



# Developing a Research Route Map for the Environmental Sustainability of Marine Renewable Energy

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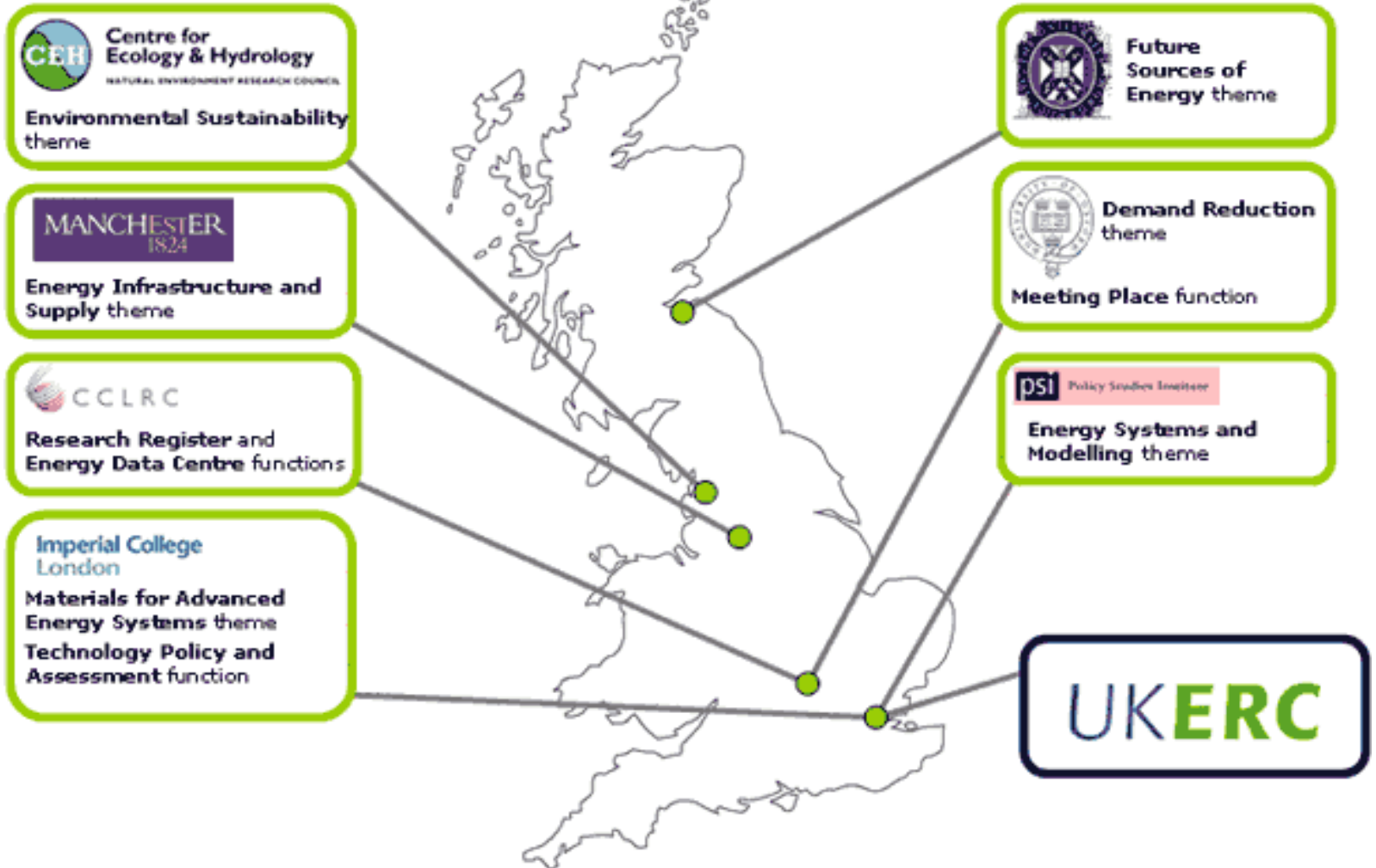
**UKERC**



# Presentation Plan

- Introduce UKERC
- Route map process
- Current Landscape
- Research Priorities
- Time-line Diagrams

