

Future Challenges in Marine Survey

IECO 2010 SEMINAR

TOPICS

- What is marine survey?
- What are the offshore markets?
- How will these markets develop?
- What are the challenges?
- How can we meet these challenges?



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MARINE SURVEY

- **Wikipedia**
 - Marine survey is the science of measurement and description of features, which affect maritime navigation, marine construction, offshore oil & gas, renewable energy, sea pollution...
- **Scientific**
 - Marine survey is the techniques and processes used to evaluate the physical, geological, biological and chemical characteristics of the lower atmosphere, water column, and seabed...
- **Deeming**
 - Marine survey is the measurement and understanding of the impacts by the marine environment and the impacts on the marine environment...



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MARKETS FOR MARINE SURVEY



PORTS & SHIPPING



COASTAL ENGINEERING



TELECOMS



AGGREGATES



WASTE MANAGEMENT

WHERE ENGINEERING MEETS THE ENVIRONMENT



KEY MARKETS FOR MARINE SURVEY: ENERGY



OIL & GAS



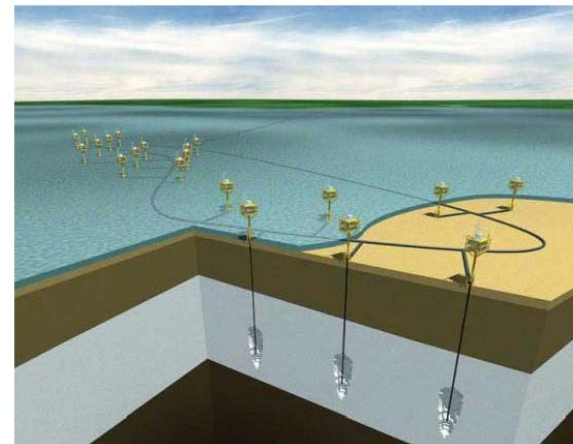
RENEWABLE ENERGY



NUCLEAR POWER



POWER CABLES



OFFSHORE GAS STORAGE

WHERE ENGINEERING MEETS THE ENVIRONMENT



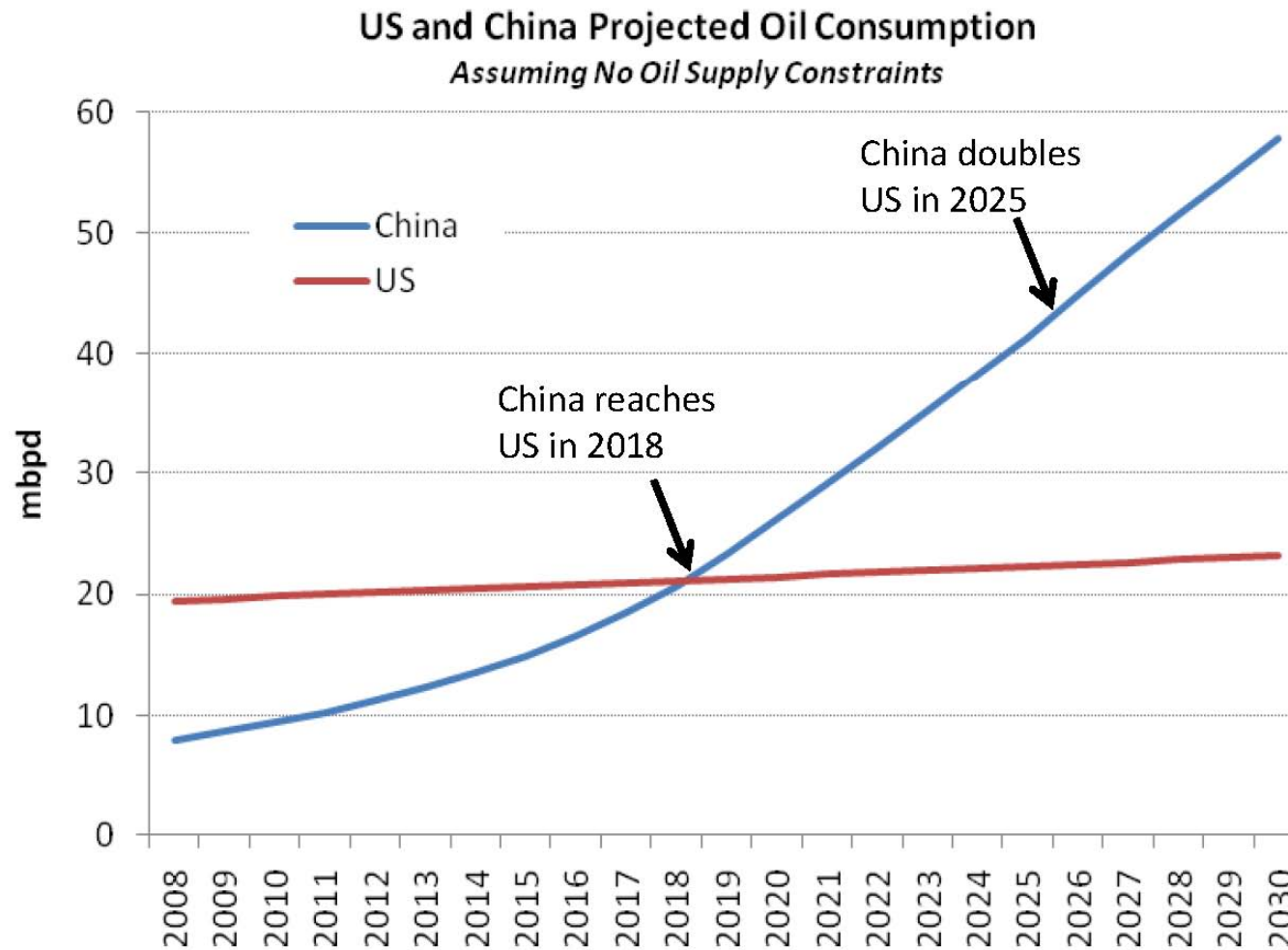
ENERGY: ONE DRIVER

Douglas –
Westwood

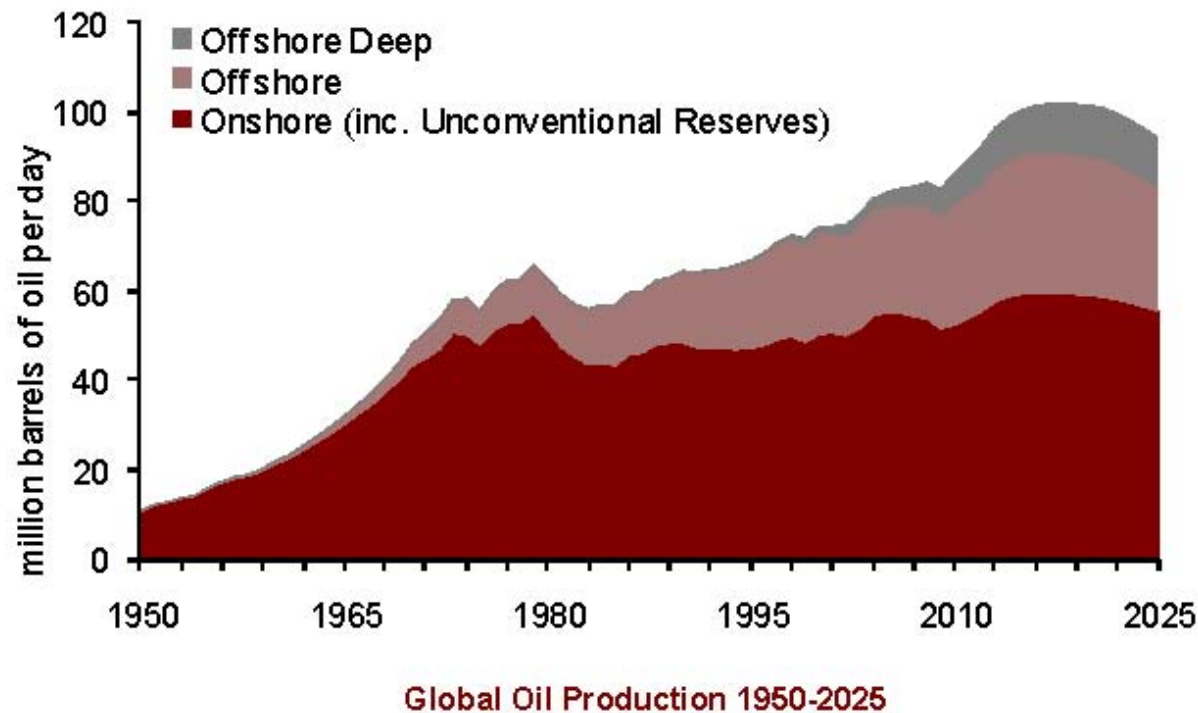
Energy – Two Linked Concerns; One Driver



