

# Offshore Wind Energy

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# What are the Key Questions?

- How does government assure necessary environmental and social protections within the public interest?
- What is the level of risk compared to other energy supply options?
  - Understanding socio-economic impacts
  - Measuring health effects
- How do we face facts?
  - Current energy profiles unsustainable
  - Dominant risk of global climate change
- How do we devise a sound & rigorous permitting process?
  - Setting reasonable standards
  - Commitment to public response research
  - Encouraging offshore wind pilot projects

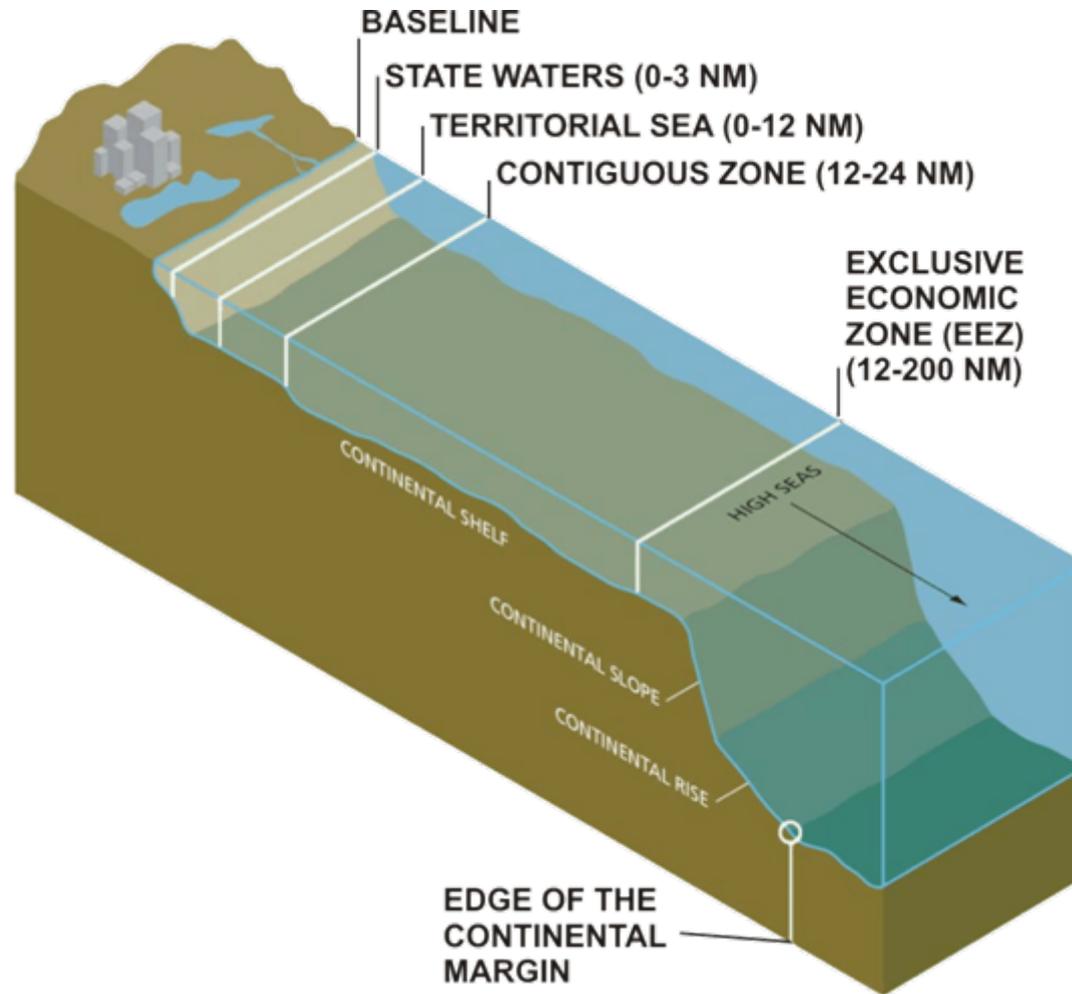


# Environmental & Siting Challenges

- Reasonable siting requirements
- Public perception & involvement
- Scientific research & peer review
- Risk analysis
- Interagency leadership on energy policy
- Lessons learned

