A photograph of an offshore wind turbine silhouetted against a bright sunset sky. The sun is low on the horizon, creating a shimmering reflection on the dark blue ocean. The sky is filled with scattered white clouds. The entire image is framed by a blue border.

Regulatory Aspects of OCS Renewable Energy

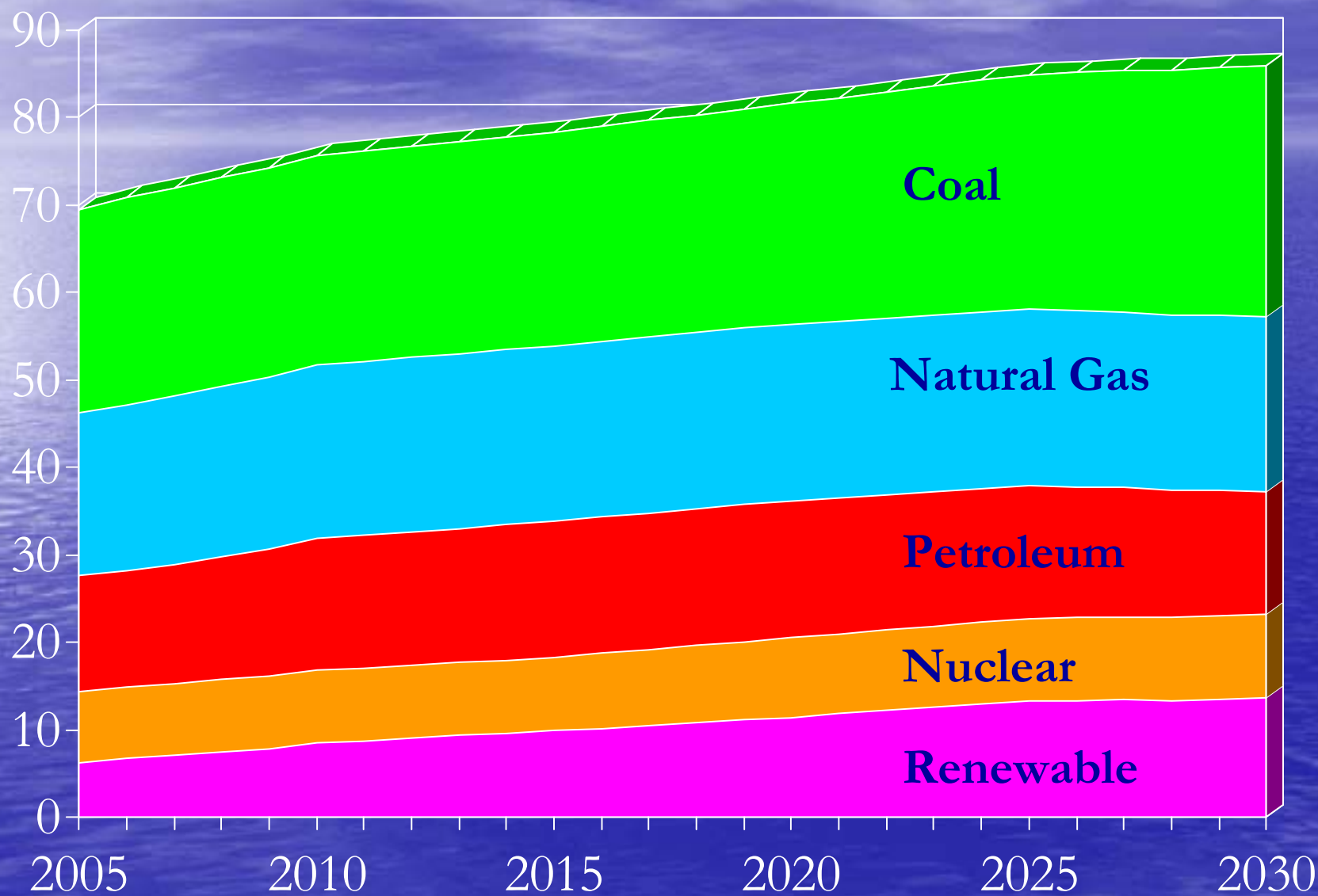
Mark Rouse

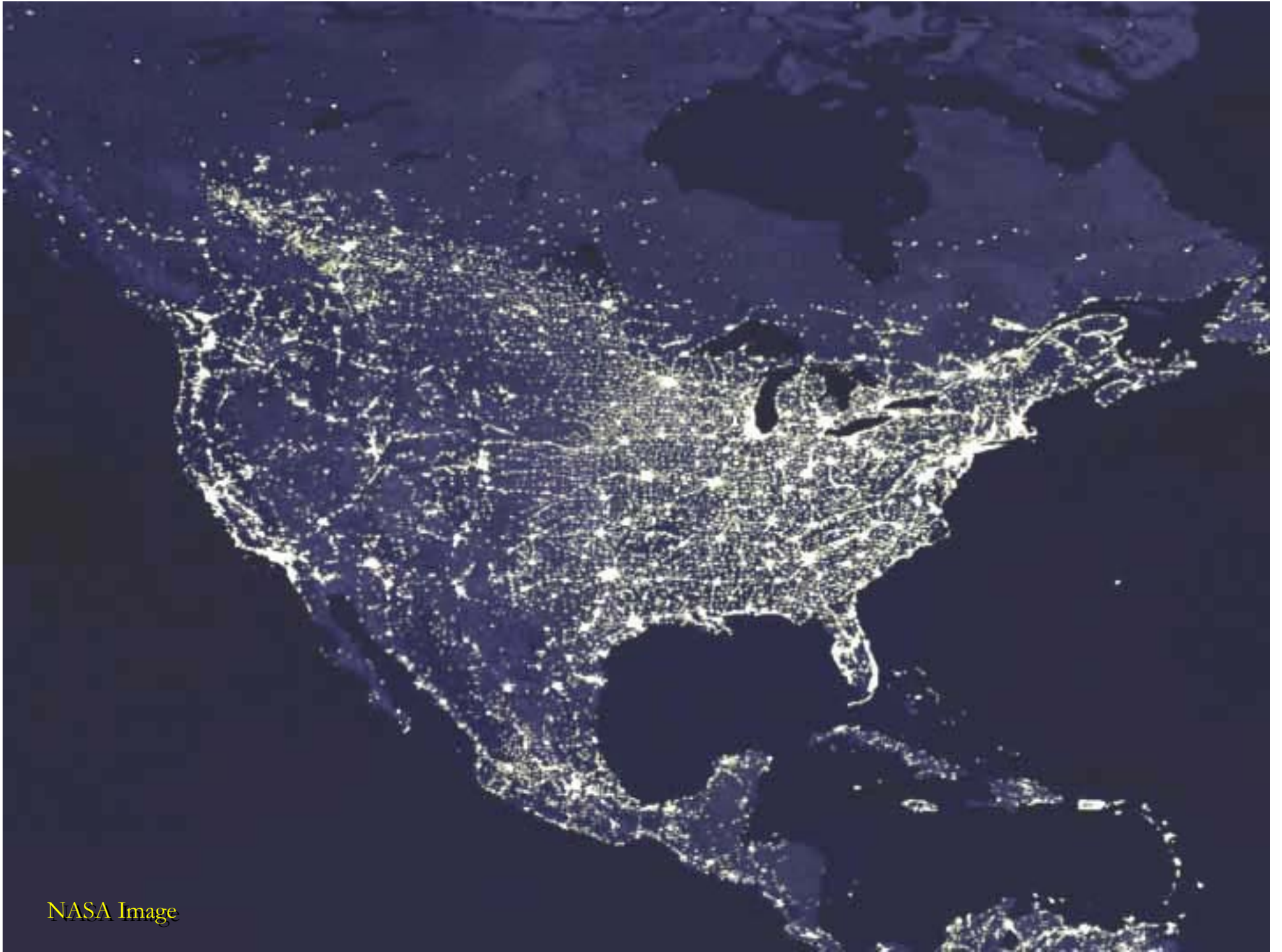
Renewable Energy Program
Minerals Management Service

GOMR OCS Workshop
August 4-5, 2009

Image Courtesy of GE

U.S. Primary Energy Production by Fuel, 2005-2030 (quadrillion Btu)





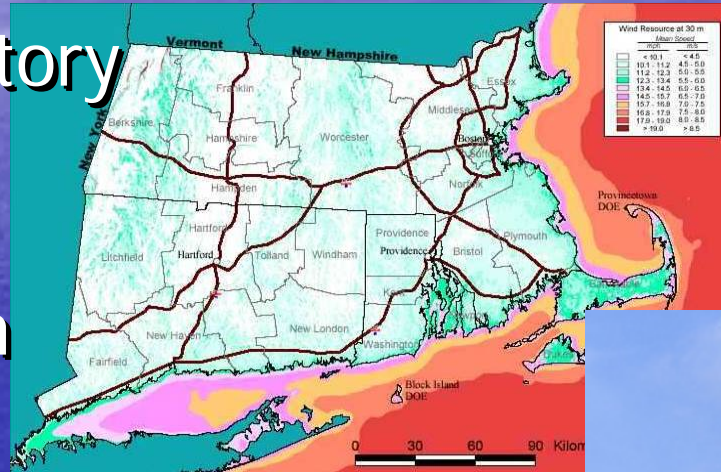
NASA Image

Energy Policy Act of 2005 (EPAct)

- Signed into law on August 8, 2005
- Grants the Department of the Interior (DOI) new authority to regulate Federal offshore renewable energy and alternate uses of the OCS
- Contains 23 different provisions related to offshore resource management

Section 388 of EPA Act

- Create a new regulatory process
- Develop consultation and coordination process
- Create comprehensive mapping tool



Section 388 of EPA Act

- Authorizes development of a regulatory regime that
 - ☑ Ensures consultation with States and other stakeholders
 - ☑ Grants leases, easement, and/or right-of ways
 - ☑ Enforces regulatory compliance
 - ☑ Requires financial surety
 - ☑ Provides fair return to the Nation