CHINA'S RAPID GROWTH



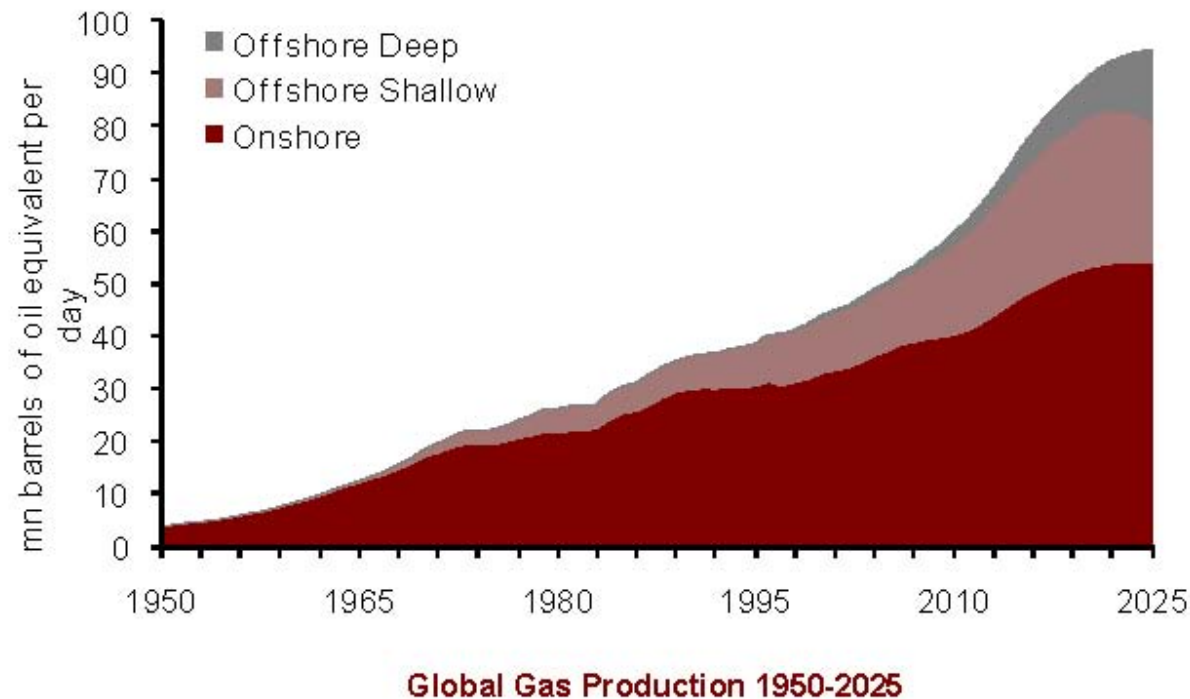
GROWING IMPORTANCE OF OFFSHORE OIL



Douglas –
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GROWING IMPORTANCE OF OFFSHORE GAS



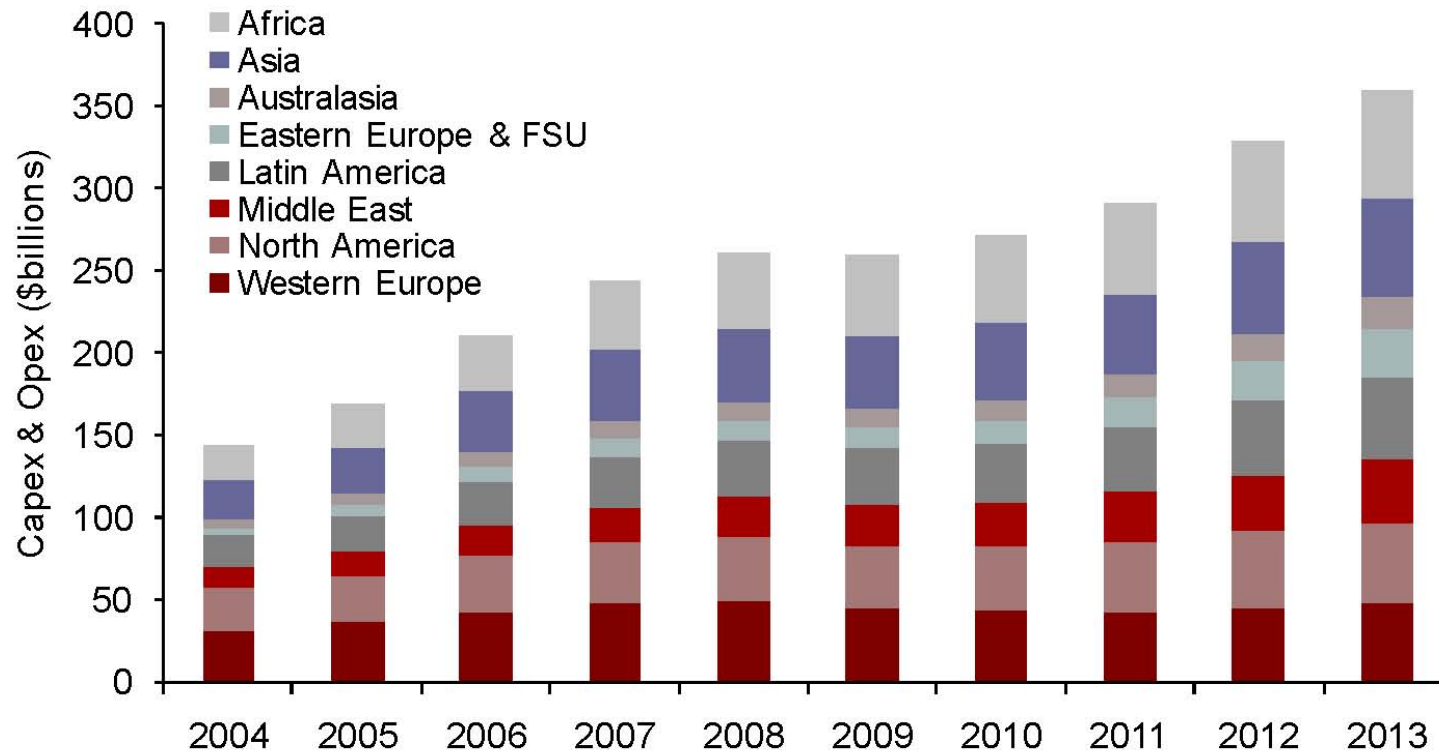
Douglas –
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GLOBAL OFFSHORE O & G SPEND TO GROW

