

BOEMRE ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: Pacific OCS Region

Planning Area: Oregon-Washington, Northern and Southern California

Title: Renewable Energy Visual Evaluations

BOEMRE Information Need(s) to be Addressed: The final product will be incorporated into BOEMRE environmental reviews of proposed offshore renewable energy facilities under the National Environmental Policy Act and the National Historic Preservation Act.

Total BOEMRE Cost: \$497,768 **Period of Performance:** FY 2010-2012

Conducting Organizations: Center for Advanced Spatial Technologies, University of Arkansas; Argonne National Laboratories;

Principal Investigators: Jackson Cothren, University of Arkansas
Bob Sullivan, Argonne National Laboratories

BOEMRE Contact: [Dave Ball](#)

Description:

Background: With the support of the National Oceanographic Partnership Program, this study project (Topic 6) was solicited through a competitive joint funding process known as a Broad Agency Announcement. This innovative partnership between Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), the Department of Energy (DOE), and the National Oceanic and Atmospheric Administration created a common research portfolio that meets key management needs. This significantly magnifies the impact of all three agencies' research funding by eliminating redundancies, supporting complementary work, and sharing the results of research findings.

The BOEMRE, an agency of the U.S. Department of the Interior, is charged with the responsibility of considering the effects of its actions on significant cultural resources. This program arose out of a variety of legislation enacted to ensure proper management and protection of the nation's cultural heritage. The most pertinent of these laws are the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and the Outer Continental Shelf Lands Act (OCSLA).

Under the Energy Policy Act of 2005, BOEMRE is responsible for permitting renewable energy activities on the Outer Continental Shelf (OCS). There are a number of different renewable energy projects and offshore technologies that can capture energy from wind, wave, tidal flow, and/or ocean current. One of the concerns with the development of these facilities is the visual impacts these installations will have on-shore, both from the structures and the lighting, on archaeological resources and historic properties listed on,

or potentially eligible for listing on, the National Register of Historic Places. These properties include historic structures, historic archaeological sites, prehistoric archaeological sites, and traditional cultural properties. Our coastlines are lined with many historic properties that potentially could be impacted visually. The determination of whether a property may be adversely impacted is a requirement of Section 106 of the NHPA.

Objectives: The objective of the study is to develop a GIS-based computer tool designed expressly to support the assessment of potential visual impacts associated with offshore renewable energy technologies, including wave, wind, tidal flow, and ocean current facilities.

Methods: The proposed offshore renewable energy facility visual impact evaluation system will consist of a landscape visualization system controlled by and integrated with a Toolbox for ArcGIS Desktop. The project will include a literature review, technology and needs assessments, and development of a computer-based system that incorporates 3D computer models of energy facilities, among other parameters, to identify potential visual impacts from construction of offshore facilities. The project is broken into 7 discrete tasks and numerous sub-tasks.

Current Status: The contract was awarded on October 1, 2010 and the post award kick off meeting has been completed. The technical assessment and needs assessment are currently underway.

Final Report Due: The fully integrated GIS visualization system is due March 2012.

Publications: None at this time.

Affiliated Websites: None at this time.

Revised date: March 4, 2011