

The Delaware Offshore Wind Park:

Project Overview



The Bluewater Wind Team

- Bluewater Wind is an offshore wind park developer with offices in DE, MD, NJ, NY, and RI.
- Bluewater is supported by Babcock & Brown, the 4th largest wind energy developer in the world, 4th largest in US, which recently purchased a controlling interest in the company.
- B&B currently operates 20 wind parks across 9 states totaling over 1,500 MW.

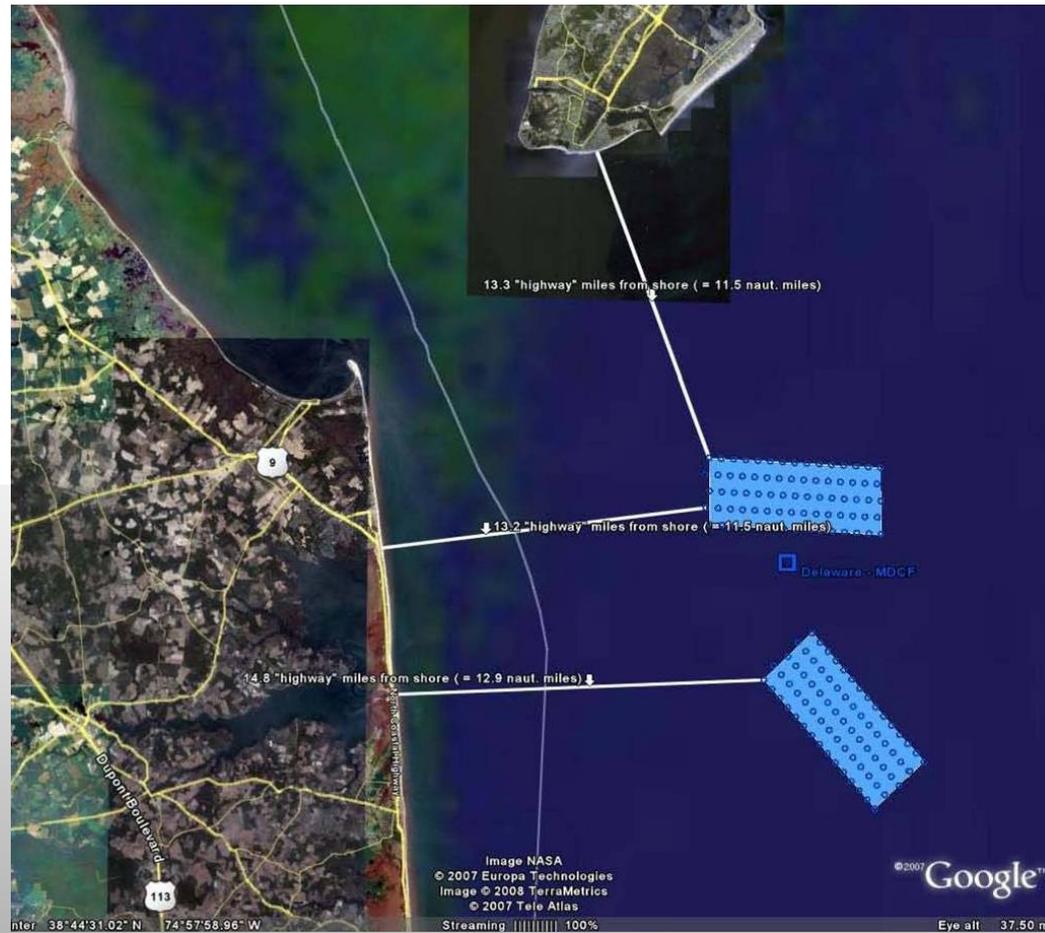
Current project status

- ✓ July 8th MMS Issued Draft Rules and EA
 - ✓ July 16th MD Governor O'Malley announced his state's interest in procuring energy from the Delaware project
 - ✓ July 31st The PSC, DNREC, Controller General and OMB voted in favor of the power purchase agreement negotiated between Bluewater Wind and Delmarva Power
- Bluewater Wind will now begin working with state and federal agencies on the permitting process, and identify offtakers to purchase energy and RECs

Delaware Project

- **Project Size:** 230 - 450 MW (up to 150 turbines)
- **Closest turbine:** about 13 highway miles east of Rehoboth
- **Transmission cable:** connected to the Indian River substation via the Bethany substation
- **Offshore Construction Start Date:** Expected 2012
- **Completion Date:** Expected 2012 - 2013 (depends on project size)