Source: EnergyFiles



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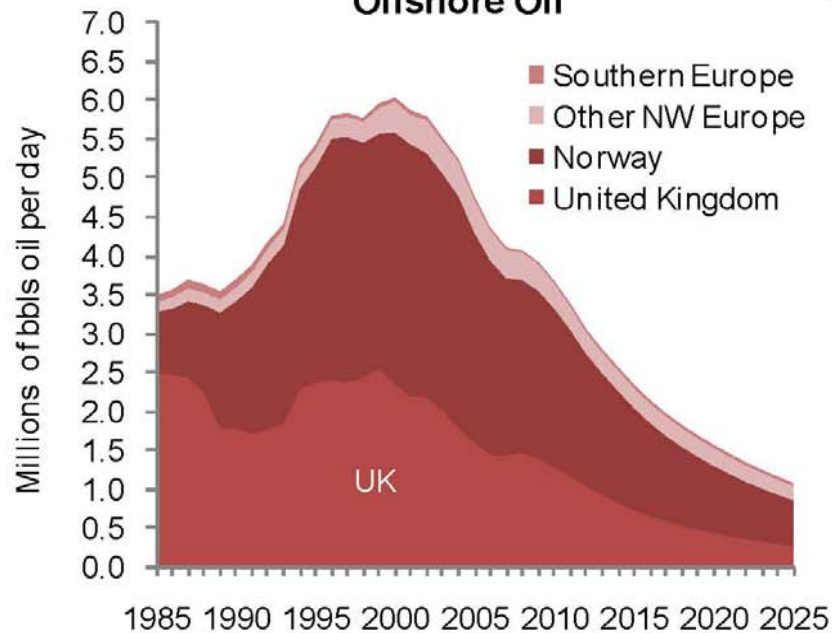


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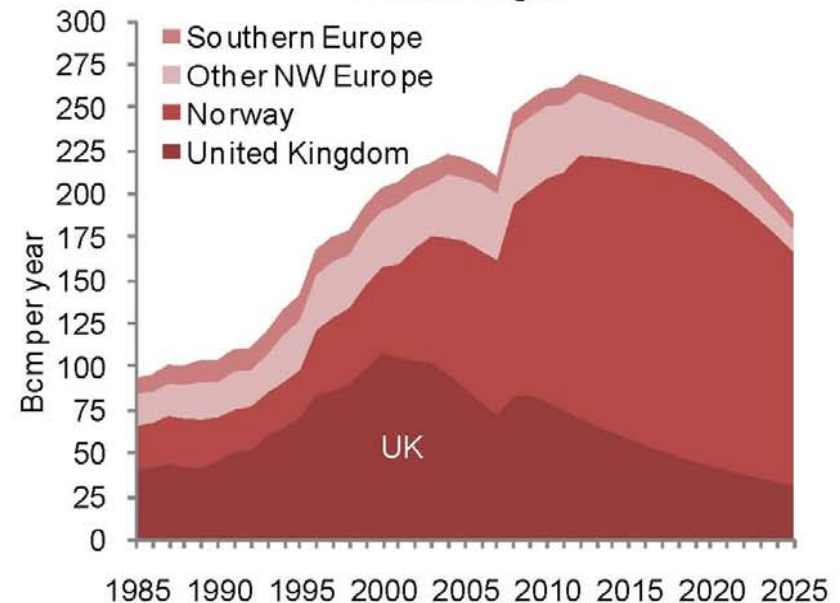
BUT EUROPE O & G WILL DECLINE

Offshore Oil

Source: Energyfiles



Offshore gas



Douglas -
Westwood



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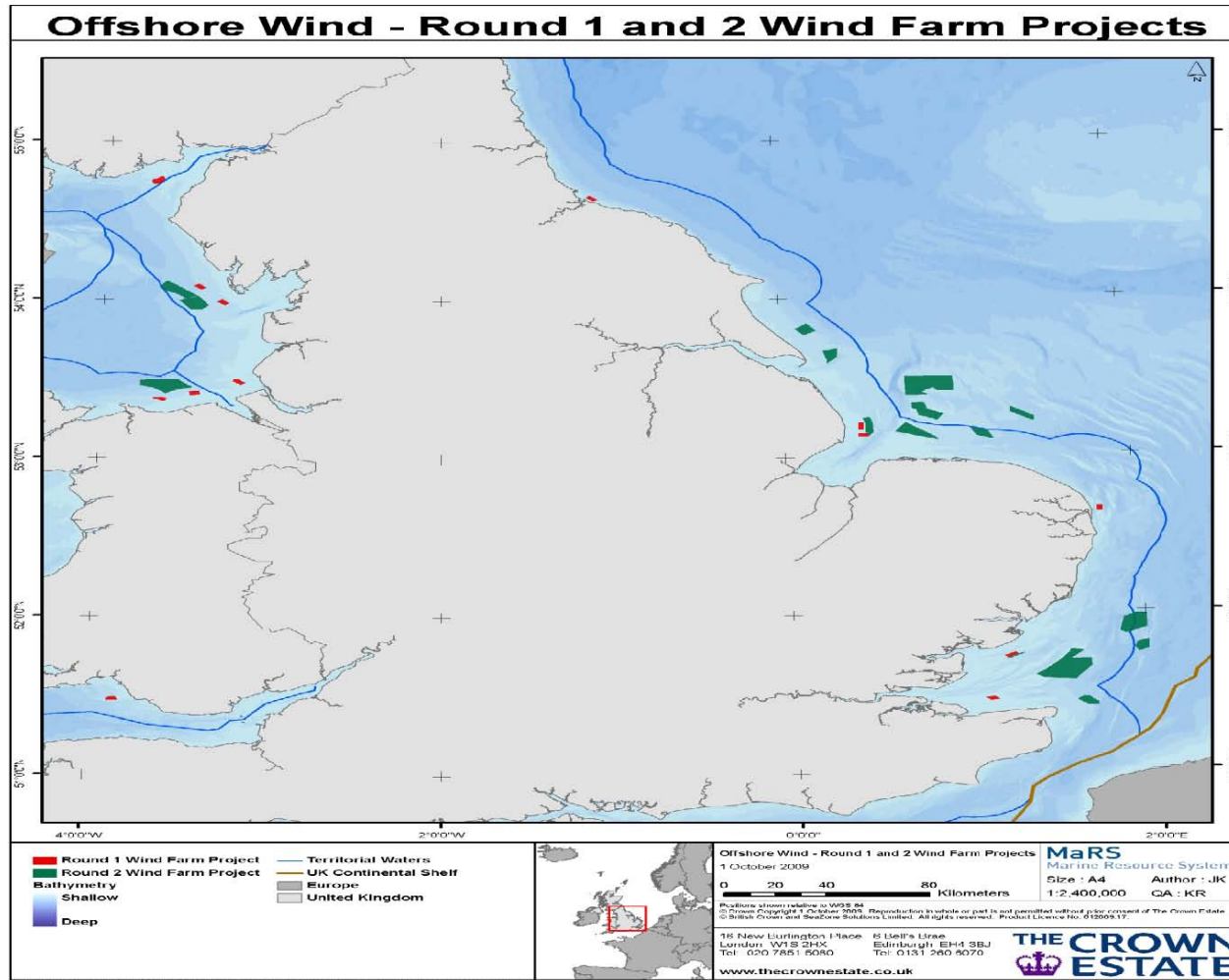
WILL THE LIGHTS GO OUT?