# Where are we?



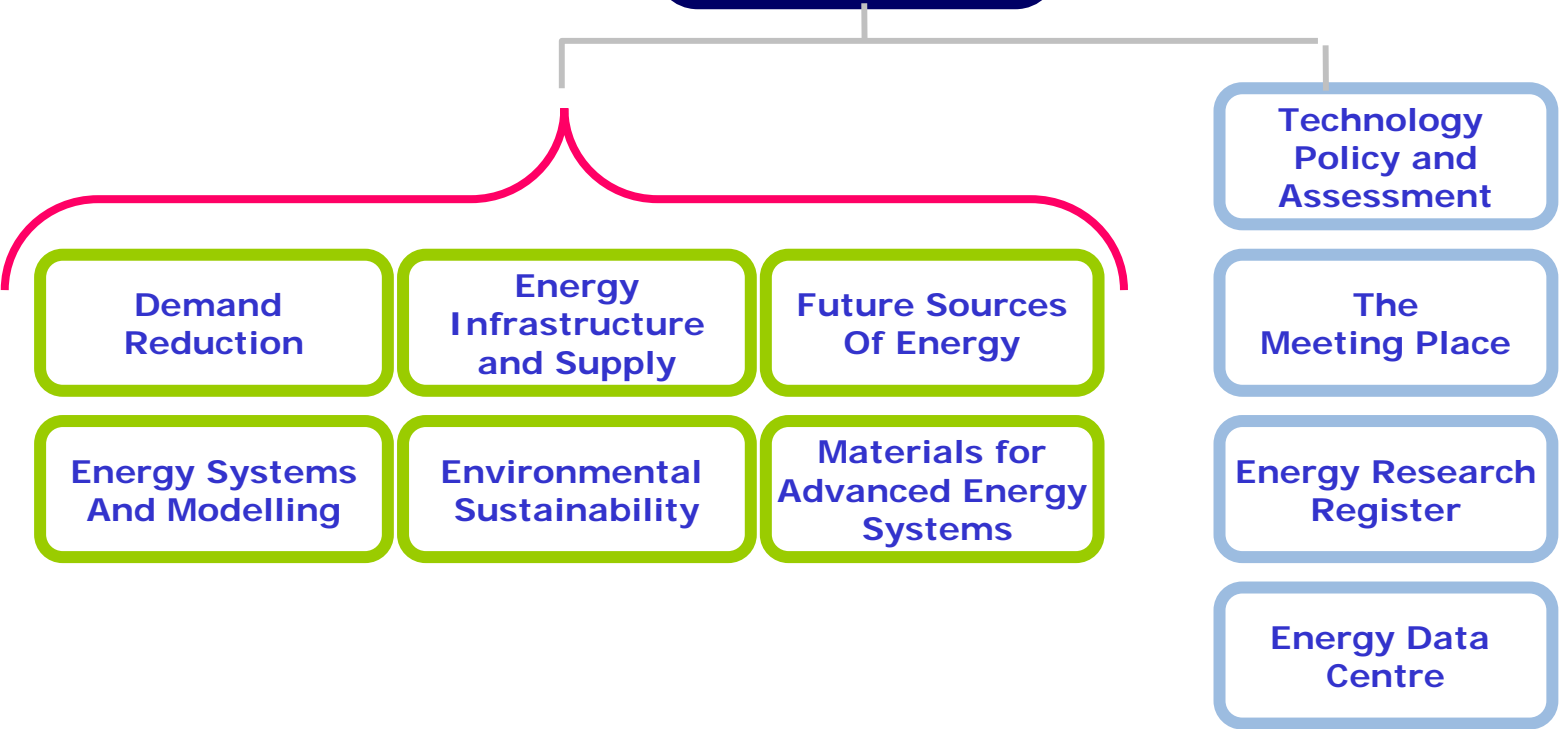
# UKERC Structure



**John Loughhead,**  
executive  
director



**Professor Jim Skea,**  
research  
director



An illustration of several offshore wind turbines in a field, rendered in a light teal and white color scheme. The word "Why?" is centered over the image in a bold, dark blue font.

## Why?

- The UKERC Marine Road-map is being compiled to:
  - identify the research priorities
  - identify critical areas of research – potential show-stoppers.
  - identify areas and groups for collaboration outside the current research landscape.
  - advise on research funding strategies
  - demonstrate the need for coordinated research activity between academia and industry

# Energy Research Atlas

“an authoritative and comprehensive account of capabilities and unsolved research problems across the energy domain”

## Research Landscape:

Characterising energy-related research activities and capabilities (program level)

## Research Register:

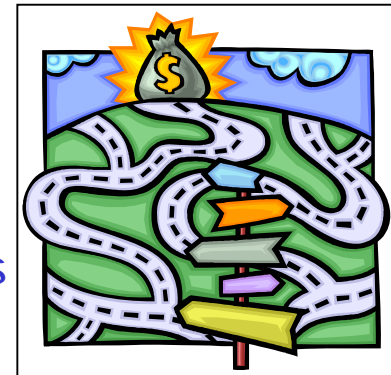
An on-line searchable database of energy related awards and projects

## Research Route Map:

Identifying the sequence of research and other problems to be overcome before new technologies become commercialised

# Research Route maps

- Work with the research community and stakeholders to identify existing maps and research needs, fill in gaps and bring these together into a single “atlas”
- Identifying the sequence of research problems to be overcome before new technologies can be commercially viable.
- Consensus-based, interdisciplinary and dynamic
- Need to be scenario-based
- Currently no environmental research route maps



# Current Landscape

- Research Funding
  - UKERC (Research Councils)
  - JNCC
  - Oceans 25
  - CE – Marine Stewardship Programme
  - COWRIE }  
▪ RAG }
- Fundamental Research Providers
  - Only a few University research groups active in environmental impacts marine renewable technologies
- Applied Research Providers
  - Full-scale Offshore Test Facility – EMEC, Orkney
  - Proposed Wave Hub project in SW England



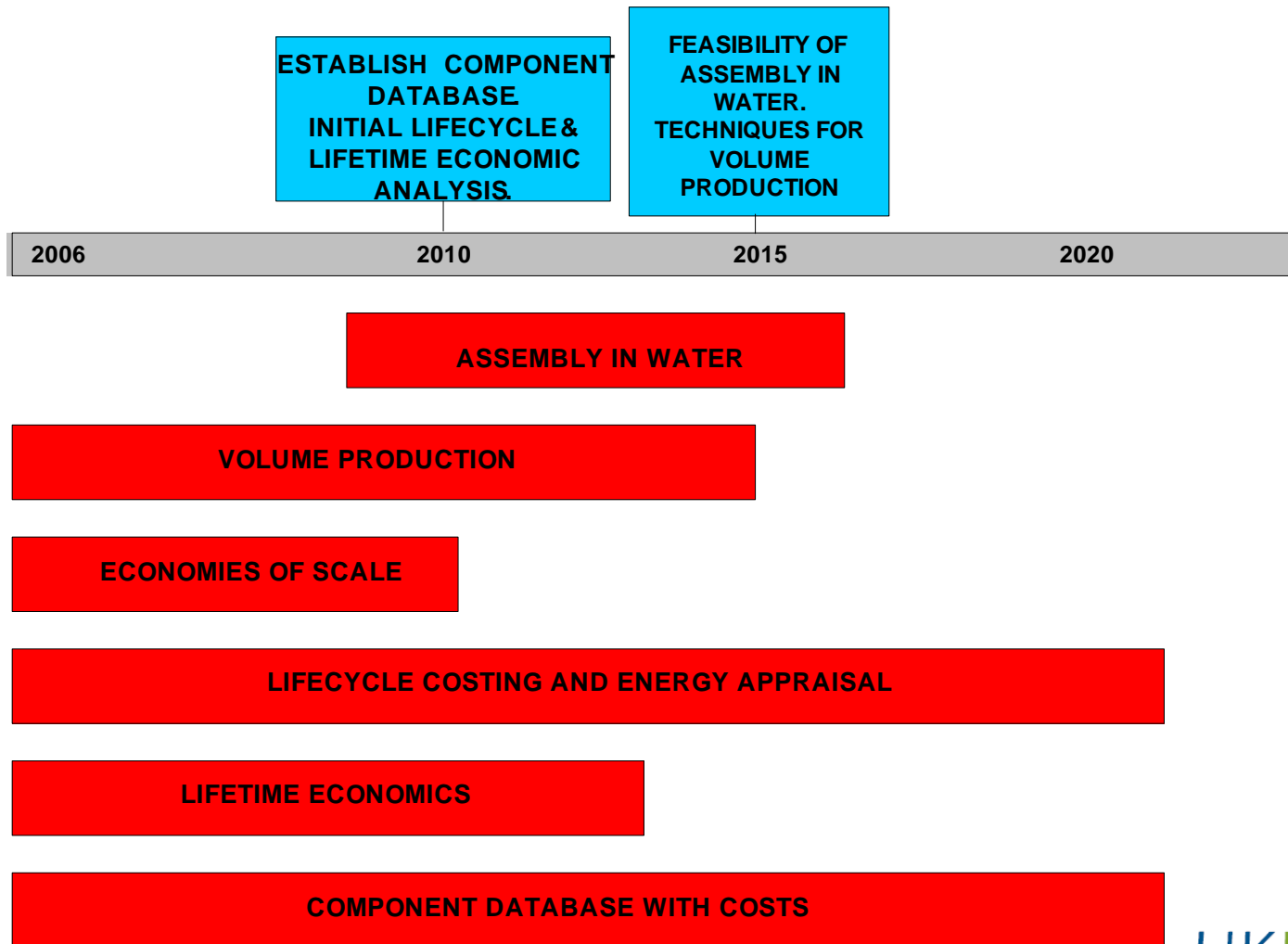
The background of the slide features a light teal color with a faint, stylized illustration of several wind turbines. The turbines are depicted in white and grey, with their blades extending outwards. The overall aesthetic is clean and modern, typical of a professional presentation.

