Lessons Learned

“Those who fail to learn from the mistakes of their predecessors are destined to repeat them”

George Santanaya (Attrib.)
Background Materials

EUROPEAN EXPERIENCE

US OCEAN OFFSHORE REGULATIONS

STATE INITIATIVES

THE GREAT LAKES

POLICY OF THREE LEADING ENVIRONMENTAL ORGANIZATIONS

PUBLIC ENGAGEMENT

RECOMMENDED READING SHORT LIST

REFERENCES AND RESOURCES

Planning for Offshore Wind Developments in Michigan's Great Lakes

January, 2009

Prepared by Michael Klepinger, Mikinetics, LLC for Michigan Economic Development Corporation and the Office of Governor Jennifer Granholm
What’s Working? Where?

- Denmark
- United Kingdom
- MMS/USOWC
- Ontario
- Rhode Island
- New Jersey
- Ohio
- Maine
- Michigan

- One Stop Shop
- Guidance Notes
- Access System
- Sixty-four Sites
- Ten “area mgmt plans”
- RFP for 3,000mw
- Favorability Mapping
- Demonstration Plots
- Learning from all of the above
1. Identify criteria that can be used to review applications for offshore wind development.

2. Identify criteria for mapping areas that should be categorically excluded from offshore wind development as well as those areas that are most favorable to such development...

Which comes first – specifying application review criteria or identifying areas most suitable for development?
Offshore Wind Energy Development in the Great Lakes: Possibilities and Challenges for the State of Michigan

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Abstract

The State of Michigan possesses significant wind resources within its Great Lakes. A recent analysis of these resources by the National Renewable Energy Laboratory (NREL) shows that offshore wind development in Michigan would yield significant economic benefits and environmental advantages. The study predicts that offshore wind development in Michigan could provide up to 25% of the state's electricity needs, with significant impacts on reducing greenhouse gas emissions and promoting job creation.

ECOLOGICAL CONSIDERATIONS PERTAINING TO LAKE ECO SYSTEMS

Introduction

Michigan's Great Lakes Offshore Wind Permitting Dry Run Final Report

Michigan Great Lakes Offshore Wind Permitting Dry Run Final Report

This document details information from the Michigan Department of Natural Resources on the development of offshore wind farms in Michigan. It includes an analysis of the environmental impacts of offshore wind development, as well as a discussion of the regulatory framework governing such projects.

Michael Klingspor, Michigan Department of Natural Resources, submitted this report in partial fulfillment of a contract between the Michigan Economic Development Corporation (MEDC) and the Great Lakes Renewable Energy Association (GLREA). The report has not been subjected to a peer-review process, and its findings or recommendations have been endorsed by MEDC, GLREA, or the State of Michigan.
Michigan Bottomlands Atlas
Bottomland Development Suitability

Considered aspects
1) Bathymetry
2) Bottom preserves
3) Harbor
4) Ice thickness
5) Fish spawning sites
   (Lake Trout and Lake Sturgeon)
6) Shipping lanes
7) Shipwrecks
8) Wind power density at 50 m

Value
- State of Michigan
- Low potential for development
- High potential for development
Michigan DNR/GLERL Project
Future Direction

• Add sophistication to the tool
  • e.g., a weighting mechanism
• Better incorporate some data
  • e.g., Consent Decree, shipwrecks, ice coverage, trolling lanes
• Make tool more comprehensive
Ohio Staff Decisions on Weighting

• Ohio DNR mapping project 2009
  – Too narrow?
  – Too broad?
  – Just right?
Legend

Wind Turbine Placement Favorability

### Extensive Factors

Manually assigned cell values due to highly extensive factors:
- Grid cells intersected by Shipping Lanes or International/State Boundaries;
- Grid cells fully or partly contained within 1/2 mile proximity of Raptor Nests;
- Grid cells fully or partly contained within Military Exercise Area

Grid cell count: 1,205 (31%); Combined cell area: ≈ 763,970 acres

### Extensive Limiting Factors

Grid cell count: 135 (3%); Combined cell area: ≈ 85,590 acres

### Moderate-High Limiting Factors

Grid cell count: 391 (10%); Combined cell area: ≈ 247,894 acres

### Moderate Limiting Factors

Grid cell count: 630 (16%); Combined cell area: ≈ 399,420 acres

### Moderate-Low Limiting Factors

Grid cell count: 537 (14%); Combined cell area: ≈ 340,458 acres

### Minimum Limiting Factors

Grid cell count: 1,017 (26%); Combined cell area: ≈ 644,773 acres
Ohio Raptor Nest Criteria

- Nest within $\frac{1}{2}$ mile = 0
- Nest within 2 miles = 1
- Nest beyond 2 miles = 2

Higher weighted scores indicated higher favorability for wind development.
Ohio Sport Fishing Criteria

- 100,000 to 700,000 hours percid = 1
- 25,000 to 100,000 hours percid = 2
- 4,000 to 25,000 hours percid = 3
- 0 to 4,000 hours percid = 4

Higher weighted scores indicated higher favorability for wind development.
Ohio Weighting Criteria

- Shipping lanes, fairways, harbors
- Distance from shore
- Raptor nests
- Important bird areas
- Natural heritage observances
- Fish habitat and bathymetry

- Reefs and shoals
- Substrates
- Sand and gravel mining
- Military zones
- Confirmed shipwrecks
- Sport fishery effort
- Commercial fishery trap net lifts
Ohio Staff Decisions on Weighting

- Ohio DNR mapping project 2009
  - Too narrow?
  - Too broad?
  - Just right?
Recommendation to Council

- Compile a short list of constraints to offshore wind
  - help set boundaries for public discourse
- Work with GIS experts on weighting
  - use the Council’s list of constraints to create a graphic representation of three planning area types for offshore wind:
    red (worst), yellow (mid), green (best)
After Lunch - Grounding

• Presentations and Discussion
  – Risk assessment and decision-making
    Bonnie Ram
  – Identifying Ontario’s 64 sites
    Patrick Henn

• Next Steps… Council’s Work Plan