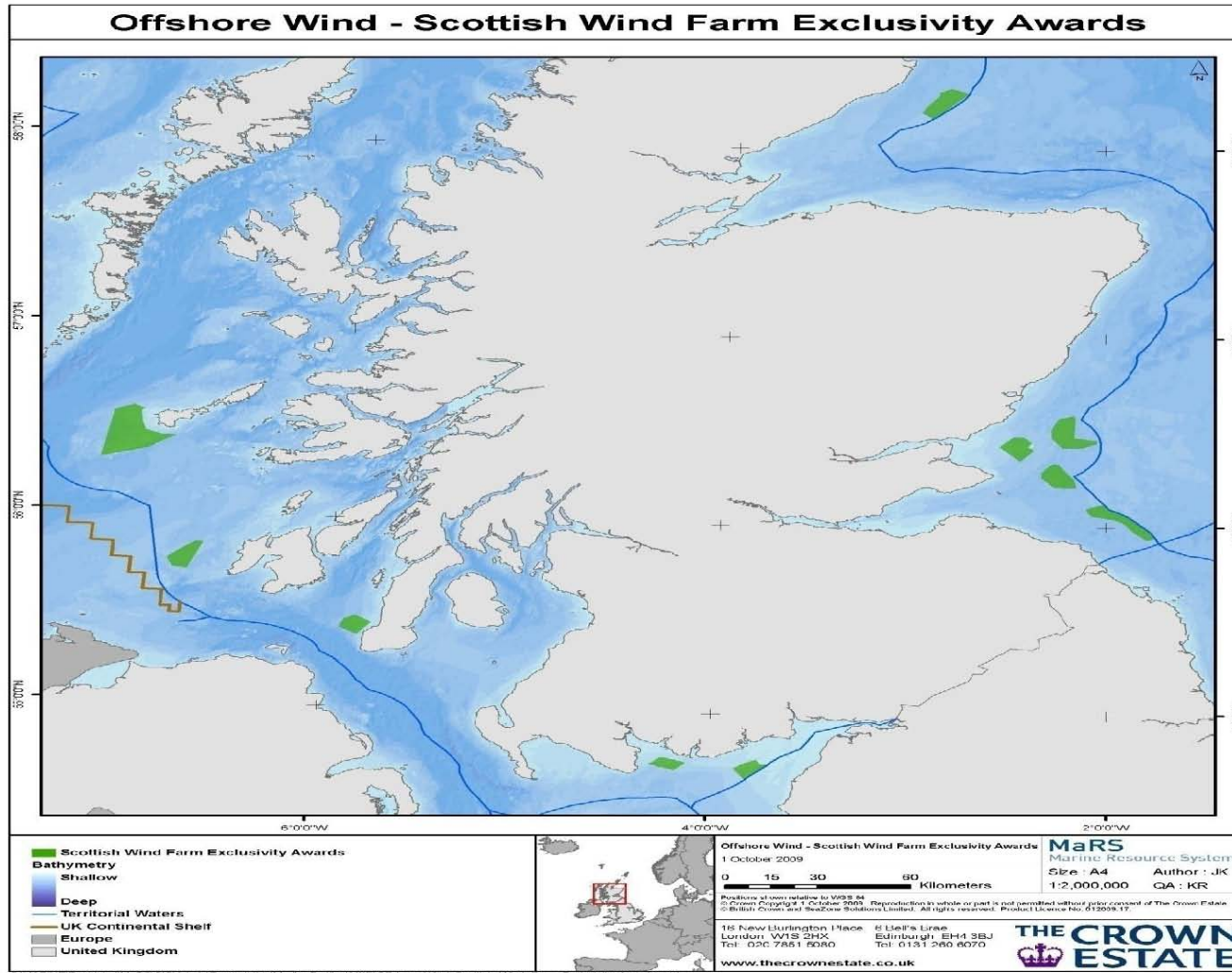
WHERE ENGINEERING MEETS THE ENVIRONMENT



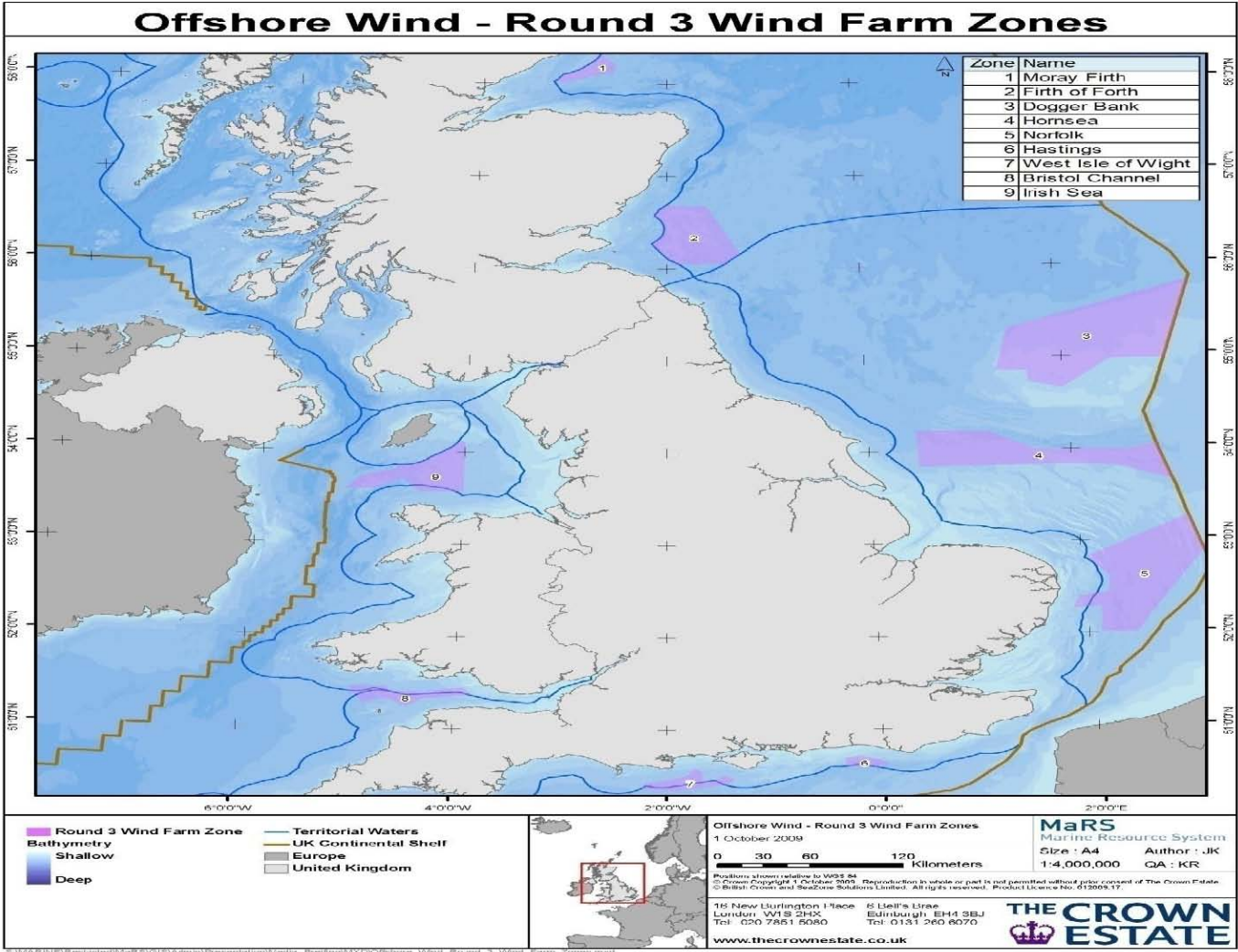
OFFSHORE WIND



OFFSHORE WIND

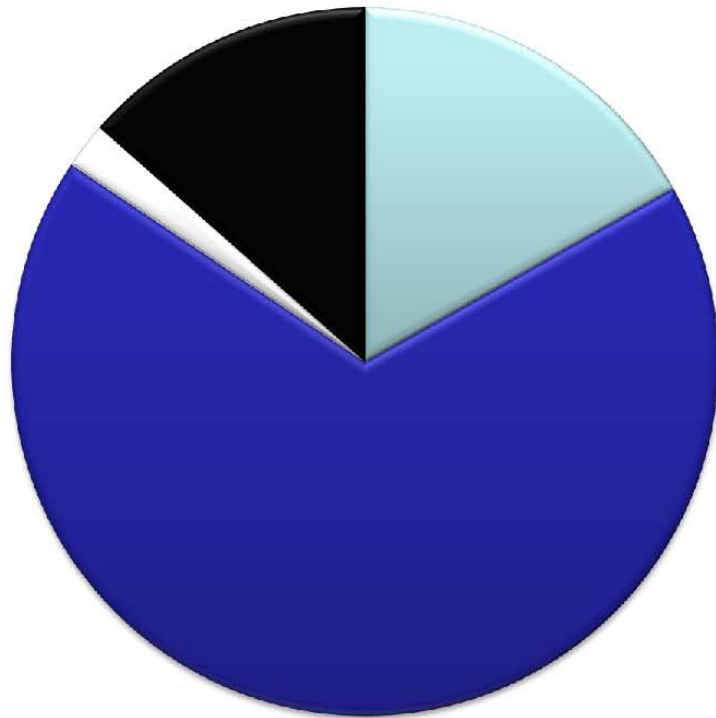


OFFSHORE WIND



OFFSHORE WIND: GW PLANNED