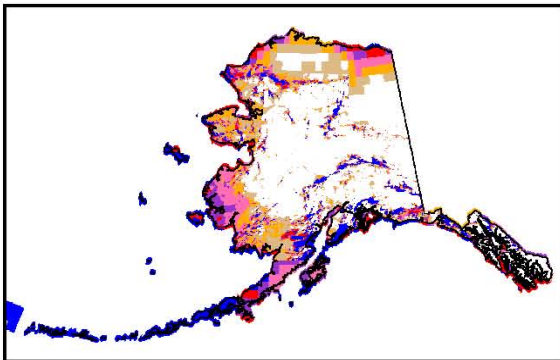
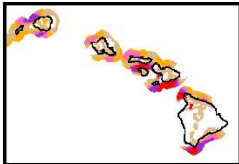
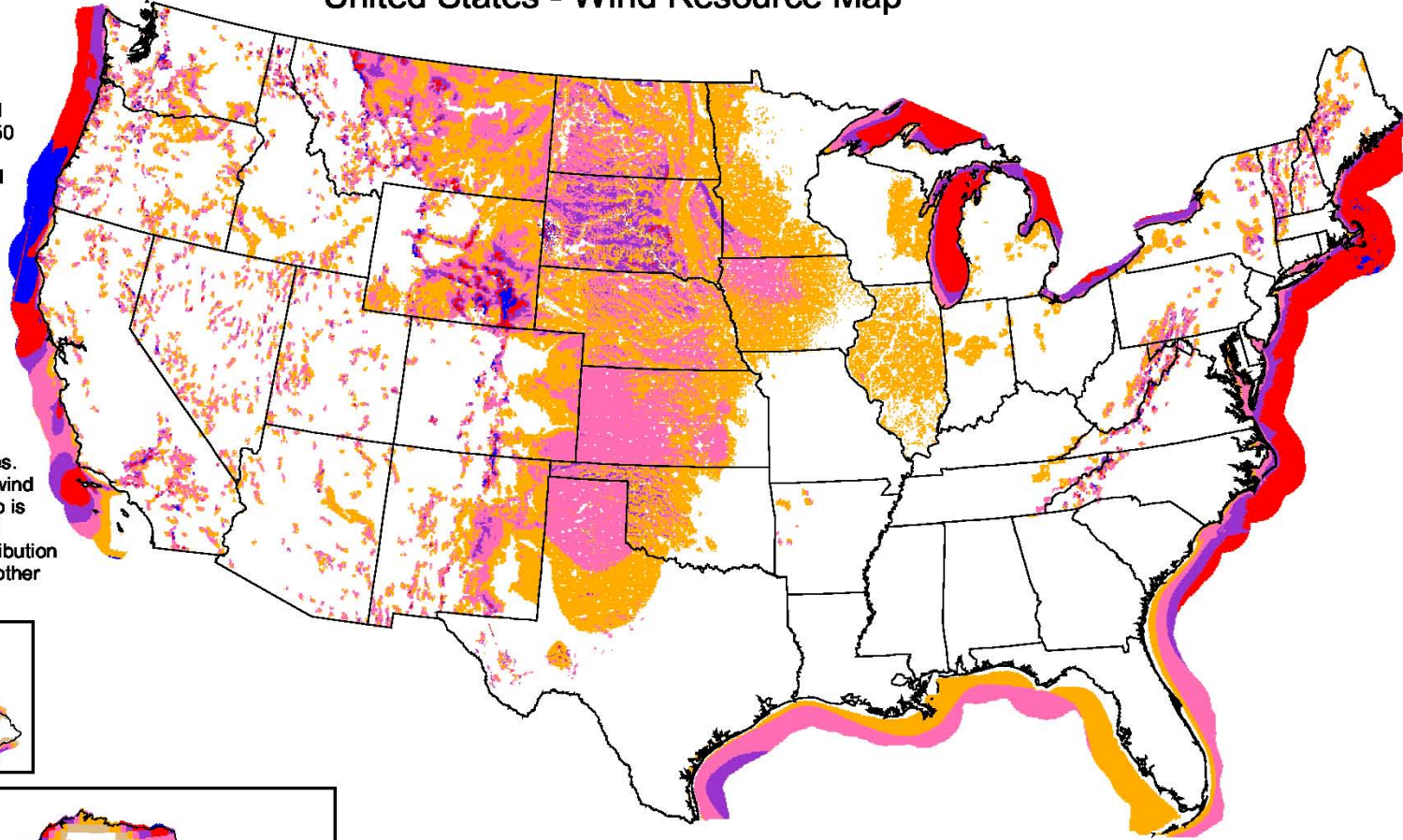
Section 388 of EPA Act

Does Not:

- Supersede or modify existing Federal authority
- Authorize any oil and gas activities in moratoria areas (Congressional moratoria and administrative withdrawals remain in effect)
- Apply to areas designated as National Marine Sanctuaries, National Parks, National Wildlife Refuges, or any National Monuments

