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Ohio Power Siting Board

Permit Application for #16-1871-EL-BGN: Icebreaker Wind Facility, Lake Erie

Public Comments

Please find a two page summary labeled "Visual Resources Analysis - Offshore Wind Turbine Visibility and Visual Impact Threshold Distances: by Robert Sullivan and others of the Argonne National Laboratory. See [HTTP://VISUALIMPACT.ANL.GOV/OFFHOREVITD/](http://VISUALIMPACT.ANL.GOV/OFFHOREVITD/)

This study was conducted in 2011 on smaller industrial wind turbines than the ones proposed in the Icebreaker project. They wrote that the "Visual impact to seascapes associated with offshore wind facilities are without precedent." "Past assessments of offshore wind turbine visibility were based on smaller turbines and facilities in use at the time: thus, the studies may underestimate visibility for current projects, which use greater numbers of larger turbines."

Further, the study indicated that: "Field observations of offshore wind facilities in the United Kingdom revealed that the facilities may be visible at distances of 26 mi (42 km) in the daytime and 24 mi (39 km) in nighttime views, and may be a major focus of attention at distances of up to 10 mi (16 km)." "...were noticeable to casual observers at distances of almost 18 mi (29 km); and were visible with extended or concentrated viewing at distances beyond 25 mi (40 km)."

Also please find a photo of a British wind project called North Sea Wind Project that was posted on www.windaction.org The turbines are the next generation currently being deployed and will undoubtedly be the ones proposed in the buildup of thousands of industrial wind turbines in Lake Erie IF the OPSB approves the Icebreaker wind facility permit. Visual beauty is important for tourism and to Lake Erie region people who want unobstructed views of Lake Erie.

Thank You

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Visual Resource Analysis

at Argonne National Laboratory

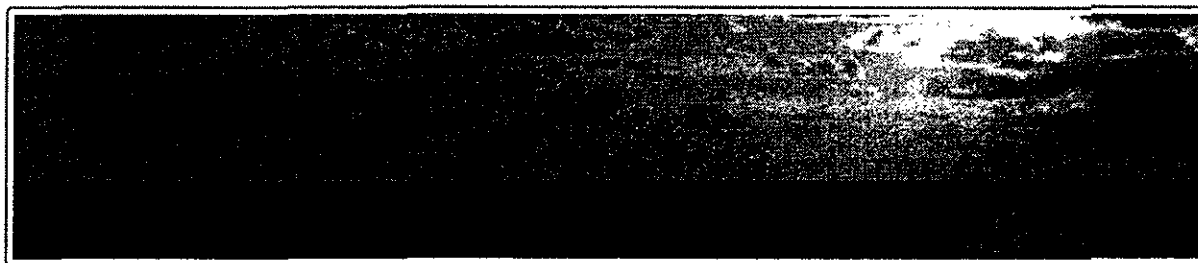
Advancing informed visual impact analysis and mitigation

Home

Offshore Wind Turbine Visibility and Visual Impact Threshold Distances

Field observations of offshore wind facilities in the United Kingdom revealed that the facilities may be visible at distances of 26 mi (42 km) in daytime and 24 mi (39 km) in nighttime views, and may be a major focus of visual attention at distances of up to 10 mi (16 km).

- [Online Database](#)
- [Google Earth KMZ](#) (KMZ, 41KB)
- [Publication](#) (PDF, 905KB)



Thanet Offshore Wind Facility, Kent, U.K.

The potential visual impacts that development of offshore wind facilities may have on coastal lands has emerged as a major concern in the United States and Europe. The visual impacts to seascapes associated with offshore wind facilities are without precedent; the facilities are very large, with structures of enormous height having colors and a geometry that contrast strongly with natural seascapes. The synchronized sweeping movement of the massive blades during the day and the synchronized flashing of the lighting at night contribute to the facilities' visibility over very long distances.

As additional projects are proposed, visual impacts will certainly be a key issue in determining the ultimate success of offshore wind projects in the United States, as the need to protect local interests and landscape quality is balanced with the need to respond to changing energy policies that promote renewable energy development.

Optimal siting of offshore facilities requires accurate knowledge of the relationship between the distance of turbines from coastal viewpoints and their visibility. Past assessments of offshore wind turbine visibility were based on the smaller turbines and facilities in use at the time; thus, the studies may underestimate visibility for current projects, which use greater numbers of larger turbines. Although the effect of distance on the visibility of offshore wind turbines from onshore locations in both daytime and nighttime settings is poorly understood, it is a key factor in determining potential impacts to onshore locations from offshore wind facilities. As there are no offshore commercial wind facilities in operation in the United States, field observations must be conducted in other countries.

Study Summary

As part of a [larger study](#) sponsored by the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM), Argonne National Laboratory's Environmental Science Division (EVS) and the University of Arkansas Center for Advanced Spatial Technology (CAST) conducted a preliminary assessment of the visibility of offshore wind facilities in the United Kingdom. Study objectives included identifying the maximum distances at which the facilities could be seen in both daytime and nighttime views and assessing the effect of distance on the visual contrasts associated with the facilities. Observations were made by either two or three observers, including staff from EVS, CAST, and BOEM. Facility visibility was rated on a numeric scale and keyed to text descriptions of apparent contrast levels.

