



Green Energy Ohio

North Coast Wind Assessment Project

Introduction

The overall objective of this project is to assess the feasibility of installing off-shore wind turbines in Lake Erie. The project will focus on three aspects. First, we will conduct a detailed meteorological study of the wind resource at one location on the lake; second, we will assess the civil engineering issues associated with constructing tower foundations in the lake; and third, we will engage the public and stakeholders in a discussion on the impact of a potential large scale development in the lake.



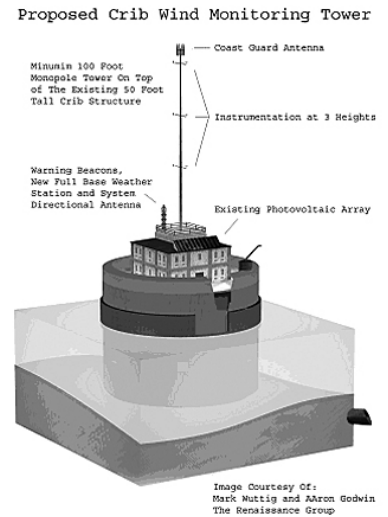
Why Lake Erie?

Anyone who has spent time along the shores of Lake Erie would readily understand the logic of considering Lake Erie as a wind resource. The winds are good, the lake is shallow, and there are on-shore transmission lines along the lake shore. According to NREL's new Wind Resource Maps, winds over Lake Erie fall in Power Density Class range of 4-6, considered good-to-excellent by current standards. Winds over the rest of the state fall in the range of Class 1-3, currently considered marginally acceptable. The significance of operating a turbine in Class 5 winds compared to Class 2 winds can be illustrated by using Ohio's first utility scale wind farm in Bowling Green as a baseline.

Bowling Green has been a great success story for Ohio wind development. The facility has been operating at or above capacity estimates for the past year in a Class 2 wind environment. Taking one of Bowling Green's 1.8 MW turbines and putting it in the Class 5 wind environment in Lake Erie, you more than double its power output. Each turbine sited in Lake Erie's Class 5 wind zone is equivalent to 2-3 turbines located at most other locations around the state.

Project Details

Technical: Using an existing structure located 3.5 miles off shore as the base for a meteorological tower, GEO will be able to collect actual wind data at heights of 30, 40, and 50 meters above the lake. The tower will be equipped with approximately 20 meteorological sensors connected to a precision data logger. Raw data will be collected at 1 second intervals and then processed into 1 and 10 min. average data. Data collection will cover a period of 18 months at a minimum, with the possibility of extending the period to 5 or 10 years.



Public Outreach: A specific component of this project will be to conduct public dialog sessions to engage with the public as well as local special interest groups on the social and economic issues associated with siting wind turbines on the lake. Market research to assess community attitudes, organizing workshops to convene major stakeholders, public hearings, and a series of policy papers are all being evaluated as elements of an effective outreach strategy. A distance learning program covering elementary to college level curricula is being evaluated. Possibilities include interactive kiosks at appropriate locations around the city, interactive web pages on GEO and Project Partner web sites, cross-links to relevant sites, and live camera feeds.

Project by the Numbers

- **Location:** 3.5 miles offshore
- **Duration:** 18 months
- **Measurement heights:** 30, 40, 50m above water
- **Instrumentation:** (6) anemometers
(4) vanes
(1) temp transducer
- **Measurement interval:** 1 sec, with 1 & 10 min avg.
- **Data collection:** continuous update

Project Partners

GEO is receiving funding support on this project from the Cleveland Foundation, the George Gund Foundation, and the Steffee Foundation. Our principle project partner is the City of Cleveland, and we are receiving collaborative support from NOAA, NASA, the US Coast Guard, AWS Truewind, and Windlogics. If you are interested in participating as a funding sponsor, or partnering with us in some other capacity, please contact Aaron Godwin, GEO Board Member and Project Coordinator: godwin@glsc.org, 216-696-2760