Location of Delaware Project



Wind Park Development

- Pre-construction
 - Avian Radar Studies
 - Geophysical Investigations
 - Geotechnical Investigations
 - Wind & Wave Sensor Deployment
 - Met Tower Installation
 - Development of Staging Port
- Construction
 - Sub-sea Electrical Cable Installation
 - Foundation Installation
 - Offshore Substation Installation
 - Onshore Cable Installation
 - Turbine Installation
- Post-Construction
 - O&M Activities
 - Decommissioning

Optimal Wind Park Approval Schedule

- Pre-Application Agency Coordination 1/08 - 6/09
- Avian Surveys 1/08 - 11/09
- Other Environmental Surveys 3/08 - 11/09
- MMS application Prep and Filing 5/08 - 11/09
- MMS NEPA Review Process 12/09 - 3/11
- MMS OCS ROD and Lease 4/11 - 6/11
- DNREC CZM Consistency Determination 10/09 - 4/11
- Other Federal Approvals 12/09-11/10
- Other State, County, and Local Approvals 1/10 - 5/11
- Notice to Proceed to Construction 5/11
- Begin Construction 6/11

Economic impact during construction

- Min. \$800 million investment
- Up to 500 local union jobs during construction, \$90 - \$180 million in direct wages
- Up to 780 indirect jobs
- \$238 million in GDP for Delaware (2 yr. const.)
- \$38.5 million in transmission line upgrades
- \$7.2 million direct economic impact for the Port of Wilmington



Economic impact during operation & maintenance

- Up to 80 direct union O&M jobs, and 200 indirect jobs for 25 years, \$12.3 million in wages and salaries each year (direct and indirect jobs)
- \$1.5 million in state and local taxes paid each year by employees (direct and indirect)

Other economic development benefits

- Bluewater has committed to a \$150K grant to DelTech for training wind turbine technicians
- Enhanced tourism with new sightseeing, recreational fishing and sport diving opportunities
- Offshore wind parks in Europe have resulted in a net increase in tourism and those with visitor centers have become tourist attractions
- Enhanced ability to recruit renewable energy companies

Pre-Construction Phase

Permitting studies

- Avian studies
- Marine biological studies (mammals, finfish, turtles, shellfish)
- Benthic and fisheries habitat assessment
- Water quality studies
- Cultural surveys
- Navigation and FAA studies
- Wetlands and other terrestrial systems

Geotechnical Investigations

- Drilling Boreholes from stationary platform

Anticipated:

- Preliminary: 6 drill locations - Summer 2009
- Detailed: drill @ turbine locations - 2010

- Vibracoring along cable route

Stationary or floating platform



Geophysical Investigations

Towed Sonar Array

- Bathymetric and sub-bottom profile at turbine locations
Anticipated: Summer 2009
- Sub-bottom profile along export cable route
Anticipated: Summer 2009