United States - Wind Resource Map

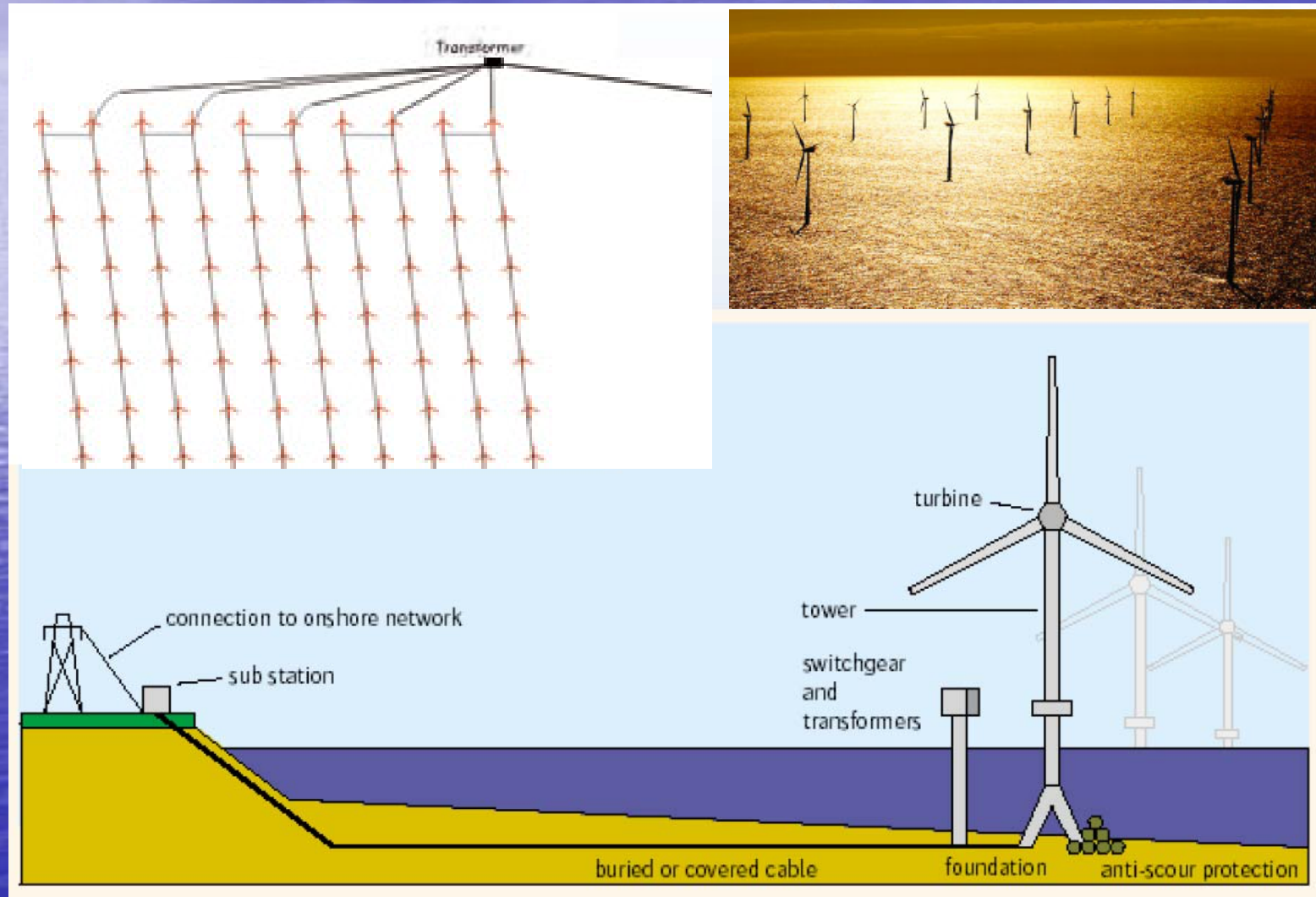
This map shows the annual average wind power estimates at 50 meters above the surface of the United States. It is a combination of high resolution and low resolution datasets produced by NREL and other organizations. The data was screened to eliminate areas unlikely to be developed onshore due to land use or environmental issues. In many states, the wind resource on this map is visually enhanced to better show the distribution on ridge crests and other features.



| Wind Power Classification | | | | |
|---------------------------|--------------------|---|-------------------------------------|-------------------------------------|
| Wind Power Class | Resource Potential | Wind Power Density at 50 m W/m ² | Wind Speed ^a at 50 m m/s | Wind Speed ^a at 50 m mph |
| 3 | Fair | 300 - 400 | 6.4 - 7.0 | 14.3 - 15.7 |
| 4 | Good | 400 - 500 | 7.0 - 7.5 | 15.7 - 16.8 |
| 5 | Excellent | 500 - 600 | 7.5 - 8.0 | 16.8 - 17.9 |
| 6 | Outstanding | 600 - 800 | 8.0 - 8.8 | 17.9 - 19.7 |
| 7 | Superb | 800 - 1600 | 8.8 - 11.1 | 19.7 - 24.8 |

^a Wind speeds are based on a Weibull k value of 2.0

Typical Offshore Wind Farm Layout



Wind Turbine Blade Sizes

General Electric 3.6 MW
104-m rotor diameter
(Boeing 747-400
wing span = 65 m)