The observed facilities were located in the Irish Sea near Liverpool, the North Sea near Skegness, and in or near the Thames Estuary. The facilities ranged in size from 25 to 140 turbines and were located within 3.4 to 32.3 mi (5.5 to 52 km) of the viewpoints. Elevations for the viewpoints varied from near sea level to 840 ft (256 m).

Study Results

A total of 49 daytime observations of 11 offshore wind facilities were made from 29 onshore locations, and 6 additional observations were made at night.

Results showed that under favorable viewing conditions, small to moderately sized facilities were visible to the unaided eye at distances greater than 26 mi (42 km), with turbine blade movement visible up to 24 mi (39 km). At night, aerial hazard navigation lighting was visible at distances greater than 24

mi (39 km). The observed wind facilities were judged to be a major focus of visual attention at distances up to 10 mi (16 km); were noticeable to casual observers at distances of almost 18 mi (29 km); and were visible with extended or concentrated viewing at distances beyond 25 mi (40 km).

The preliminary assessment fieldwork was conducted in 2011. Study photographs and associated data are available through an [online database](#) and a [Google Earth KMZ file](#) (KMZ, 41KB). Interim and final study results will be incorporated into project reports and a [publication](#) (PDF, 905 KB).

Please note: Information provided on this webpage does not signify that the contents necessarily reflect the view and policies of the BOEM, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

For More Information

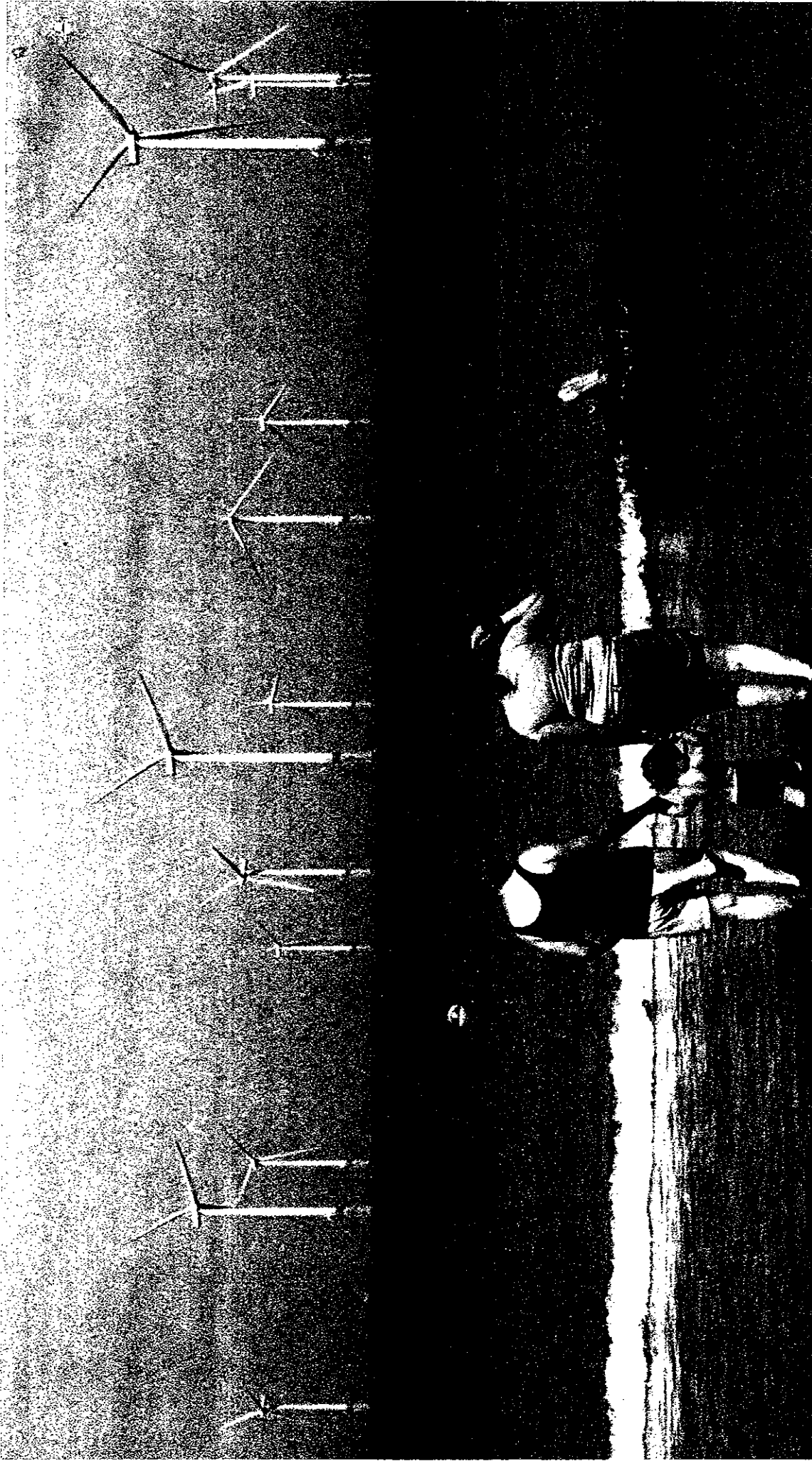
To learn more about EVS visual resource analysis projects, contact:



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PHOTOGRAPH BY JEFFREY M. HARRIS

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