

November 2009



Welcome

Minerals Management Service

Workshop on the
OCS Renewable Energy
Regulatory Framework: Anchorage, AK



Image Courtesy of GE

Energy Policy Act 2005

Gave the Secretary of the Interior the authority to regulate a broad spectrum of activities on the OCS:

- Production, transportation, or transmission of energy from sources other than oil and gas – “***Renewable Energy***”
- Use of currently or previously OCSLA-authorized facilities for energy-related purposes or for other authorized marine-related purposes – “***Alternate Use***”

Examples of Renewable Energy



Wind Energy

Wave Energy

Ocean Current Energy



Solar Energy

Hydrogen





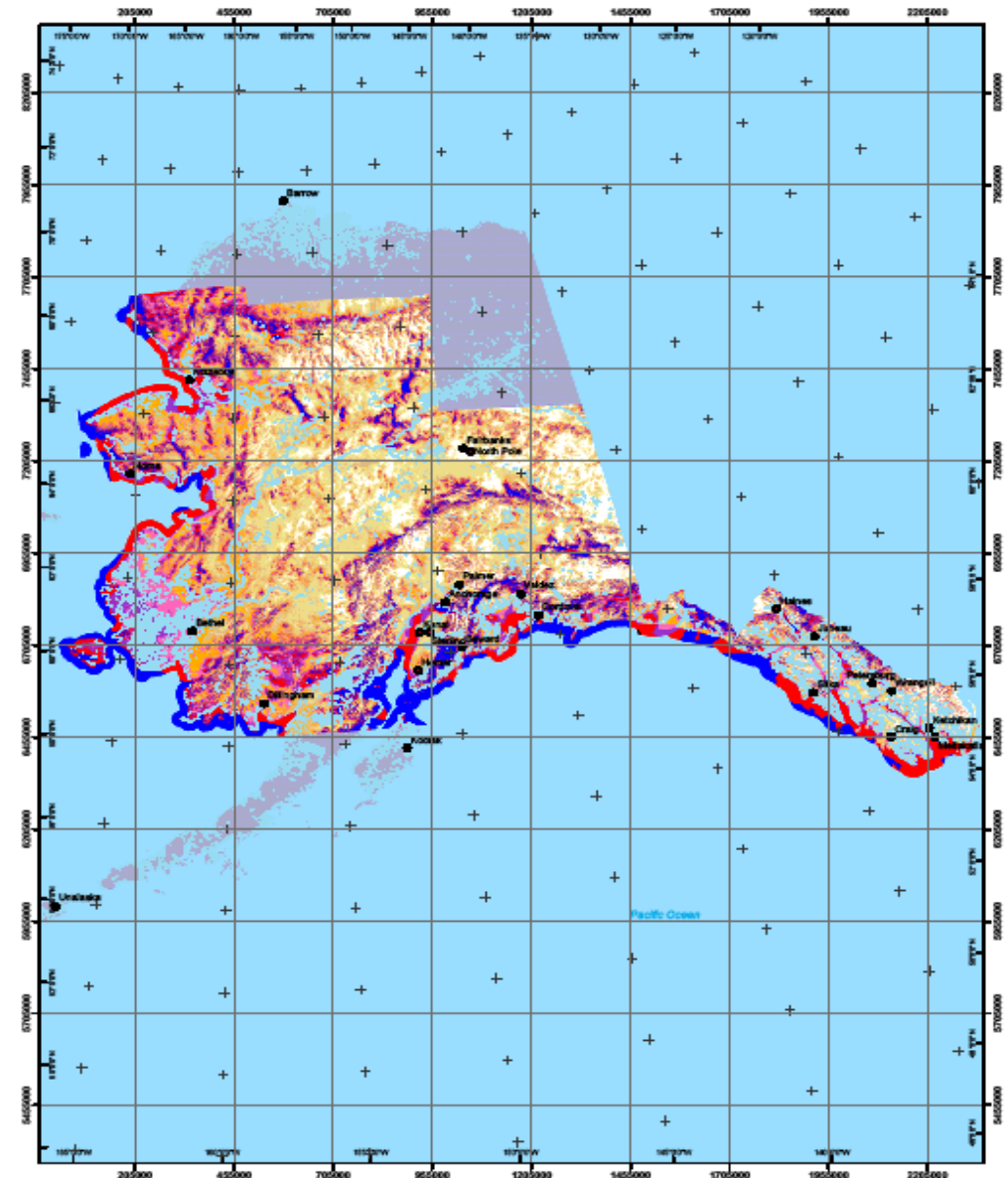








Wind Resource of Alaska

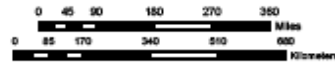


Key to Features

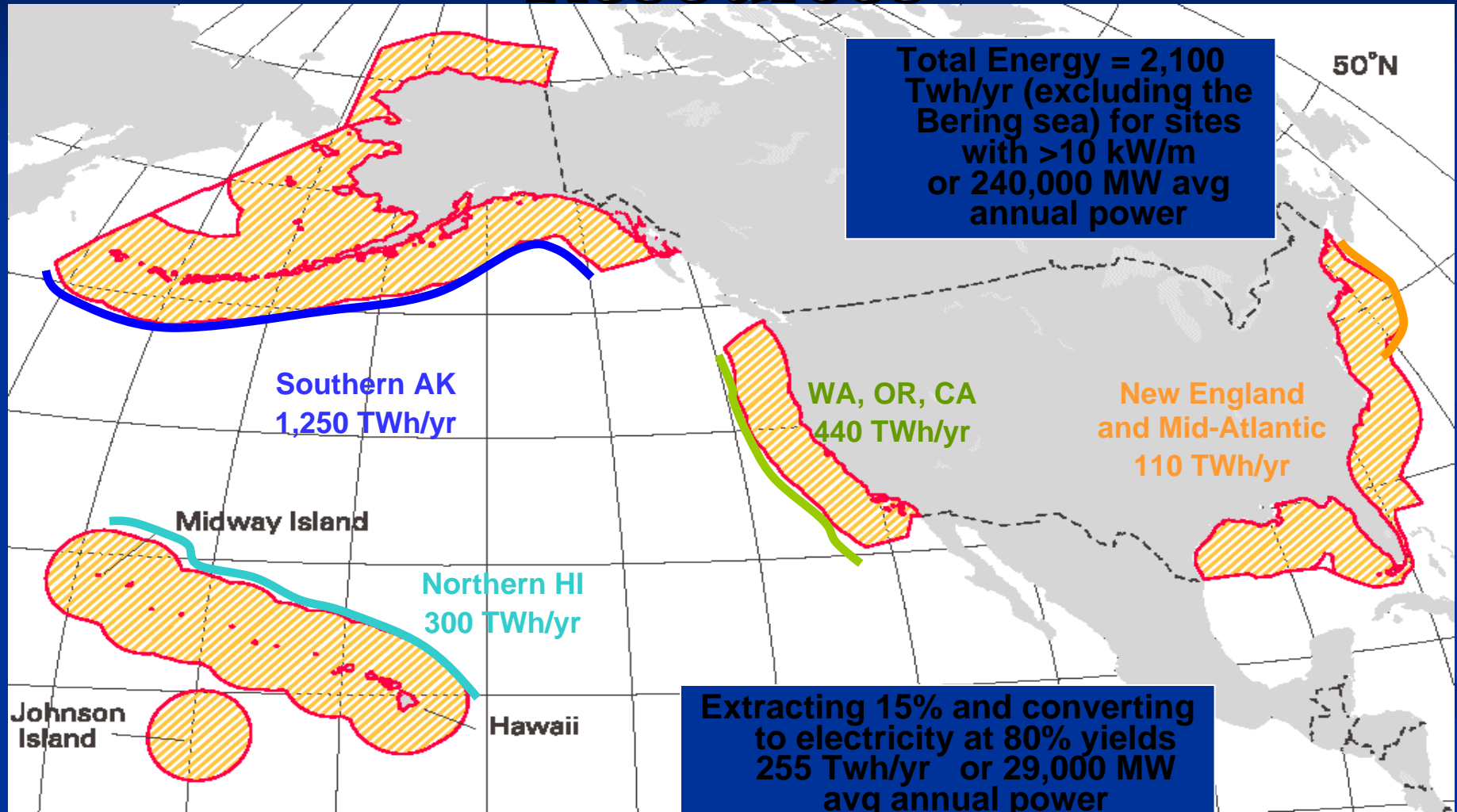
- City
- Road
- Railroad
- River / Stream
- Federal Land
- State / Local Park
- Borough / Census Boundary
- Urban Area
- Waterbody
- State Background
- Canadian Province

