

ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Atlantic

Planning Area(s): North Atlantic, Mid-Atlantic, and South Atlantic

Title: Evaluation of Lighting Schemes for Offshore Wind Facilities and Impacts to Local Environments (AT-11-05)

BOEM Cost: \$219,512

Period of Performance: FY 2012-2014

Conducting Organization(s): ESS Group, Inc. (M12PD00007)

BOEM Contact: [Dr. David Bigger](#)

Description:

Background: The selection of lighting for offshore wind facilities will require the balancing of several requirements. The lighting will need to meet Federal Aviation Administration and U.S. Coast Guard requirements while minimizing impacts to onshore development and effects on sea turtles, fish, and other marine species that may be attracted to lights. Various lighting schemes for onshore wind facilities and communication towers have been evaluated for their interaction with birds, as well as impacts to nearby housing developments or historic properties. The impacts depend on the intensity of the light, the color, how the light is directed, and the rate of blinking. The best lighting scheme for offshore facilities may vary from site-to-site due to the configuration and size of the wind towers and for their potential to interfere with established flight patterns, location of shipping lanes, and the type of shipping vessels. Due to height of the towers, these lights may also be visible from shore and impact coastal communities and historic properties.

Objectives: Identify potential lighting schemes for wind facilities on the OCS and the potential impacts of each scheme.

Methods: The objectives of this study will be met through completion of the following tasks: 1) a thorough literature review of scientific studies on the potential direct and indirect impacts of various lighting schemes to coastal and marine wildlife (i.e., birds, bats, marine mammals, sea turtles, and fish); 2) a compilation of domestic and international guidelines, rules, and regulations for marine navigation and aviation obstruction lighting of offshore wind facilities; and 3) an account of lighting schemes used in operating offshore wind facilities including a diagram of the facility and its lighting scheme; and 4) the identification of mitigation measures including any monitoring that was established to evaluate effectiveness of the mitigation measures at existing facilities.

Importance to BOEM: The lighting of offshore wind facilities will determine the level of impact to the surroundings as well as provide for the safety of other users of the area.

Current Status: Awarded May 17, 2012. Post Award Meeting June 4, 2012.

Final Report Due: July 2013

Publications: None

Affiliated Web Sites: None

Revised Date: May 31, 2012

ESPIS: Environmental Studies Program Information System

All *completed* ESP studies can be found here:

http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp