Ohio's Wind Future

- Ohio has incredible wind potential: 66,000 MW
- A landmark energy policy
- A project review process that provides for predictability and accountability
- The nation's top wind supply chain and manufacturing base
- Interest from the nation's top wind developers

Wind Development in Ohio: the Planner's Role

Sponsored by

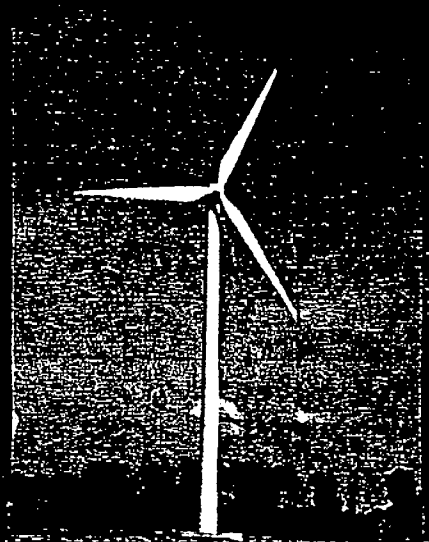
Cleveland OPC 20th Annual Planning and Zoning Workshop

Presented by

James Damon

Coordinator Ohio Wind Working Group,

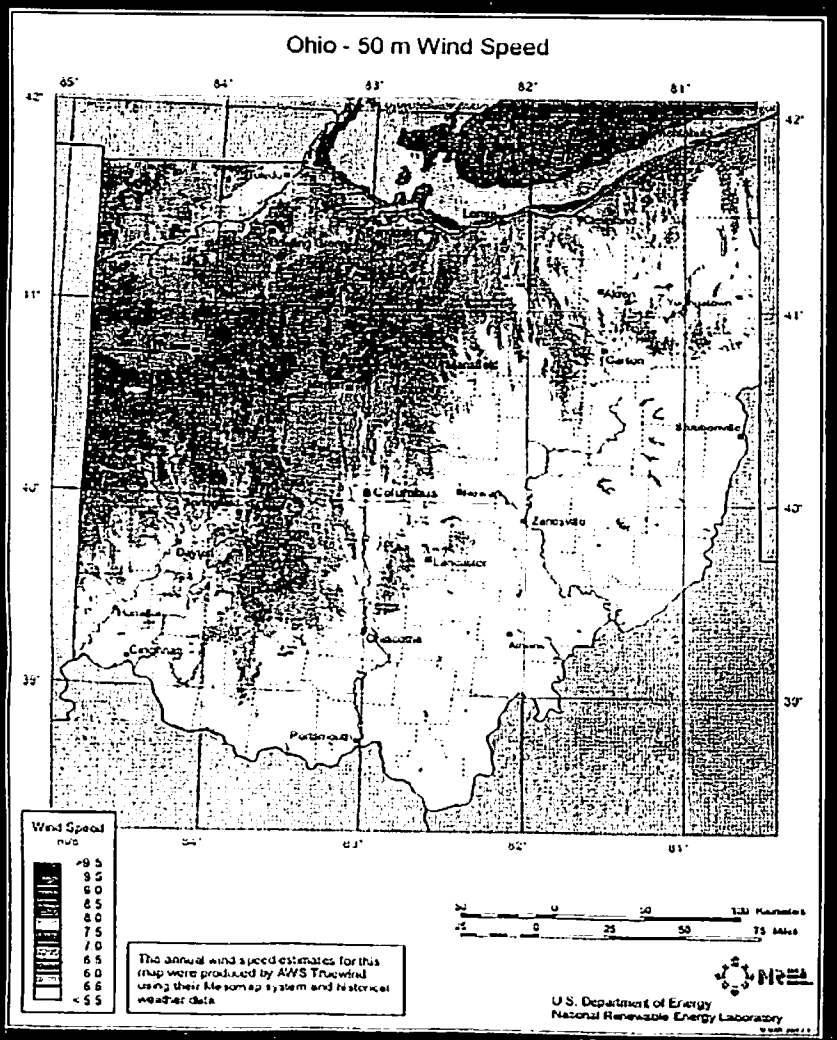