Power Density at 50 m	2 200 - 300	6 600 - 800
AREL Class	White	7 > 800
1- < 100	3 300 - 400	
1+ 100 - 200	4 400 - 500	
	5 500 - 600	

Projection: UTM, Zone 48, WGS84
 Spatial Resolution of Wind Resource Data: 200m
 This map was created by TrueWind Solutions using the MapMap system and historical weather data. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement.

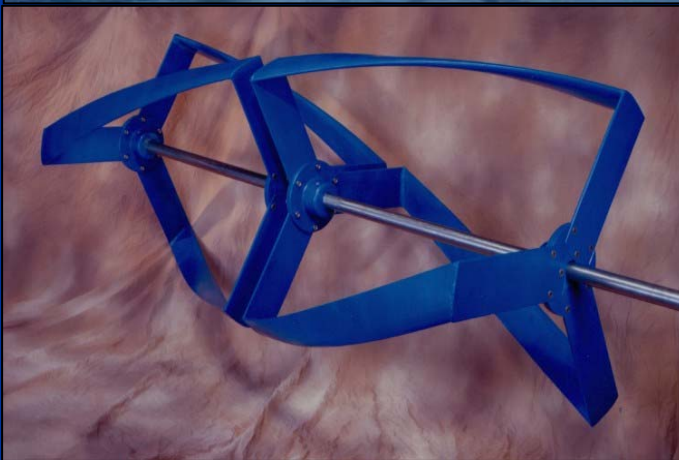


U.S. Offshore Wave Energy Resources



Source: EPRI

Key Mandates for Regulations



- Safety
- Protection of the environment
- Coordination with affected State, local, and tribal governments and Federal agencies
- Fair return for use of OCS lands
- Equitable sharing of revenue with States

Program Considerations

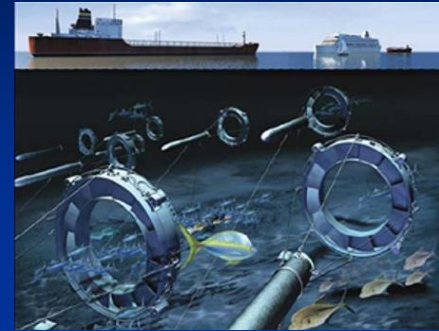
Regulating an **emerging** offshore industry

- Pioneering and **entrepreneurial**
- Relatively **under-capitalized**
- Deploying **prototype technology** with uncertain environmental and engineering implications



Major Elements of the Regulatory Framework

- Coordination
 - State/Federal Task Forces
- Leasing Process and Issuance
 - Competitive & Noncompetitive Leasing
 - Commercial & Limited Leases
- Plans
 - Site Assessment
 - Construction & Operations
 - General Activities
- Conduct of Approved Plan Activities
 - Environmental & Safety Monitoring
 - Inspections
- Payments
 - Bonding & Payments
- Decommissioning



Subpart by Subpart Summary

- A – General provisions, including authorities, purposes, responsibilities, qualifications, and definitions
- B – Leases
- C – Rights-of Way and Rights-of-Use and Easement Grants
- D – Administrative provisions, including designations, assignments, suspensions, etc
- E – Payments and Financial Assurance