Arklow
GE Wind
3.6 MW

Brunstüttel Ger.
REpower
5 MW

REpower 5 MW
126-m rotor diameter
(Washington Monument
height = 170 m)



| | | | |
|------------|---------|---------|-------|
| Capacity: | 3600 kW | 5000 kW | |
| Rotor Dia: | 104 m | 126 m | |
| Tower Hgt. | 74 m | 120 m | 170 m |

Monopile Foundations Driven into Seabed and Transition Pieces Grouted on Top



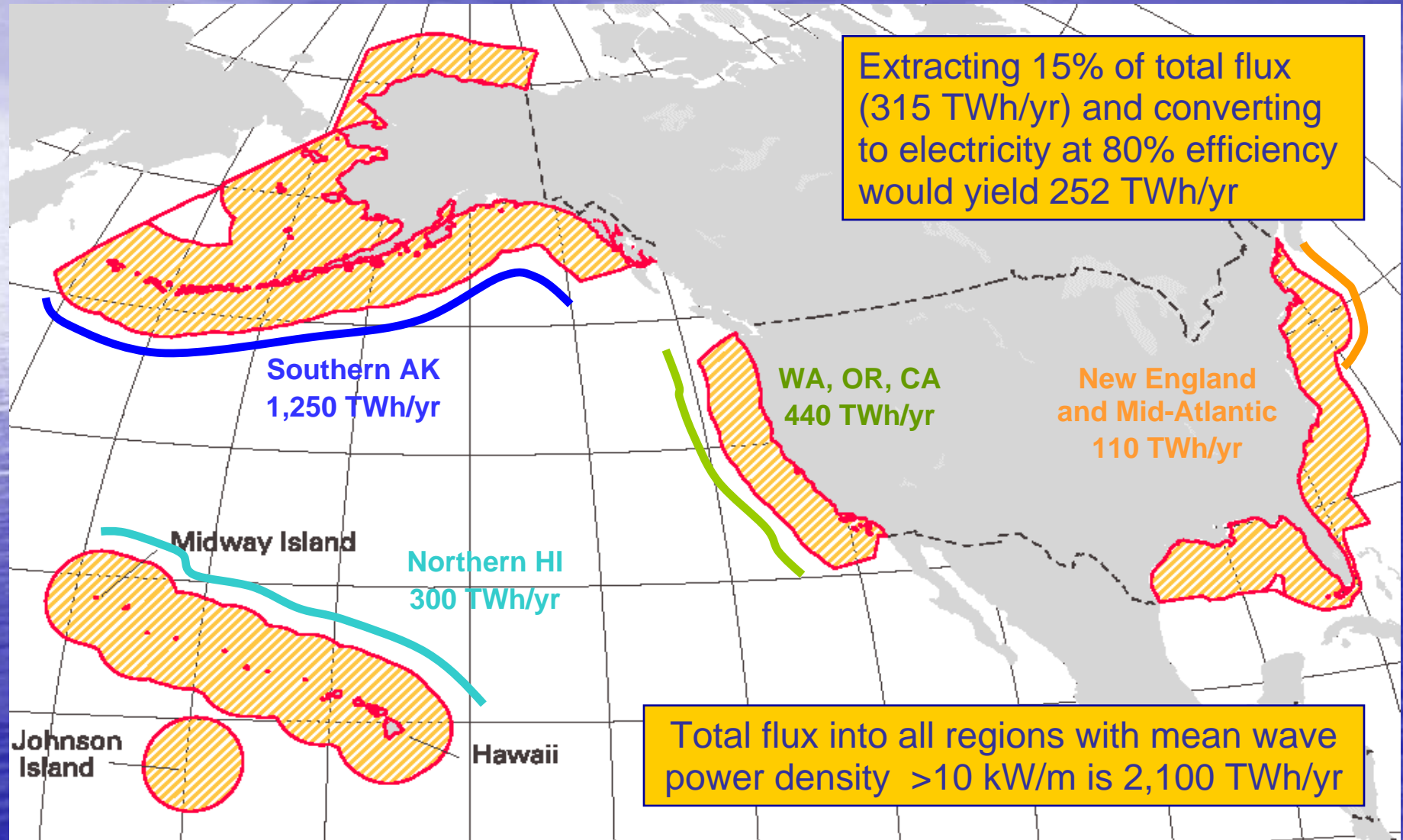
Horns Rev 2-MW Turbines Installed Using Self-Propelled *A2 SEA* Vessels