Ohio Department of Development

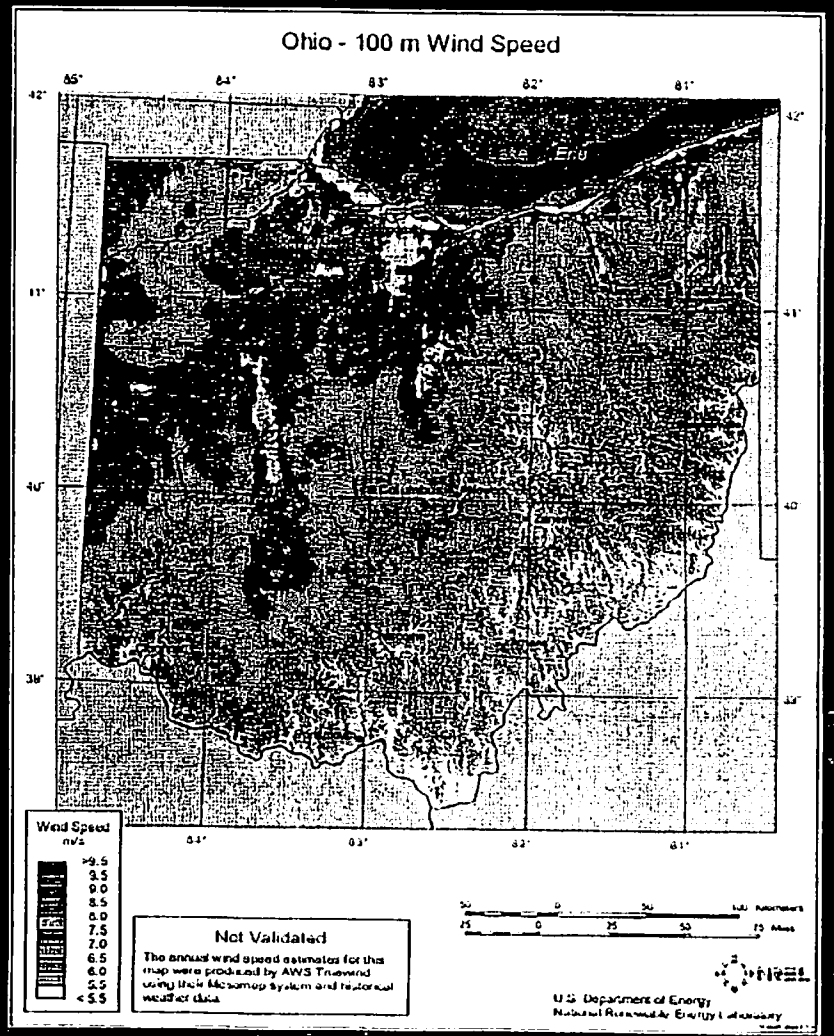


December 5, 2008

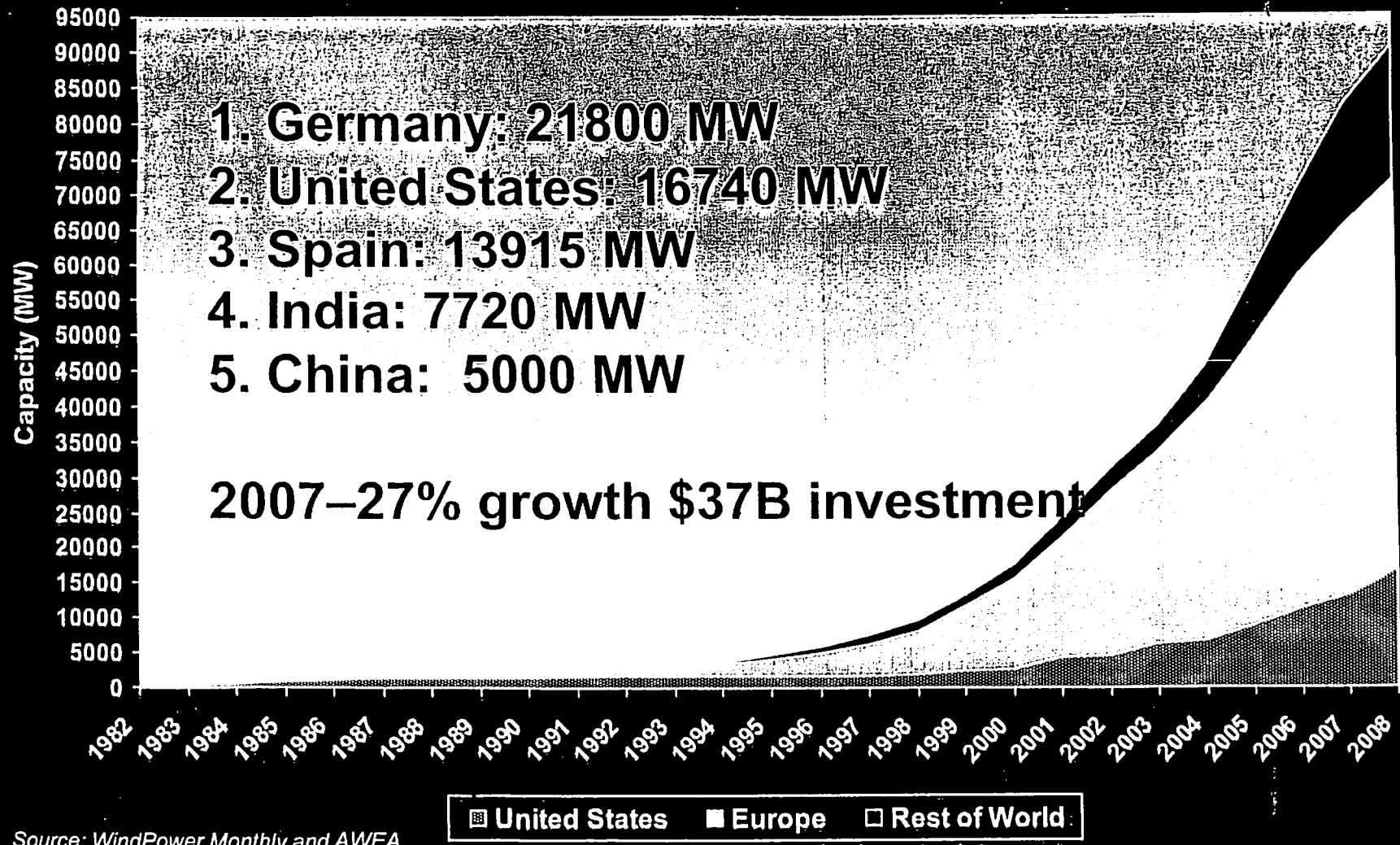
Audio for the presentation is available as a separate MP3 file. When listening to the presentation, advance to the next slide at the sound of the beep.