47+ GW of installed energy: a third of the UK's electricity demand



- Rounds 1+2: 8 GW approved
- Round 3: Bids received for 32GW
- Round 2 Extension: Interest in 1 GW plus
- Scottish Territorial Waters: Option leases awarded for 6.4 GW



OFFSHORE WIND INSTALLATION

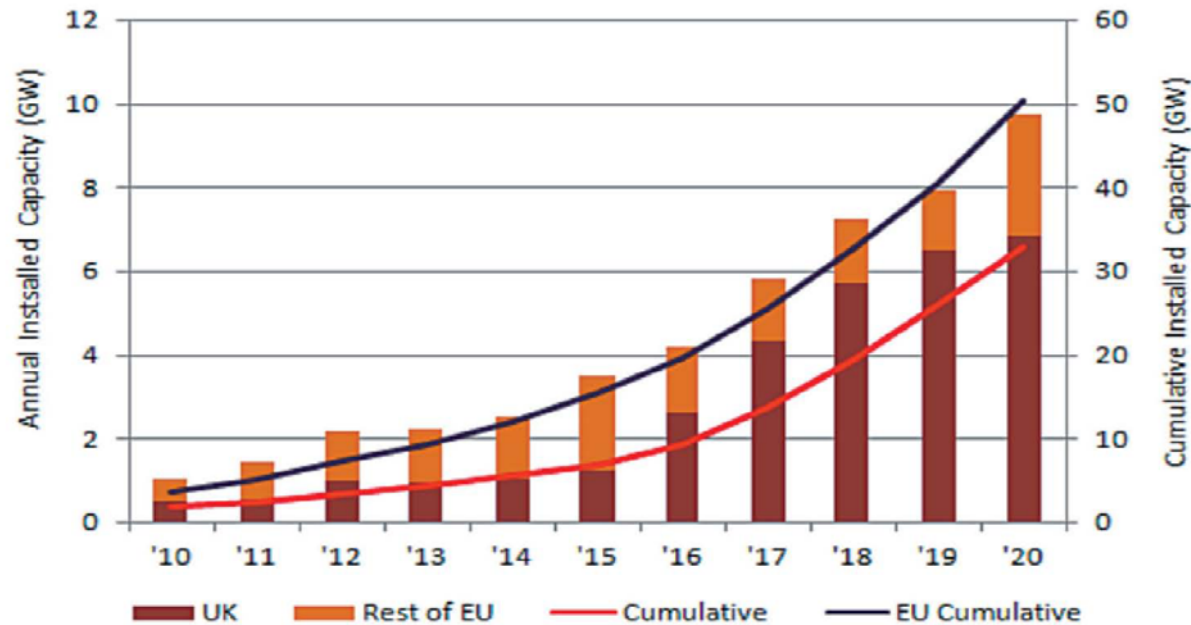
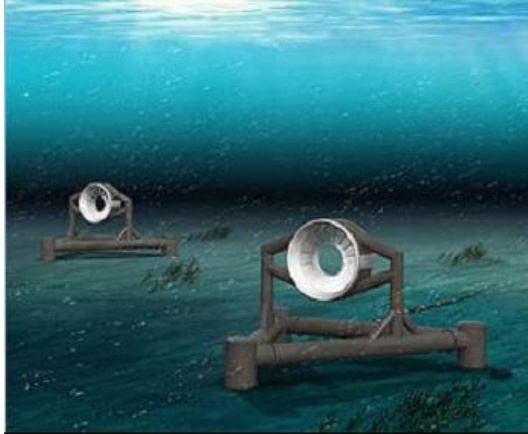


Figure 1.4.1. Projected annual and cumulative offshore installation to 2020 in MW in UK and rest of Europe.