# Landscape Analysis

- Research Priorities
  - Marine energy SEA for all of UK - Baseline
  - Fishing impacts – reefing effects and management
  - Noise
  - Coastal Processes
  - Energy Extraction
  - Seals, Cetaceans and turbines
  - EMF
  - Impacts from full arrays



# Timelines: Life cycle & Manufacturing



# Timelines: Environmental

Basic understanding of environmental issues & some experimental data from early projects.

Experimental data on environmental issues from full scale projects

2006

2010

2015

2020

**FOUNDATIONS**

**SCOURING**

**NOISE**

**EMF FROM POWER CABLES**

**OTHER MARINE USERS**

**EFFECT ON MARINE LIFE AND ECOSYSTEM**

**IMPACT OF ENVIRONMENT ON PERFORMANCE**

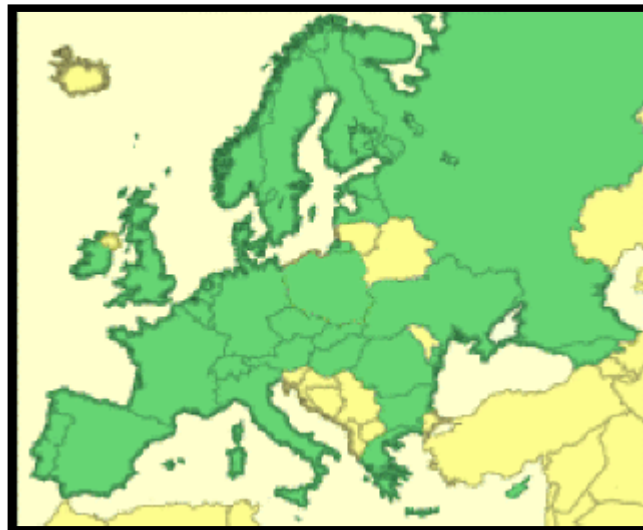
**MONITORING SYSTEMS**

**CLASSIFICATION OF DEVICES ACCORDING TO ENVIRONMENTAL IMPACT**



# Future Activities

- Cooperate at EU level and with other EU partners
  - **EU wide route map?**
  - **National route maps feeding into EU Research route map**





# Questions ?

Thank you for your attention

For more information

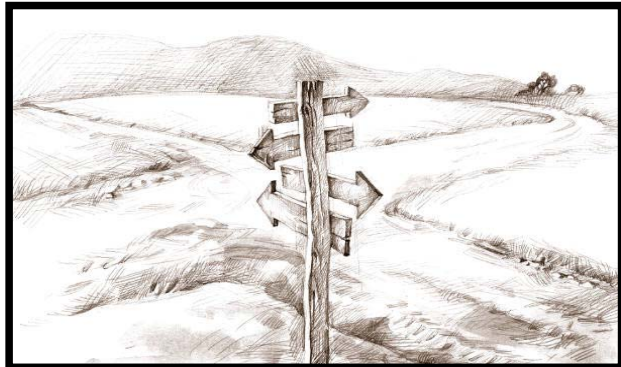
**UKERC:**

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**UKERC**