Ohio's Wind Potential



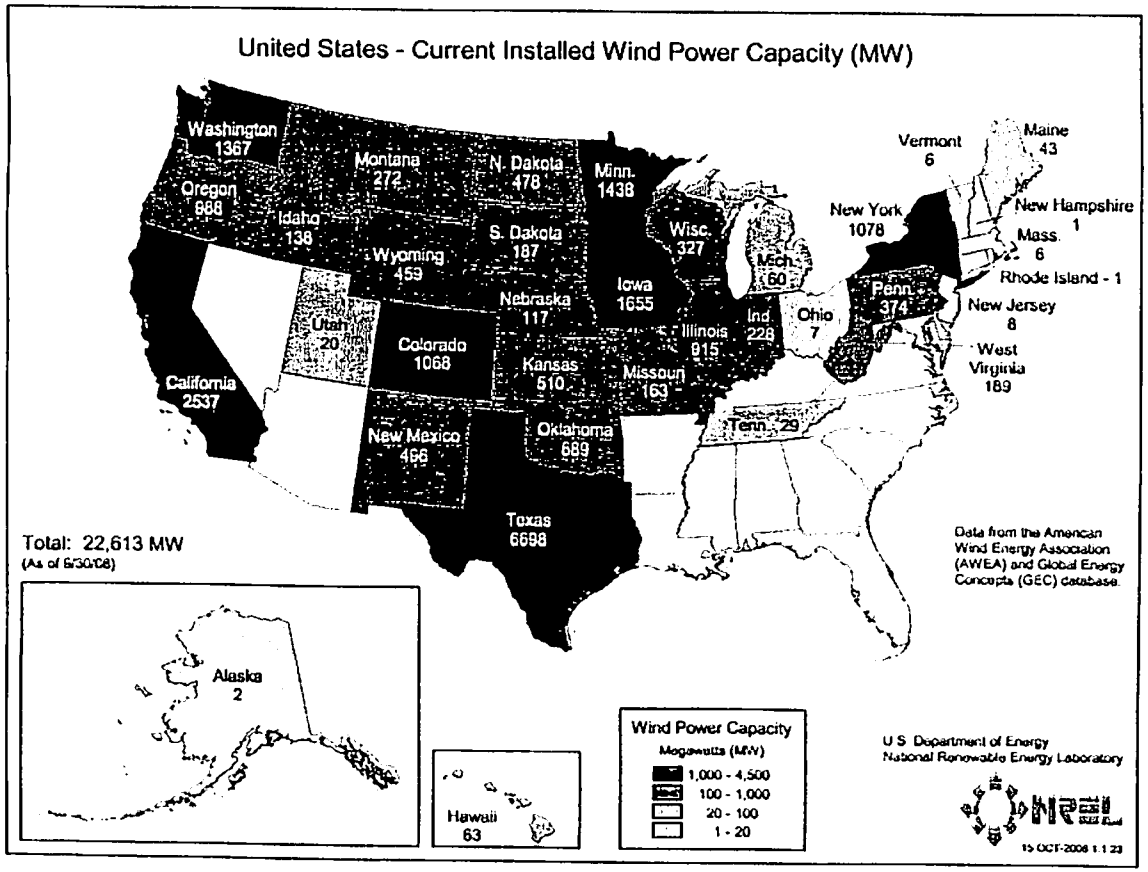


Global Installed Wind Capacity (Jan. '08)



Source: WindPower Monthly and AWEA

Installed Wind Capacities – Oct. '08



Ohio's AEPS

- Senate Bill 221
- Signed into law on 1 May 2008
- By 2025, requires of all electricity sold to be from Advanced Energy Sources
- At least must come from Renewable Sources: Wind, Solar, Biomass
- At least must be generated in Ohio
- Gradual Ramp-up begins in 2009 with annual benchmarks

- 3rd most aggressive RPS with regards to wind
  - 6,000 – 7,000 MW of wind by 2025

Ohio's AEPS and Wind

- 2009: 82 megawatts
- 2012: 557 megawatts
- 2015: 1,320 megawatts
- 2020: 3,099 megawatts
- 2025: 4,240 megawatts
- Ohio currently has 7.2 megawatts installed

Ohio HB 562

- Until June, siting of facilities below 50 megawatts was left to local zoning
- HB 562 directs the OPSB to adopt certification rules for the construction, operation and maintenance of wind-powered electric generation facilities. The new law extended OPSB siting authority to include wind facilities capable of generating between 5 and 50 megawatts of electricity.