Image source: www.alpineocean.com

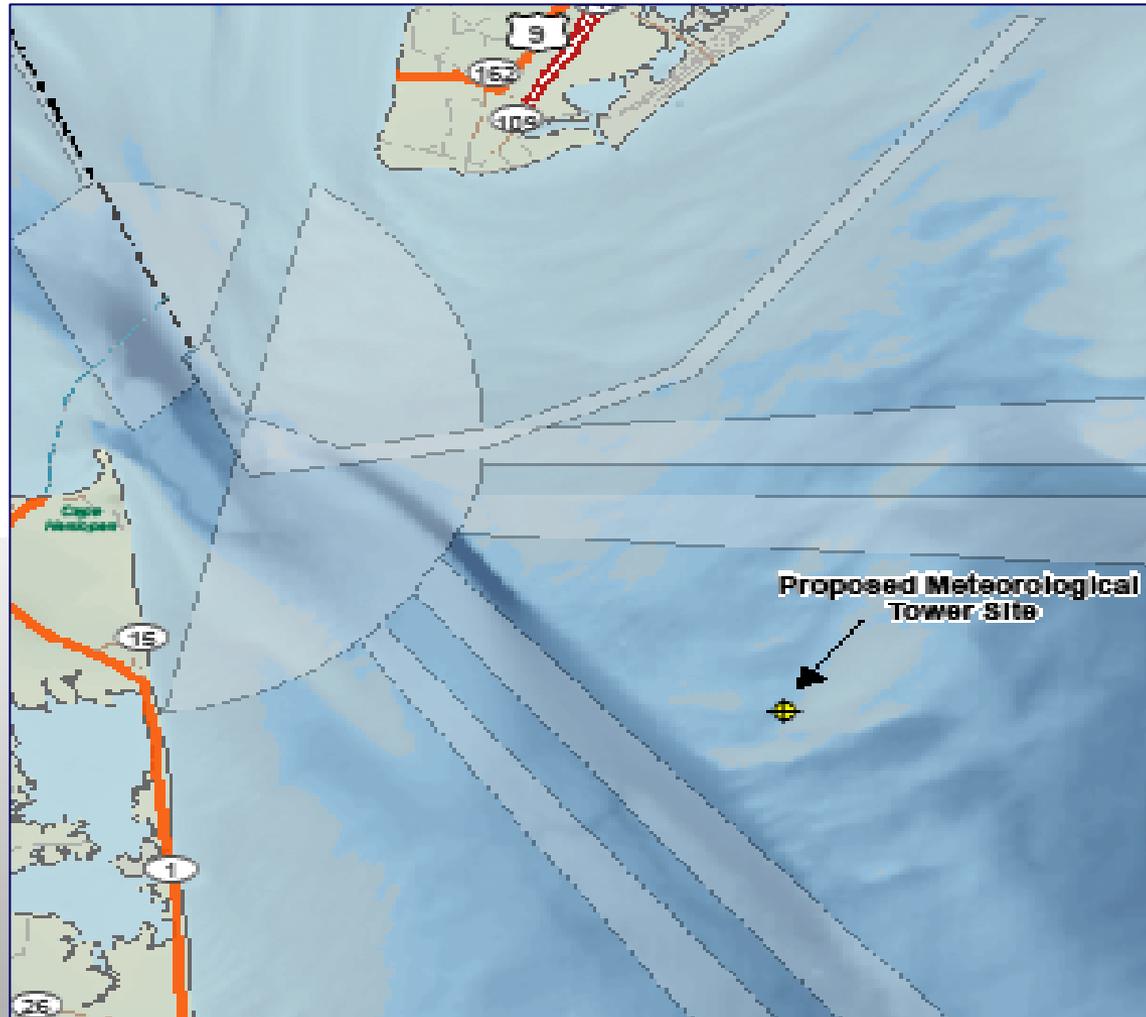


Image source: www.alpineocean.com



Image source: <http://oceanexplorer.noaa.gov>

Met Tower Installation



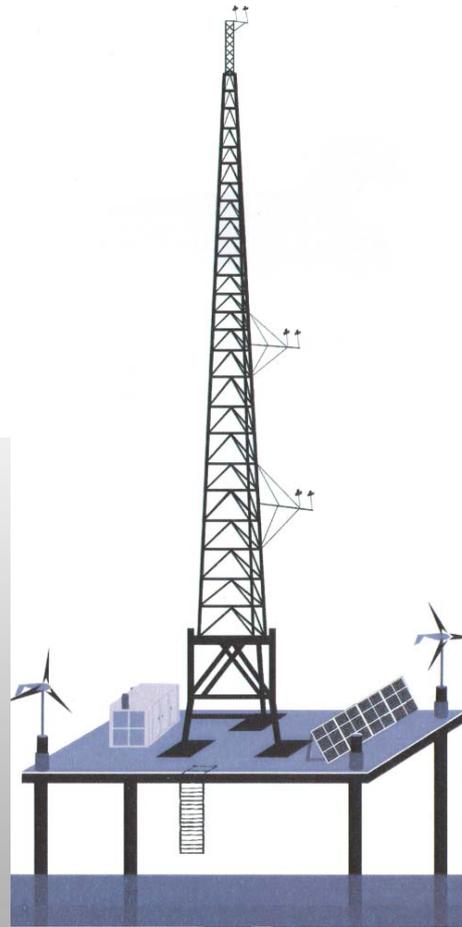
Met Tower Installed on Fixed Foundation

(Various Examples)



Met Tower Installed on Jack-up Barge

(conceptual sketch)



Port Staging Area

A 25 - 30 acre site located in the Coastal Zone to be used as a laydown area for towers, nacelles, foundations, and blades



Construction Phase

Typical Monopile Installation



Example of Installation Vessel



Example Cable Laying Vessel

Working at Windfarm



Image source: www.hornsrev.dk

Offshore Transformer Installation



Post-Construction Phase

Operation & Maintenance Port

- Two scenarios under consideration
 - an operations building with 4 - 5 boat slips
 - boat slips at one location and an operations facility at another
- Operations facility would be comprised of offices and an adjacent small parts/tools storage building
- 24 x 7 operation
- Training facility for workers and visitors center

Example of an O&M Vessel

Accessing a Wind Turbine



Decommissioning the wind park

- At the end of project life, turbines will be removed
- Decommissioning process is roughly the reverse of the construction process and has similar heavy equipment needs
- Guidance will be provided in the final MMS Rule, a draft of which was released last month. 60-day comment period ends in September.
- Bluewater Wind will comply with all aspects of the MMS Rule concerning decommissioning, including financial requirements and bonding to ensure proper decommissioning

Thank You

