,100,000 dkt of gas, or;
 - 120,000 tons of coal



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Impediments to Development

- Myths
- Local Codes
 - Restrictive ordinance
 - Lack of ordinance



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Enhancements to Development

- Defined permit process
- Limited inter-agency dependencies
- Flexibility in permit time frames
- Unified permits
 - Met tower
 - Substation
 - Wind farm



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Wind generation in Indiana is compatible with existing land use and provides local, State and National benefits.



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Questions?