Ohio Power Siting Board

- Process for project review and certification is identical to other generation sources
- Rules adopted on October 28, 2008

- Two-part minimum setback

1. Equal to 1.1 times the total height of the turbine from the wind farm property
2. 750 feet from the nearest habitable structure

Wind Basics

- **Turbine height v. tower/hub height:** Turbine height is defined as the total height of the turbine including the length of the blade at its highest vertical axis
- Typically, less than one acre is removed for farming and grazing for every 50 acres of development
- 1 MW of wind energy is enough to power 300 homes in Ohio

Wind Basics

- Turbines must be spaced a minimum distance to avoid shadowing each other and reducing power output
- A typical utility scale turbine (400 ft) will require a minimum land footprint of 15 acres
- Leasing the rights to a developer can more than double the annual income for grazing and cultivation

Wind Basics: Small Wind

- A 1 kW turbine can be purchased for $5,000
- A 10 kW turbine will meet the needs of an average home in Ohio at the installation cost of $50,000-$70,000
- A 10 kW turbine ranges from 60' to 120'
- What does this mean for wide scale development? It is unlikely

Wind Basics: Small Wind

- Who is likely to construct a small wind turbine? Schools, churches, municipal buildings, manufacturing/industrial facilities, homeowners
- An ideal site for small wind depends on topography and the location of other, taller structures, including trees
- A residential turbine makes about as much noise as a washing machine
- Residential turbines generally not suitable for small lot, suburban homes

Wind Myths

- Utility sized turbines are not noisy and when setback a distance of 750 ft are no louder than a refrigerator
- Shadow flicker is rarely a problem with newer wind farms and can be avoided from visual modeling done during the assessment phase
- Flicker does not induce seizures due to the slow speed at which the blades rotate
- Aesthetic issues: beauty is in the eye of the beholder!

OPSB Rules: Safety

- Applicant must describe reliability of equipment and provide turbine manufacturers safety requirements
- Applicant must evaluate potential of ice throw and blade sheer
- Applicant must describe potential shadow impact on adjacent residential structures and primary roads

OPSB Rules

- Application requirements are more comprehensive than most zoning
- Application submissions must include:
  - 1:24,000 scale map showing all geographical, topographical and sociological features
  - 1:12,000 scale project layout map including access roads, turbine locations, transmission lines and substations.

OPSB Rules

- Environmental issues: applicant must provide information on air, water, solid waste, and habitat in the area
- Applicant even needs to provide population projections for 10 years within 5 miles of proposed project site

The Planner's Role: Small Wind

- Draft zoning that balances the rights of participating and non-participating landowners
- Establish setbacks that are based on the height of the turbine: don't zone out wind turbines
- Do not reinvent the wheel—examine zoning language you already have that may be applicable to wind

The Planner's Role: Small Wind

- Setbacks: A nexus should exist between the height of the turbine and the established setback. A 1,000 ft setback is arbitrary if the turbine height is only 50 ft.
- FAA permitting: any structure over 200 ft in height or within 10,000 ft from a runway must obtain FAA approval
- Wind monitoring is generally not needed
- Small turbines pose little threat to habitat or migratory patterns of birds and bats

The Planner's Role: Utility Wind

- Wind turbines are only similar to communication towers in height
- Utility sized turbines face siting considerations that residential turbines do not
- Consider met towers as part of your zoning language
- Zoning will still need be drafted for utility sized turbines that produce less than 5 MW. Ex: churches, schools, industrial facilities

The Planner and the OPSB

- Pre-emption does not leave the planner powerless
- OPSB invites comments at several stages during the project review process
- Inform your constituents or residents of public, OPSB meetings for projects being developed in your townships/counties

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Recommendations

- If you are unsure about the legality of including something in zoning language, contact your county prosecutor or commissioner

Resources for Planners

- The Ohio Wind Working Group: www.ohiowind.org
- The American Wind Energy Association: www.awea.org
- The Ohio Power Siting Board: www.opsb.ohio.gov
- Me: James.Damon@development.ohio.gov

Ohio Wind Working Group

www.ohiowind.org

- Wind energy collaborative
- Over 100 organizations and individuals involved
- Address priority wind issues:
  - Siting
  - Environmental
  - Outreach
- Quarterly meetings open to the public