Subpart by Subpart Summary

F – Plans and information requirements, including SAPs, COPs, and GAPs

G – Facility Design, Fabrication, and Installations

H – Environmental and Safety Management, including inspections for SAP, COP, and GAP activities

I – Decommissioning

J – Alternate use of existing OCS facilities

MAJOR CHANGES FROM THE PROPOSED RULE

FERC – revisions throughout the rule to reflect FERC responsibilities for licensing hydrokinetic energy activities on the OCS

Alternate Use – added an explicit statement that MMS will not consider applications for aquaculture

MMS/FERC Regulation of Hydrokinetic Energy Projects on the OCS

- Secretary Salazar & Chairman Wellinghoff signed MOU in **April 2009**
- **MMS and FERC** published guidance on regulation of hydrokinetic energy projects on the OCS in **July 2009**
- Applicant must first obtain **lease** from **MMS** before applying for **license** from **FERC**
- Shared goal is to create an **efficient** review process for **OCS hydrokinetic** projects

MOU Between U.S. Department of the Interior and Federal Energy Regulatory Commission

■ MMS:

- exclusive jurisdiction for OCS non-hydrokinetic projects (wind, solar)
- Exclusive jurisdiction to issue leases, easements, and rights-of-way regarding OCS lands for hydrokinetic

■ FERC:

- Exclusive jurisdiction to issue licenses and exemptions for hydrokinetic projects on the OCS

Interest on the East Coast: Mainly Wind, some Ocean Current

Delaware

Florida

Maine

Massachusetts

Maryland

New Jersey

New York

North Carolina

Rhode Island

South Carolina

Virginia

Interest on the West Coast: Wave and Wind

State	MMS Activity
Washington	WCGA Renewable Energy Action Coordination Team
Oregon	WCGA Renewable Energy Action Coordination Team
California	WCGA Renewable Energy Action Coordination Team

Interest in Hawaii

State	MMS Activity
Hawaii	Interisland Cable Project: OCS Right-of-way

TAR Renewable Energy Research Web Page

Virginia Lease Sale 220
Moratoria
2006 Resources
2006 Resource Maps
Past 5-Year Programs
Atlantic Seismic EIS
CIAP
Jobs
Public Comment System
Industry SAFE Awards
GOMESA Rev. Sharing
Projects by Category
TA&R Home
TA&R International
Oil Spill Research
Ren Eng Research
Wave Test Tank
Safety & Engineering
Projects by Number
TA&R Workshops
Need a Report?
Research Proposals

Content:
[Lori D'Angelo](#)

Pagemasters:
[OEMM Web Team](#)



Technology Assessment & Research (TA&R) Project Categories

Renewable Energy Research (RENr)

The Energy Policy Act (EPAcT) of 2005 amended the Outer Continental Shelf Lands Act (OCS Lands Act). Under this authority, the Secretary of Interior maintains discretionary authority to issue leases, easements, or ROWs on the OCS for activities that produce or support production, transportation, or transmission of energy from sources other than oil and gas; or use, for energy-related or other authorized marine-related purposes, facilities currently or previously used for activities authorized under the OCS Lands Act. The EPAcT also included a requirement that any activity permitted under this authority be carried out in a manner that provides for safety of operations and protection of the environment.

These new activities present many challenges because many of the systems are still in the prototype-testing phases. Existing regulations and standards will be evaluated for applicability to this new technology but in some cases, new regulations and standards may be required. Safety risk assessments will need to be conducted. Operational monitoring/inspection systems will need to be established. Loading factors, factors of safety, fatigue drivers, failure consequences, and geo-technical issues will all have to be identified and evaluated. Within funding constraints, these issues will be prioritized for research projects based on the most immediate needs.