North Hoyle 2-MW Turbines Installed Using Towed *Seacore* Jack-Up Rigs

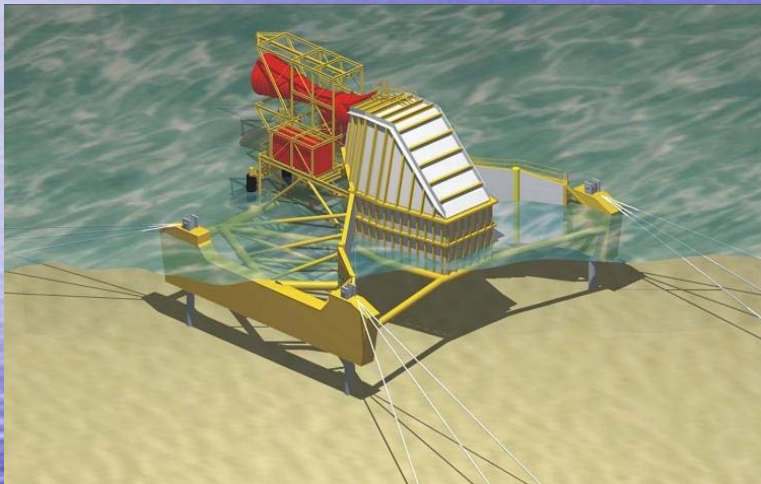


U.S. Offshore Wave Energy Resources



Wave Energy Devices Highly Diverse

- Fixed Oscillating Water Column **Terminator** (Oceanlinx)
- Floating **Attenuator** (*Pelamis*)



- Floating Overtopping **Terminator** (*Wave Dragon*)



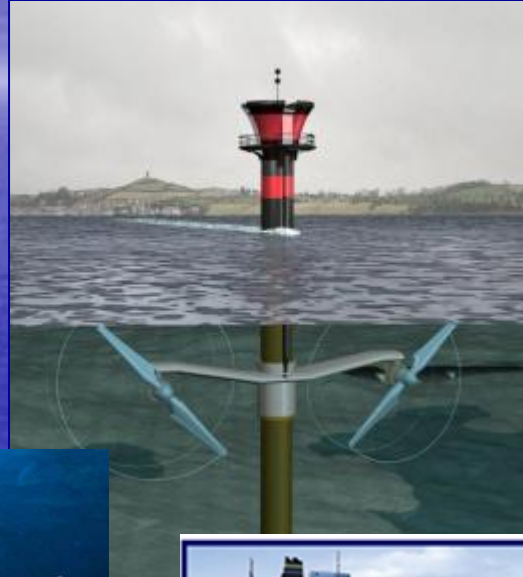
- Floating **Point Absorber** (*AquaBuOY*)



12 August 2009

(c) George Hagerman

Ocean Current Energy Devices



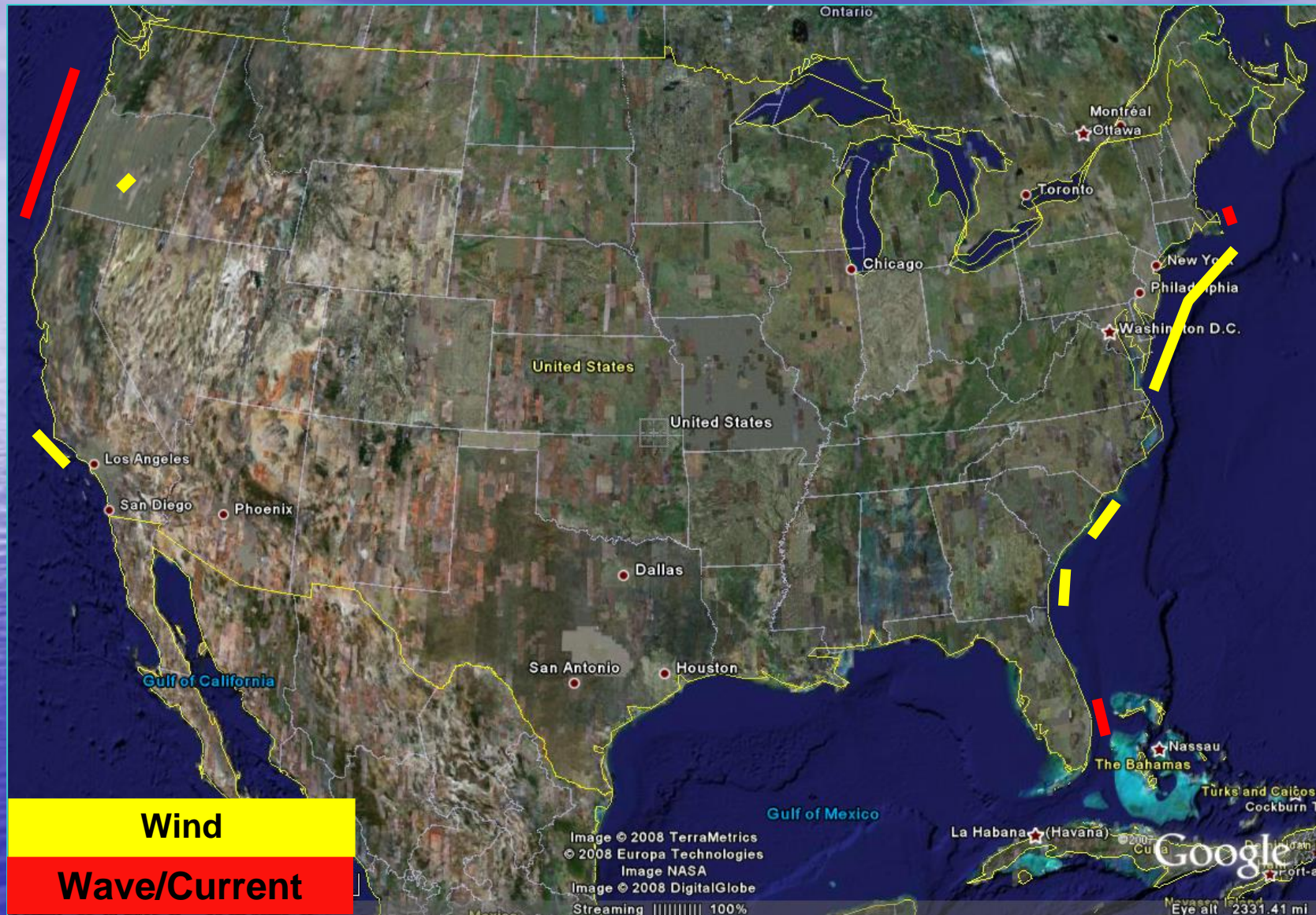
Applications for Renewable Energy Leases and Grants . . . on the OCS