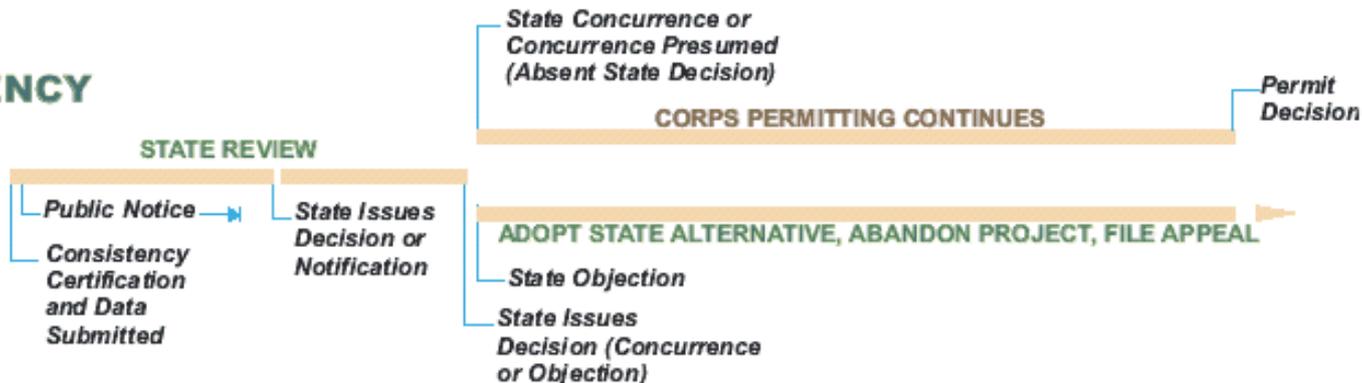


# Ocean Jurisdictions



# U.S. Army Corp of Engineers Permit and NEPA Process

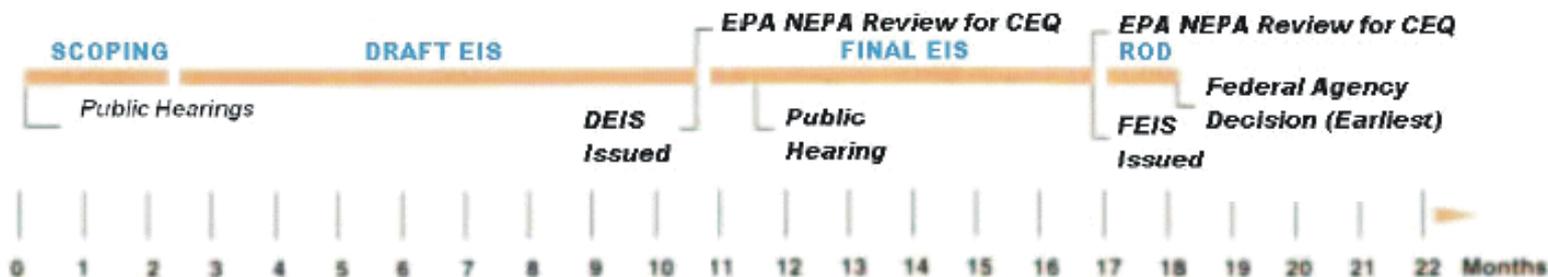
## CZMA CONSISTENCY PROCESS



## CORPS PERMIT PROCESS



## NEPA EIS PROCESS



Reference: Adapted from USACE presentation, Karen Adams

# The Maze of Federal Laws

Legislative Authority	Approvals/Permit	Lead Agencies
Energy Policy Act of 2005	Section 388 gave jurisdictional authority to MMS to issue permits, allow competitive leasing, assign royalty payments, etc.	Minerals Management Service (MMS)
Rivers And Harbors Act - Section 10	Prohibits the obstruction or alteration of navigable water of the U.S without a permit	U.S. Army Corps of Engineers (District Office)
National Environmental Policy Act (NEPA)	Requires submission of an environmental review for all major federal actions that may significantly affect the environment	U.S. Army Corps of Engineers (District) Council on Environmental Quality
Coastal Zone Management Act	Consistency determination with the coastal program of the affected state	NOAA State Coastal Zone Management Agencies
Navigation and Navigable Waters	Navigation aid permit (markings and lighting)	U.S. Coast Guard

# Minerals Management Service

2005

- **April 2005**—Forms Alternate Use Subcommittee
- **July 2005**—Public comment period for PEIS ends
- ┌ **August 2005**—Energy Policy Act of 2005 Passed

2006

- **December 2005**—Issues ANPR
- **February 2006**—Public comment period for ANPR program ends
- ┌ **May/June 2006**—Public scoping meetings on PEIS