The MMS is also [developing the capability to test wave and current energy conversion devices at the Ohmsett](#) (1.17 MB PDF) wave and tow tank. Located in Leonardo NJ, this tank is one of the largest saltwater tanks in North America and is designed to evaluate the performance of meso-scale sized equipment under realistic but safe environmental conditions. It is able to generate up to one meter waves, and tow speeds up to 6.5 knots. The tank can be utilized for private research as well as those activities sponsored by MMS.

TAR Renewable Energy Research Projects Available on Web Page

REnR Reports

<u>618</u>	Comparative Study of Offshore Wind Turbine Generators (OWTG) Standards
<u>627</u>	Assess/Develop Inspection Methodologies for Offshore Wind Turbine Facilities
<u>628</u>	Assess the Design/Inspection Criteria/Standards for Wave and/or Current Energy Generating Devices
<u>629</u>	Assess the Design and Inspection Criteria and Standards for Wave and Current Energy Generating Devices
<u>633</u>	Wind Farm/Turbine Accidents and the Applicability to Risks to Personnel and Property on the OCS, and Design Standards to Ensure Structural Safety/Reliability/Survivability of Offshore Wind Farms on the OCS
<u>634</u>	Mitigation of Underwater Pile Driving Noise During Offshore Construction
<u>636</u>	Characteristics, Behavior and Response Effectiveness of Spilled Dielectric Insulating Oil in the Marine Environment

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of the
Interior

Offshore Energy & Minerals Management

[TA&R Home](#)[International](#)[Oil Spill](#)[Projects](#)[Workshops](#)[Safety](#)

Project Number	627
Date of Summary	February 12, 2009
Subject	Assess/Develop Inspection Methodologies for Offshore Wind Turbine Facilities
Performing Activity	Energo Engineering, Inc.
Principal Investigator	Frank Puskar
Contracting Agency	Minerals Management Service
Estimated Completion	Completed February 10, 2009
Description	The project developed preliminary guideline Integrity Management (IM) procedures for offshore wind turbine facilities appropriate for use in US waters. These procedures include guidance on frequency and method of inspection and address the platform structure, turbine tower, turbine and housing, and turbine blades.
Report	
AA	Inspection Methodologies for Offshore Wind Turbine Facilities, January 30, 2009 by Frank Puskar and Robert Sheppard, Energo Engineering, Inc., Houston, TX

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Last Updated: 02/12/2009, 01:52 PM

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TAR New Renewable Energy Research FY 2010

- Evaluate the Effect of Turbine Vibration on Structural Design
- Evaluate seabed scouring and soil disturbance caused by cable installation on the design and operation of an offshore wind farm.
- Assess methods to accomplish Close Visual Inspections of wind turbine blades
- Determine methods to evaluate the verticality of wind turbine towers during annual inspections. (i.e., does the facility lean due to structural deformation or differential settlement.
- Provide cost estimates for future alternative energy projects