- July 20, 2009 (FR, Vol. 74, No. 137)
- Herndon, VA (NC through ME; MS-4090)
- New Orleans, LA (TX, LA, MS, AL, FL, GA, SC; Lease Apps . . . MS-5400; RUES . . . MS-5231; ROWS . . . MS-5232)
- Camarillo, CA (CA, OR, WA, HA; MS-7000)
- Anchorage, AK (AK; MS-8200)

MMS' "Interim" Renewable Energy Policy

- **Interim Policy** aimed at "jump starting" MMS's offshore renewable energy program
- November 6, 2007--*Federal Register* announced an **Interim Policy** for authorization of the installation of offshore data collection and technology testing facilities in Federal waters
- 40 nominations received (West and East coasts)
- April 2008--MMS identified 16 proposed lease areas for priority consideration

Interim Policy Nominations



OCS Renewable Energy Regulatory Framework Milestones

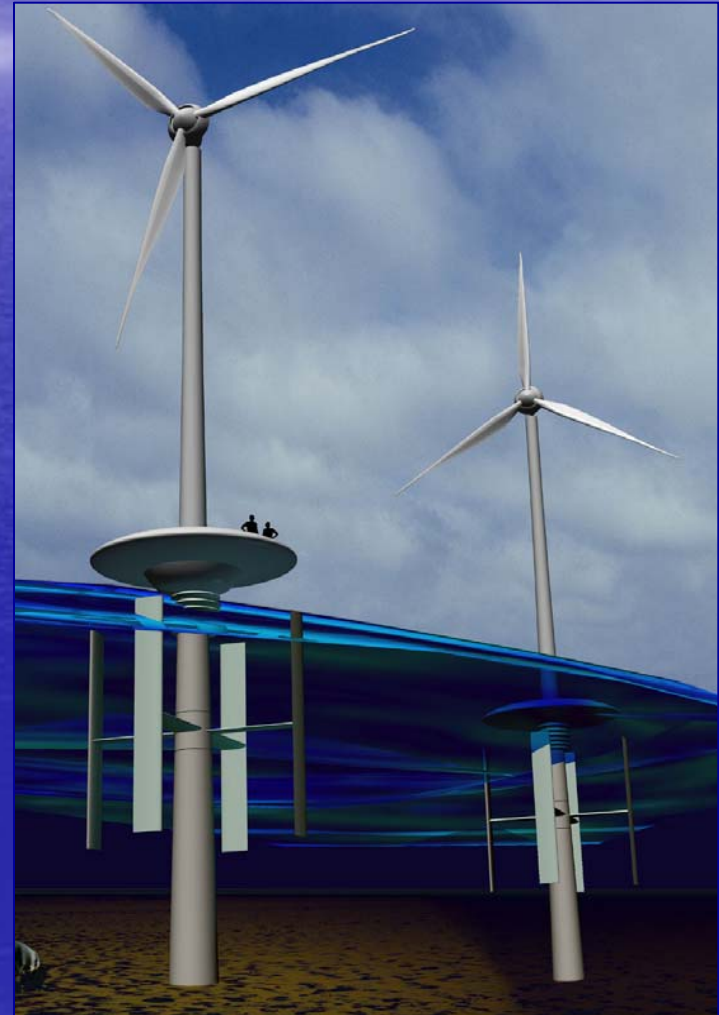
- ✓ Published **ANPR** (Dec 2005)
- ✓ Convened **Stakeholders meetings** (Oct 2006 & Jan 2007)
- ✓ Released **final Programmatic EIS** (Nov 2007)
- ✓ Issued **Record of Decision** (Jan 2008)
- ✓ Published **Proposed Rule** (July 2008)
- ✓ Held **proposed rule public workshops** (Aug 2008)
- ✓ Closed **rule comment** period (July - Sep 2008)
- ✓ Sent **final Rule** to OMB (Nov 2008)
- ✓ Published **final Rule** (April 2009)
- ✓ Held **final Rule** workshops (June 2009)