2007

- **February 2007**—Publishes Draft PEIS & Proposed Rule
- ┌ **March/April 2007**—Public hearings on Draft PEIS
- **May 2007**—Draft EIS published
- **August 2007**—Publishes Final PEIS
- ┌ **September 2007**—Issues Record of Decision & publishes Final Rule

2008

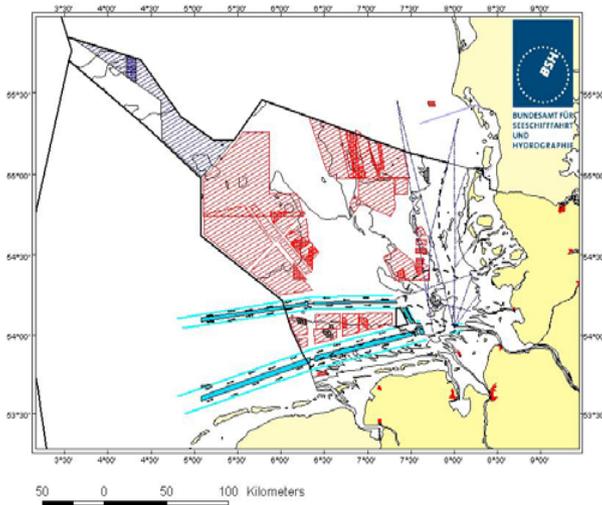
- **March 2008**—Final EIS published
- ┌ **April 2008**—Record of Decision announced

- Advanced Notice of Proposed Regulations
- Public Hearings
- Draft Programmatic EIS released
- More public hearings
- Issues Draft Rule
- Issues Record of Decision on PEIS
- Issues Final project EISs
- Final project EISs

# Europeans are Planning on a National Scale

## Germany

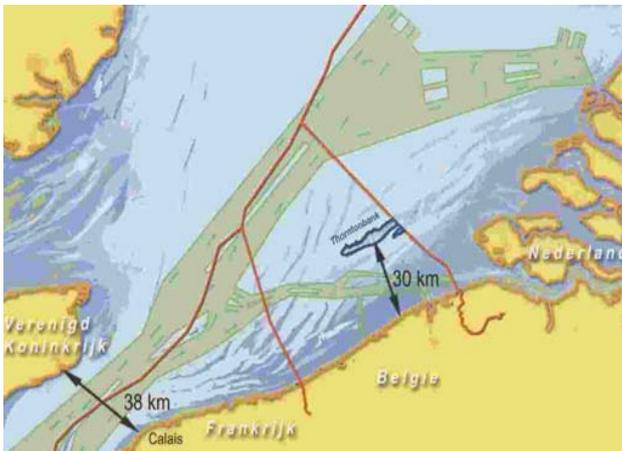
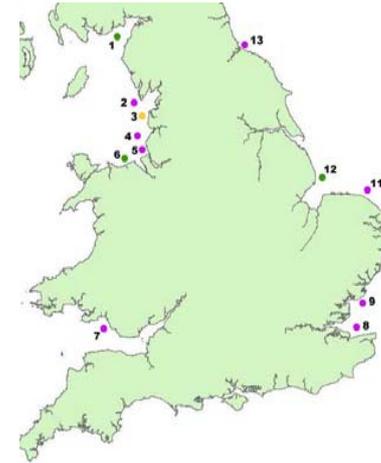
Nordsee - Offshore-Windparks