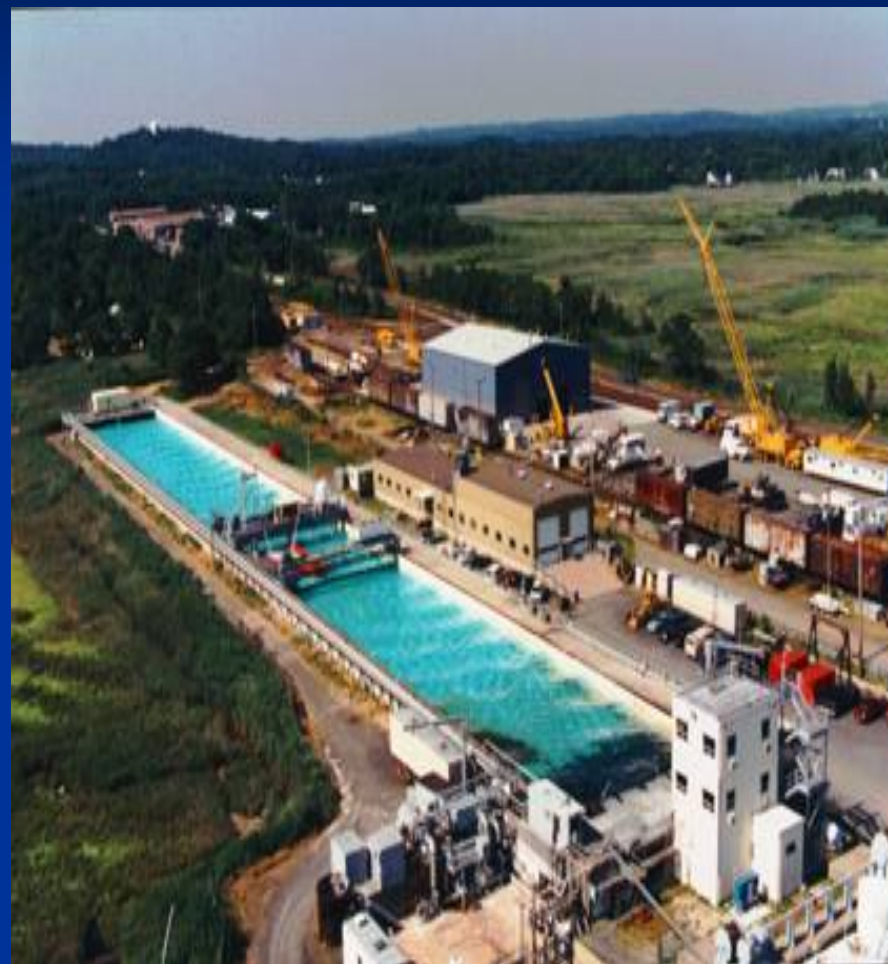
Ohmsett Test Tank

**667 feet long
65 feet wide
8 feet deep**

2.6 million gallons of water

Tow bridge speeds 6.5 knots max.