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 |
| F | Plans and information requirements, including SAPs, COPs, and GAPs |
| G | Facility Design, Fabrication, and Installations |
| H | Environmental and Safety Management, including inspections for activities |
| I | Decommissioning |
| J | Alternate use of existing OCS facilities |

Two Types of Leases/ Two Processes

- **Commercial Leases** for full development and power generation
- **Limited Leases** for resource assessment and technology testing
- **Competitive and noncompetitive** processes



Competitive Lease Terms

Commercial Leases for full development and power generation

- 6-month preliminary term
- 5-year site assessment term
- 25-year operations term

Limited Leases for resource assessment and technology testing

- 6-month preliminary term
- 5-year operations term

Noncompetitive Lease Terms



Commercial Leases for full development and power generation

- 5-year site assessment term
- 25-year operations term

Limited Leases for resource assessment and technology testing

- 5-year operations term

Financial Assurance

Commercial Leases

- Require a lease-specific \$100,000 bond before lease issuance
- May require additional bond before SAP approval
- Require COP bond based on project complexity, projected payments, and decommissioning costs before COP approval

Financial Assurance

Limited Leases, ROWs, RUEs

- Require a \$300,000 lease or grant-specific bond
- May increase based on projected payments, and abandonment & cleanup costs

Payments

Bonus Bids

- Minimum bid established in Final Sale Notice for leases or Auction Notice for grants

Acquisition Fees

- \$0.25/acre for leases issued noncompetitively
- None for grants

Rentals

- \$3.00/acre/year for leases
- \$5.00/acre/year for project easements, ROWs and RUEs

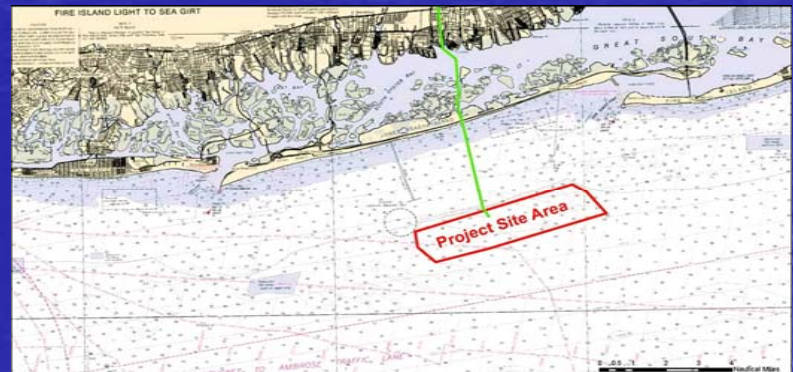
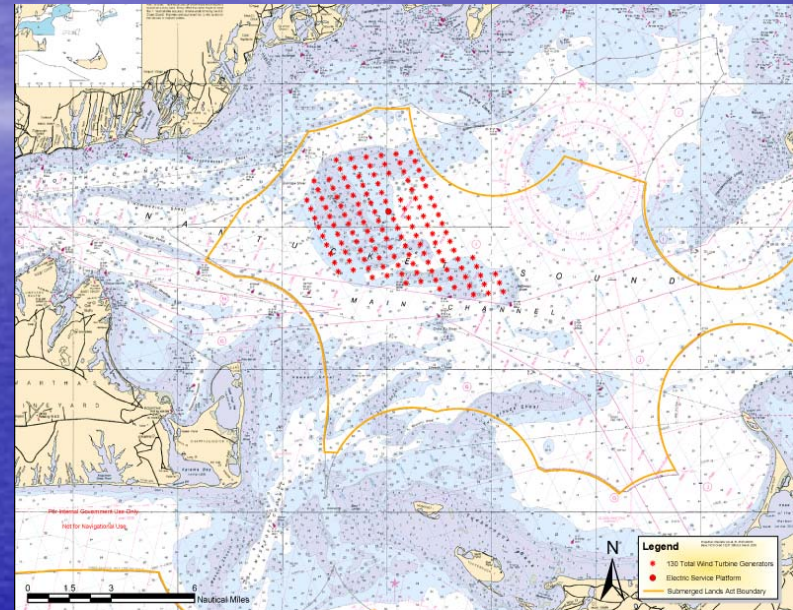
Manage Existing Proposals

Cape Wind

- about 4.7 miles offshore in Nantucket Sound, MA; 130 wind turbines; could produce up to 454 megawatts

LIOWP

- 4 miles off the south shore of Long Island; 40 wind turbines; produce 140 megawatts of electricity



MMS/FERC MOU

- Secretary Salazar & Chairman Wellinghoff signed MOU on **April 9, 2009**
- Entity interested in operating a hydrokinetic project on the OCS **must first obtain a lease from MMS**
- **FERC may issue a license or exemption after MMS issues a lease**
- Applicants should **apprise MMS & FERC** of interest in OCS hydrokinetic development at the start
- Shared goal is to create an **efficient review process** for OCS hydrokinetics

More Information...



On the Web:

www.mms.gov/offshore/renewableenergy

By Phone:

703-787-1300

