



**CONSUMERS ENERGY  
WERZB RESPONSE ON ZONES**

**Presented to:**

**Wind Energy Resource Zone Board**

**February 2, 2009**

# Consumers Energy Wind Program Status

- Over 34,000 acres under easements
- Primary areas of Lake Michigan Shore and Thumb
- 9 operating met towers
- Development Activities On-going:
  - FAA Studies
  - Microwave Studies
  - Radar Studies
  - Wildlife Phase 1
  - Avian Phase 1
  - Wetlands Fatal Flaw
  - Installed Bat Monitoring Equipment
  - Mist netting for Bats – Spring & Summer 2009
  - Initial Discussions with Turbine & EPC vendors
  - Analyzing Transmission Interconnection Options

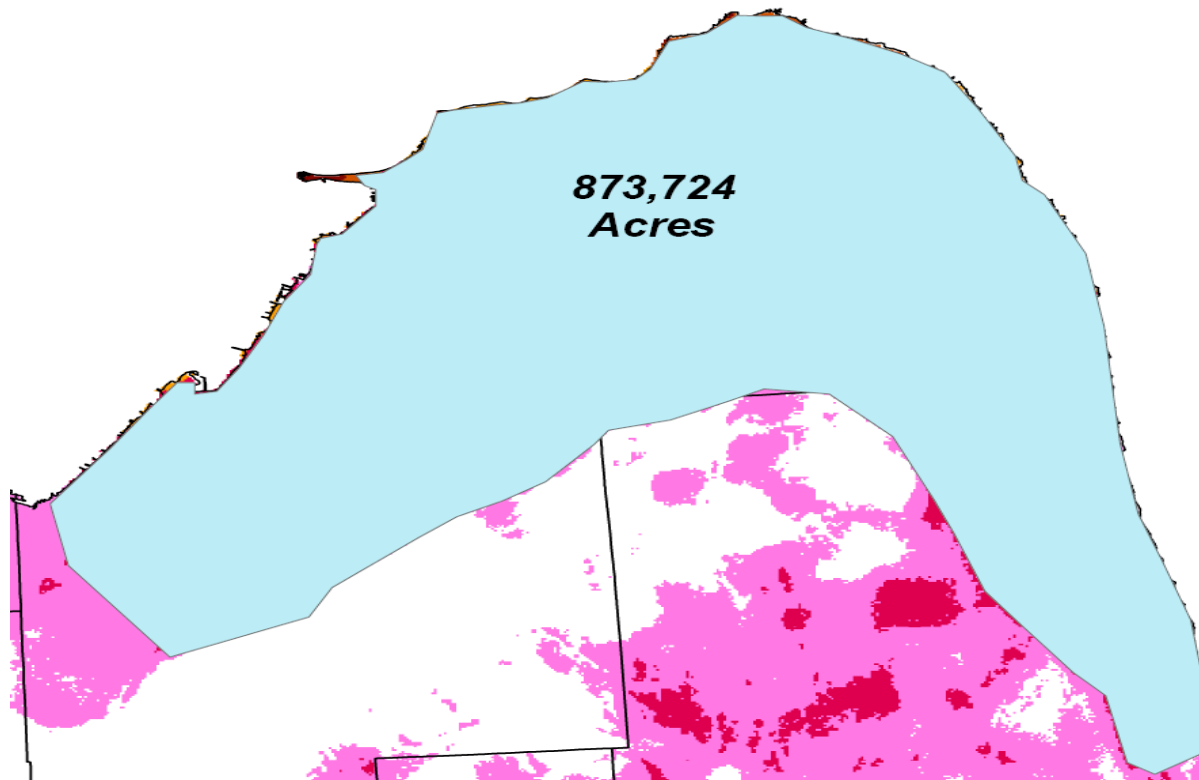


## Question #1 What Regions of Michigan have Highest Wind Potential?

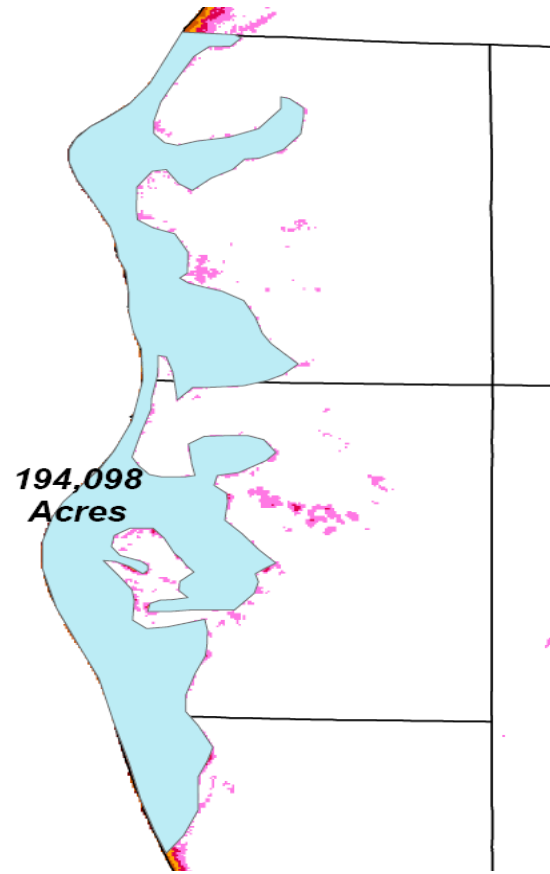
Lower Peninsula:

- Thumb  
(Tuscola, Huron, Sanilac)
- Lake Michigan Shore  
(Mason, Oceana, Muskegon)

# [ Thumb Region ]



# [ Lake Michigan Shore Region ]



# [ Land Offsets ]

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- **Transmission Lines 143 m**
- **Microwave Towers 50 m**
- **Water Features/Wetlands 100 ft**
- **Airports 5 miles**
- **Highways/Major Roads 195 m**
- **Railroads/ Minor Streets 130 m**
- **Slopes Exclude > 15%**
- **Heavy Forested Areas Exclude**
- **Cemeteries 130 m**
- **Houses/Buildings 350 m**
- **Military Reserves Excluded**
- **Populated Areas Excluded**
- **Federal & State Forests Exclusion**

# [ Effects of Offset on Acreage ]

- Thumb 25%
- Lake Michigan Shore 20%

## Question #2 What is Max & Min Capacity?

- Thumb

Minimum	500 MW
Maximum	3500 MW

- Lake Michigan Shore

Minimum	250 MW
Maximum	650 MW

Notes:

2 MW average turbine size

125 acres per turbine

## Question #3 What is Max & Min Energy?

### ■ Thumb

Minimum 1,314,000 Mwh

Maximum 9,198,000 Mwh

### ■ Lake Michigan Shore

Minimum 613,200 Mwh

Maximum 1,594,320 Mwh

Notes:

2 MW average turbine size

125 acres per turbine

30% CF Thumb, 28% CF Lake Michigan Shore

## Question #4 What are the Challenges?

- Transmission Constraints - Thumb
- Airport (FAA, State, County) – 10 mile  
Mason County Plan
- Zoning Ordinance Restrictions
- Environmental

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## **Question #5 How Can the Board & Developers Work Together?**

- Reduce Transmission Construction Time
- Consistency of Zoning Ordinance Restrictions
- Federal/State/Local Cooperative Effort to Resolve Wind Development Issues

[

# Q&A

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