**Upgraded wave Generator to
closely simulate various ocean
waves**



Ohmsett
Oil Spill Response
Renewable Energy Facility

MMS/NREL Partnership

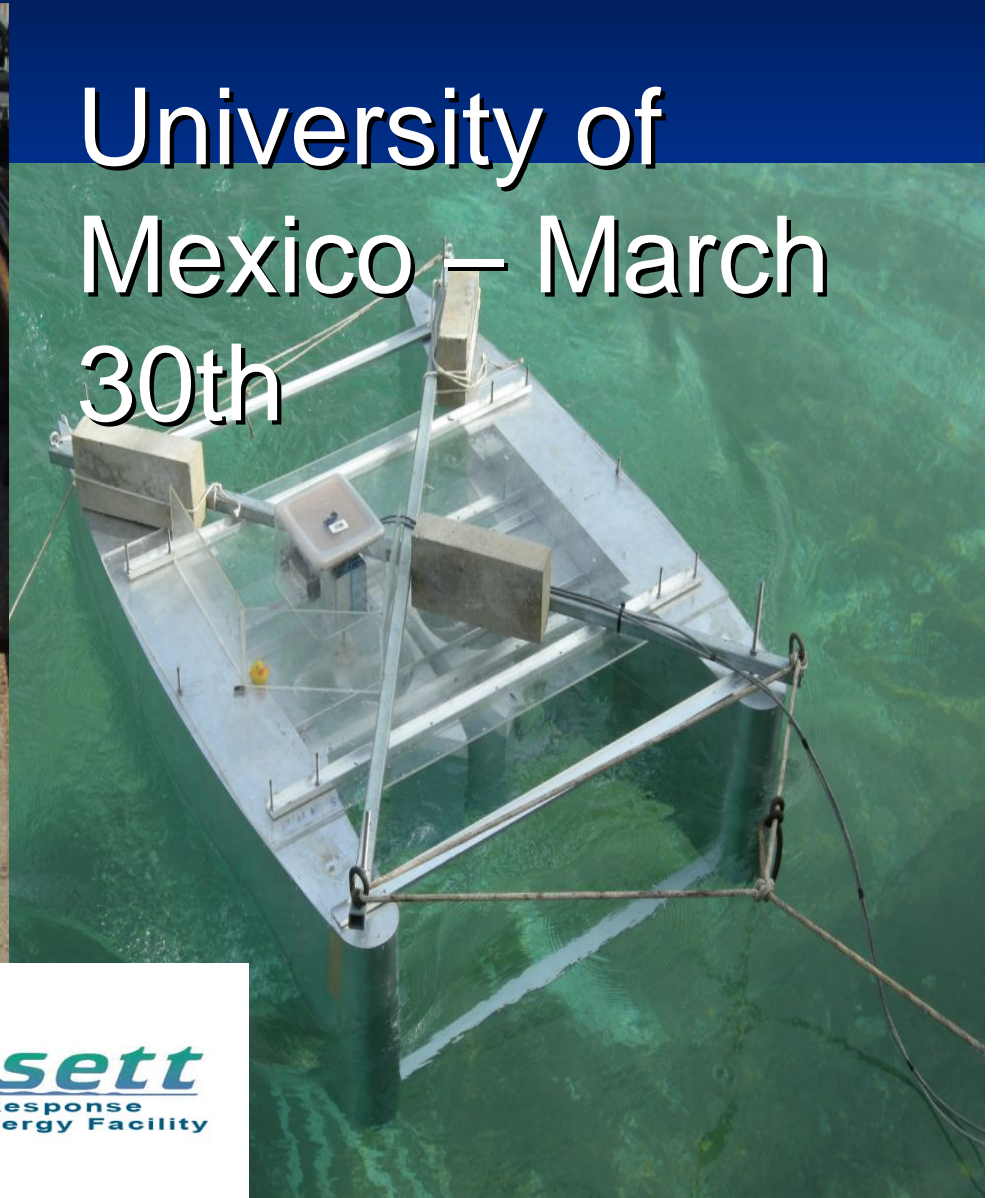
- NREL is teaming with MMS and Ohmsett to gain experience with the tank testing of Marine hydrokinetic devices
- Includes an analysis of the benefits and limitations for wave and tidal turbines



First Ohmsett Hydraulic Wave Generator Test



University of
Mexico – March
30th



Ohmsett
Oil Spill Response
Renewable Energy Facility

MMS Environmental Studies Program: Studies to Support Renewable Energy Activities

- Information needs are identified on an annual basis, and include input from stakeholders
- Studies provide information needed to support programmatic decisions and feed environmental analyses of planned activities

Selected Completed Studies

- Meeting on Birds and Offshore Wind Power Development in the Northeast and Mid-Atlantic: Identifying Priority Species and Developing Research and Partnering Strategies
- Energy Alternatives and the Environment
- *Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects of Alternative Energy Uses on the OCS and Workshop*
- *Summary of Knowledge: Washington, Oregon, California*
- Determining Night Time Distribution of Long-tailed Ducks Using Radio Telemetry

Selected Ongoing Studies: Awarded in FY09

- Atlantic: Workshop on the Status of Passive Acoustic Monitoring (PAM)
- AE: Effects Of EMF From Transmission Lines On Elasmobranchs And Other Marine Species
- Surveying for Marine Birds in the Northwest Atlantic
- Determining Distributions and Movements of Long-tailed Ducks Using Satellite Telemetry

Potential Upcoming Areas of Study in FY10

- Visual, Socio-Economic and Cultural Impacts
- Standardized Monitoring Protocols
- Marine mammal, Seabird and Turtle Surveys and Monitoring
- Ocean and Environmental Modeling
- Effects of Noise

More Information...

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On the Web at:

www.mms.gov/offshore/renewableenergy

www.ocsenergy.anl.gov

<http://www.mms.gov/tarprojectcategories/RenewableEnergy.htm>

<http://www.mms.gov/offshore/RenewableEnergy/Studies.htm>

Questions?