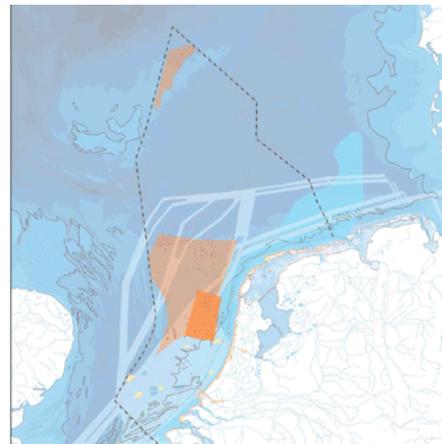
## Denmark



## Great Britain



## Belgium



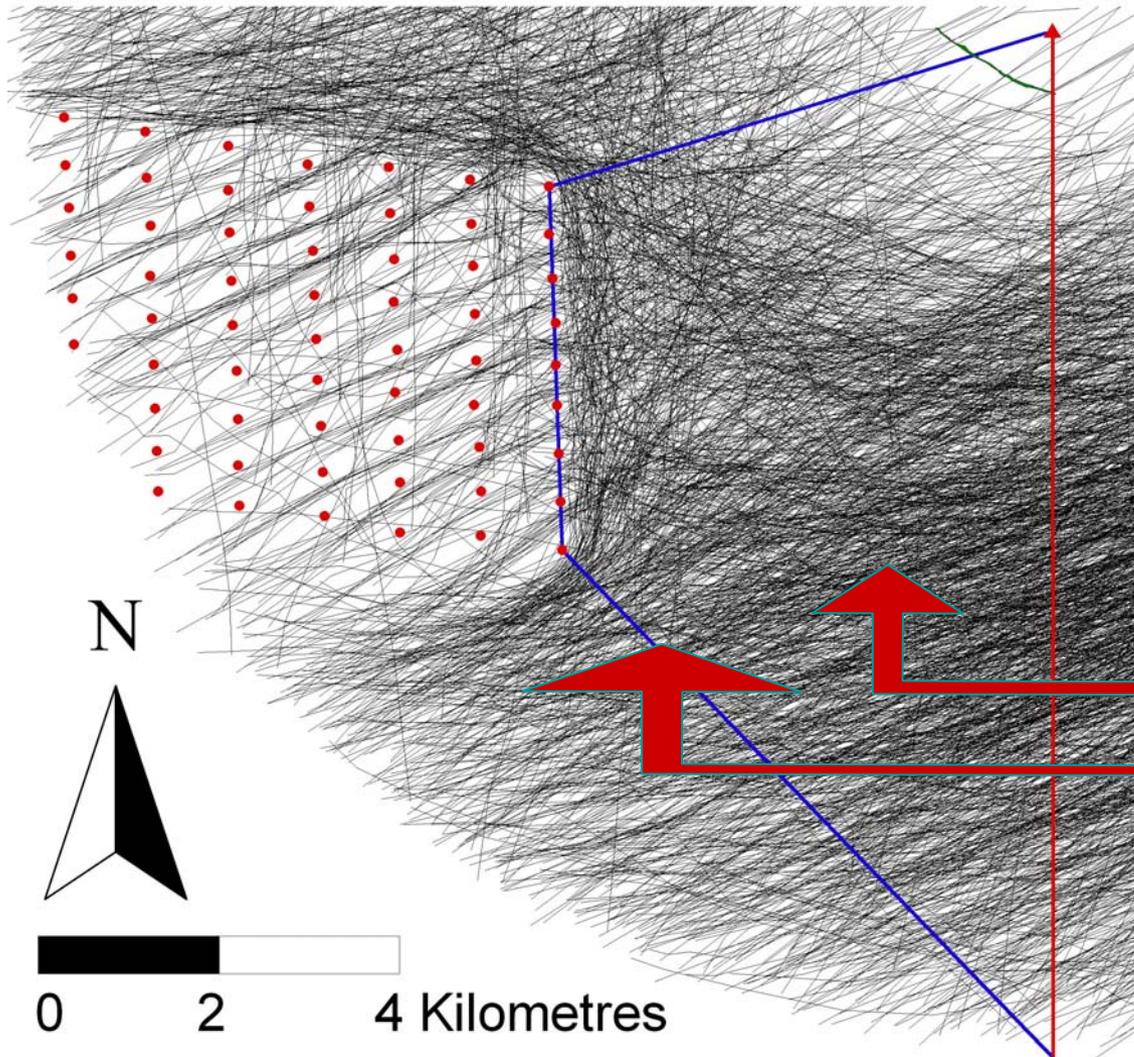
## Netherlands

# Overview of the Danish Monitoring Program

- **Sea mammals – harbor porpoises and seals**
- **Fish**
- **Birds**
- **Hydrography**
- **Coastal effects**
- **Artificial reef**
- **Socioeconomics**
- **Community acceptance**
- **Noise emissions**
- **Temperature gradients around the cables**
- **Electromagnetic fields**
- **Benthic fauna**
- **Viewshed**



# Nysted Migrating Birds



Operation (2003):

Response distance:

day = c. 3000m

night = c. 1000m

# The Elements of a Viable Permitting Process?

- New regulations will create a one-stop-shop
- Better understanding of public acceptance
- Conduct comparative risk assessment framework
- Incorporate lessons learned -- IEA Annex 23
- Need government support for Before-After-Control-Impact (BACI) studies
- Put demonstrations in the water



# Recommendations

- Identify the lead agencies and the roles they will play
- Gather baseline information
  - Wind resources/Ecology
  - Research partnerships
- Establish a knowledge base for comparative risks and benefits of energy options
- Devise state siting strategies & sustained public involvement

