



# Offshore Wind Energy Collaborative: Lessons Learned

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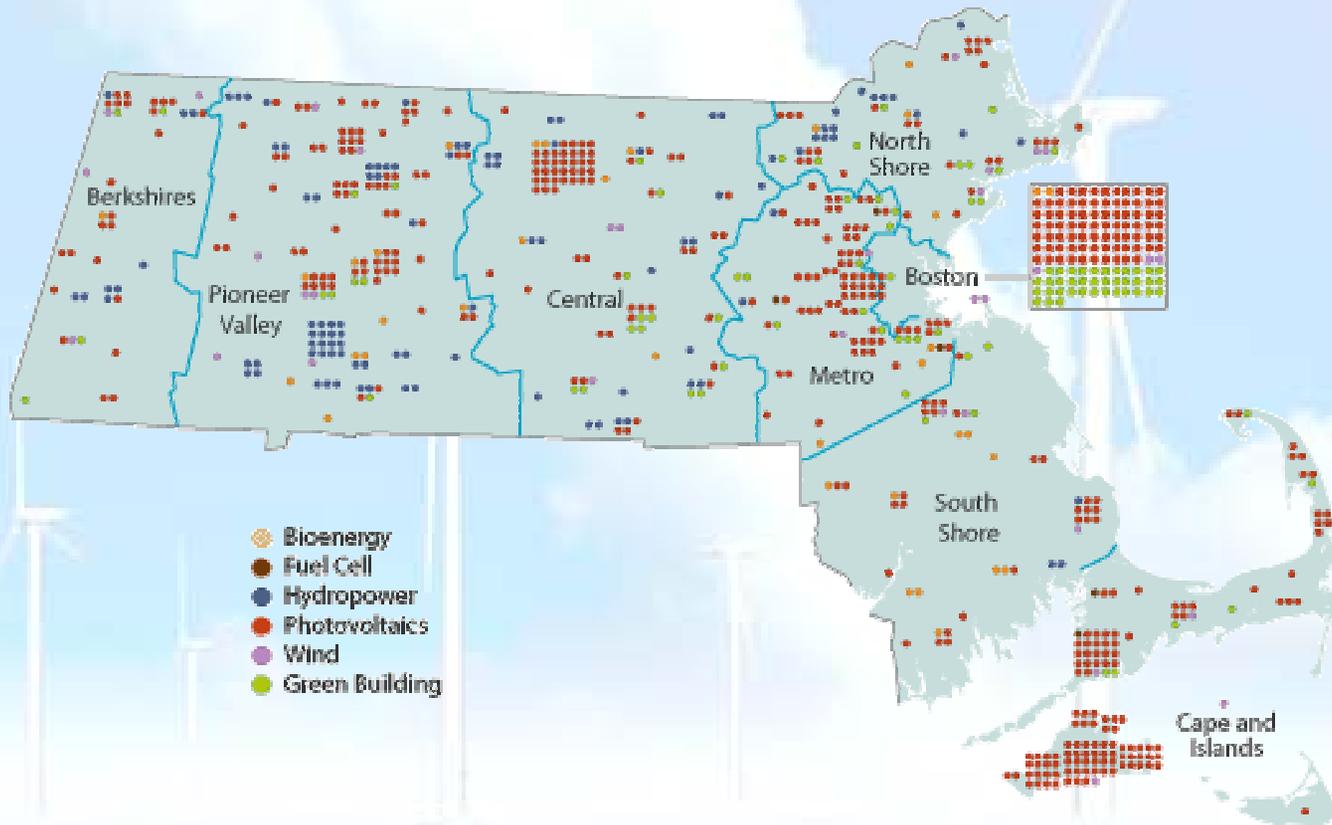
**Great Lakes Offshore Collaborative**  
**April 4, 2006**



MASSACHUSETTS  
TECHNOLOGY  
COLLABORATIVE

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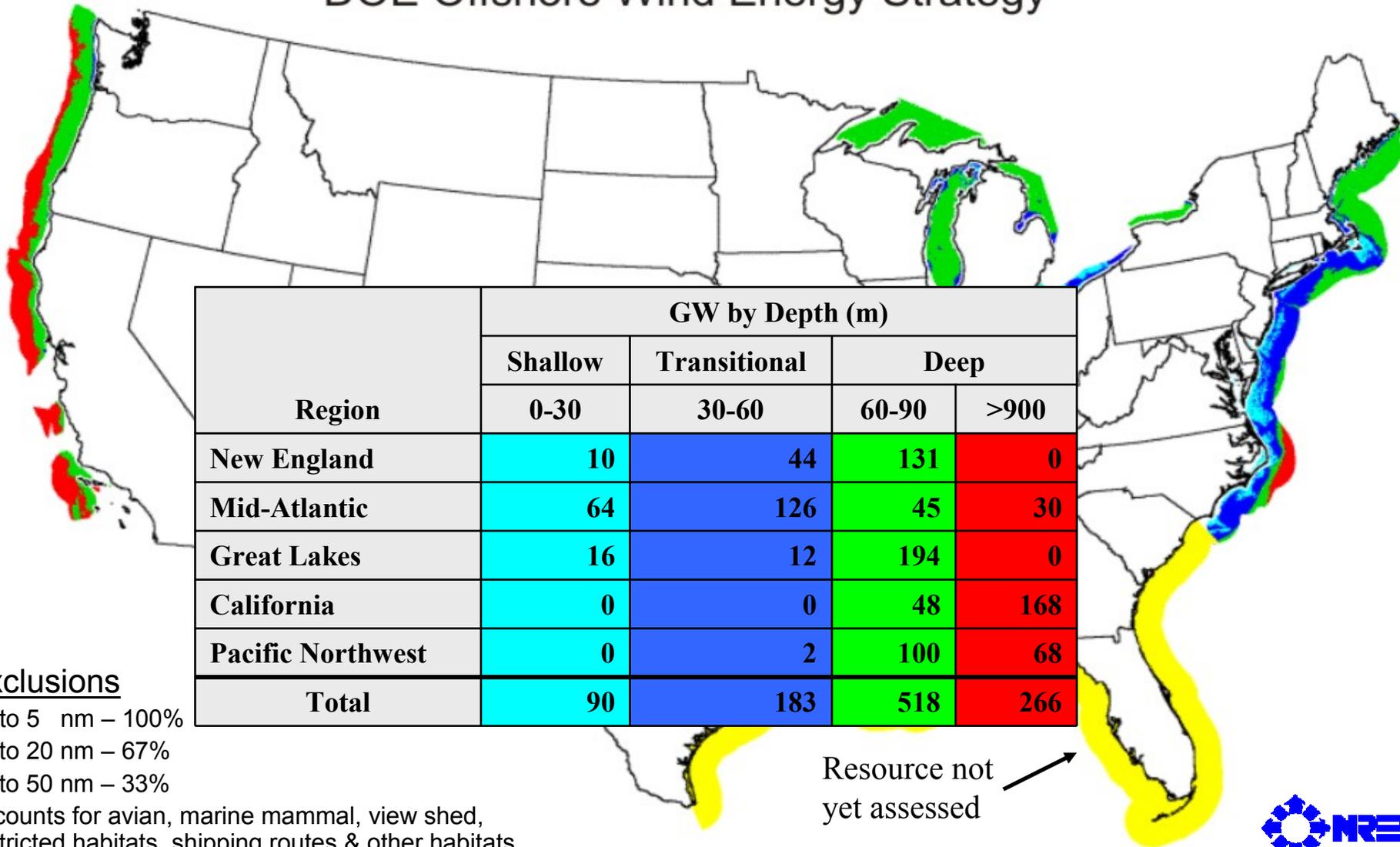
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# U.S. Offshore Wind Energy Resource

## DOE Offshore Wind Energy Strategy



### Exclusions

0 to 5 nm – 100%

5 to 20 nm – 67%

20 to 50 nm – 33%

Accounts for avian, marine mammal, view shed, restricted habitats, shipping routes & other habitats.

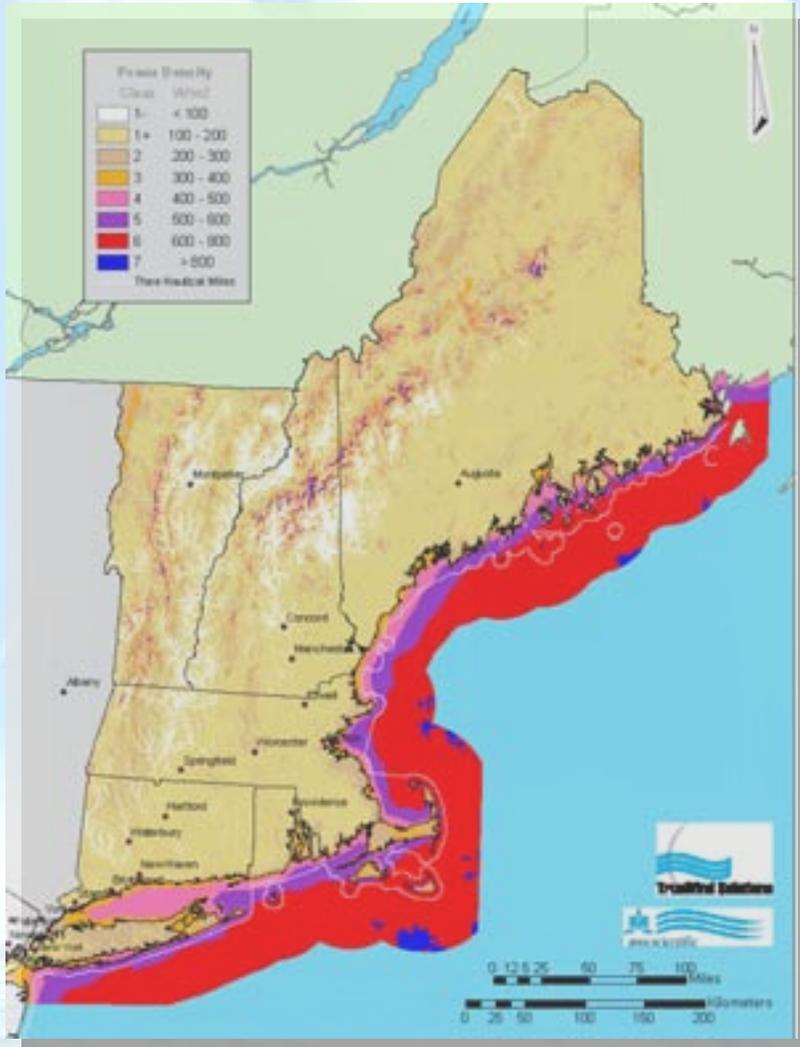


# Proposed US Offshore Activity

- Cape Wind
  - 454 MW Nantucket Sound (Massachusetts)
- Long Island Power Authority
  - 100MW off the coast of Jones Beach (New York)
- Winergy LLC
  - Applied for numerous permits along East Coast
- Southern
  - To determine if offshore wind power is a feasible renewable energy option for the Mid-Atlantic. The project concept is expected to include three to five wind turbines that could generate 10 megawatts of power,.
- Venice, Louisiana
  - Wind Energy Systems Technology and GT Energy have signed an agreement to develop up to 500 MW of offshore wind power in the Gulf of Mexico, utilizing decommissioned oil drilling platforms.
- Corpus Christi, Texas
  - Alternative Energy Institute and the General Land Office of Texas (GLO) teamed up to install a wind monitoring station on offshore oil platform.

*“...there may be, conservatively speaking, more than 100 gigawatts of capacity just off of New England”*

David Garman, Acting Under Secretary, U.S. DOE  
*The Energy Daily, August 30, 2004*



# New England Offshore Wind Resource

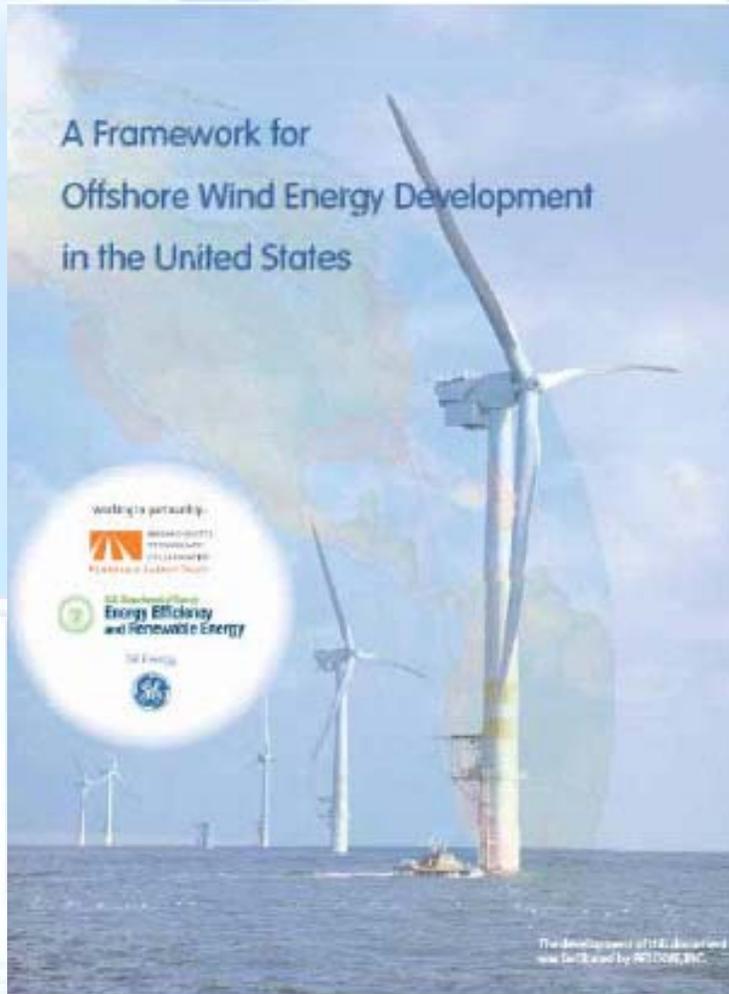
# Factors Influencing Future Development

- Renewable Portfolio Standards
- Production Tax Credit Extension
- Transmission Access
- Environmental Issues
- Air Emissions and Climate Policy
- Wind-Hydro Integration
- Hydrogen
- Clean Water
- Offshore Development



Photo Gunnar Britse

# Offshore Wind Collaborative



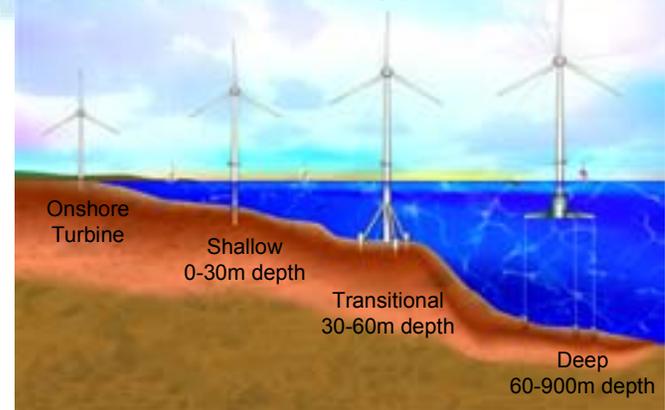
- Technology Development
  - Large-scale fully marinated systems
- Environmental Compatibility
  - Minimize adverse impacts and changes
- Economic and Financial Viability
  - Reduce costs of offshore systems and price of electricity to consumers
- Regulation and Government Policies
  - Siting and permitting processes that gain public support

# Collaborative Approach Required to Develop Resource

Offshore wind energy calls for a broad-based, focused, coordinated approach to planning, research and development, and policy development.

*David Garman, Under Secretary, U.S. DOE*

## Many Technology Needs



## Many Stakeholders



# Collaborative Participants

## Government

- MMS - lead regulatory agency
  - Coast Guard and Army Corps of Engineers
  - EPA, NOAA, Fish and Wildlife Service
- Department of Energy
- State and Local Jurisdictions

## Industry

- Wind manufacturers and developers
- Offshore oil/gas, general marine
- Utility sector

## Research Community

- National Laboratories
- University and research institutes
- International liaison / coordination





American Wind Energy Association



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SECONDWIND

THE HUMANE SOCIETY OF THE UNITED STATES

MMS



The Ocean Conservancy  
Advocates for wild, healthy oceans

Mit  
Massachusetts Institute of Technology



Whale Center of New England

Mass Audubon  
Protecting the Nature of Massachusetts



U.S. Department of Energy  
Energy Efficiency and Renewable Energy

Provincetown  
Center for Coastal Studies



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# Organizational Challenges

- Intellectual Property versus public information
- Incentives for/benefits of participation (industry, NGO, academic, etc.)
- Sources of funding
- Regional vs. national focus
- Leadership/administration

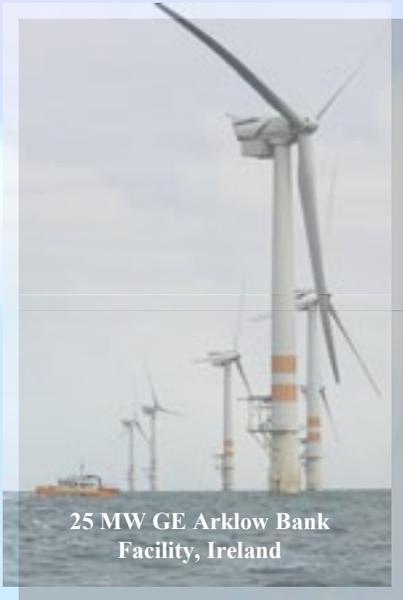
# Guiding Principles

- Comprehensive, integrated, anticipatory design
- Multi-sector involvement
- Credible, efficient, flexible structure
- Transparent process
- Diverse, predictable funding sources

# Offshore Wind Collaborative (OWC) Expected Outcomes

- Expand viable resource base into deeper waters
- Expand ability to site beyond the horizon
- Inter-disciplinary, multi-sector partnerships to reduce cost
- Establish US technological & operational leadership
- Include wind as a part of the ocean management dialogue
- Develop industry in a way that improves our nation's marine resources





25 MW GE Arklow Bank Facility, Ireland



165 MW Nysted Offshore Wind Farm, Rødsand, Denmark



40 MW Bonus Middlegrunden Farm in Copenhagen Harbor

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