*Source: BVG Associates, Towards Round 3: Building the Offshore Wind Supply Chain

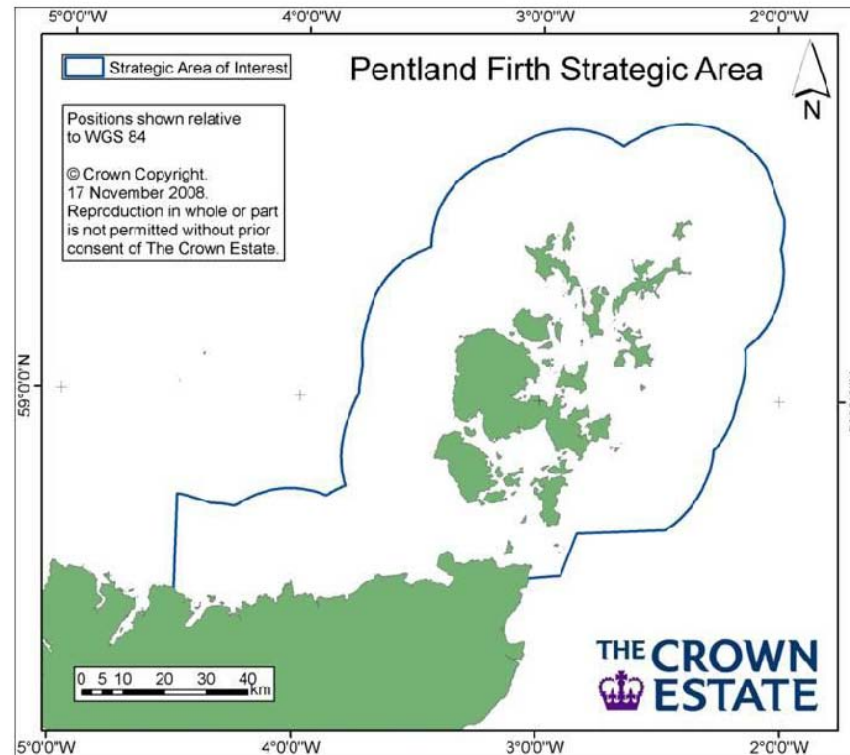
TIDAL ENERGY: CURRENTS



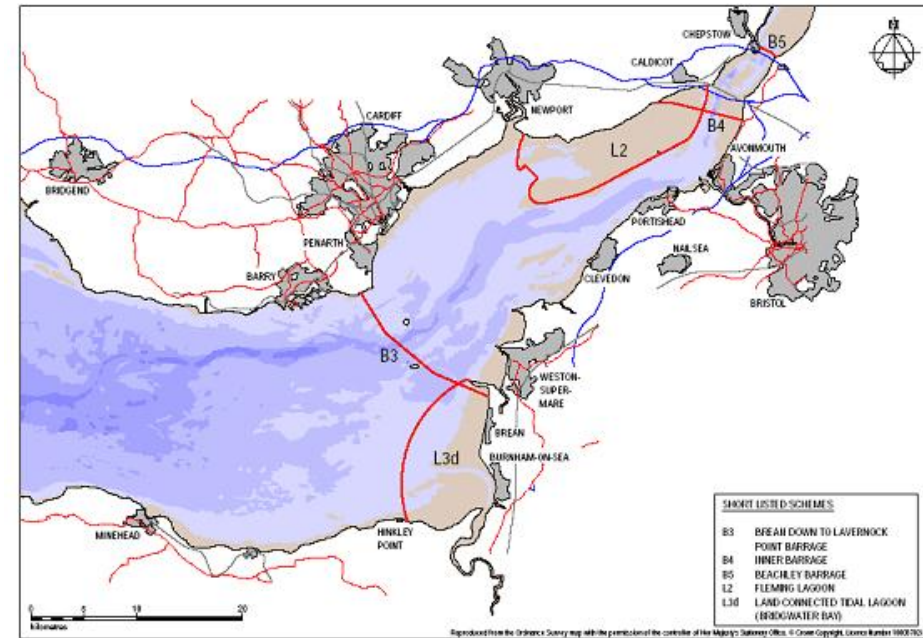
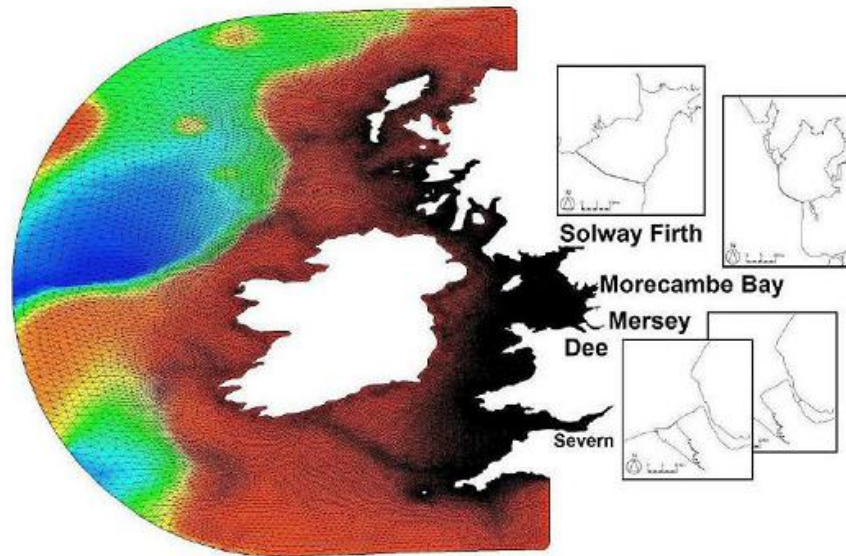
OpenHydro



Pelamis

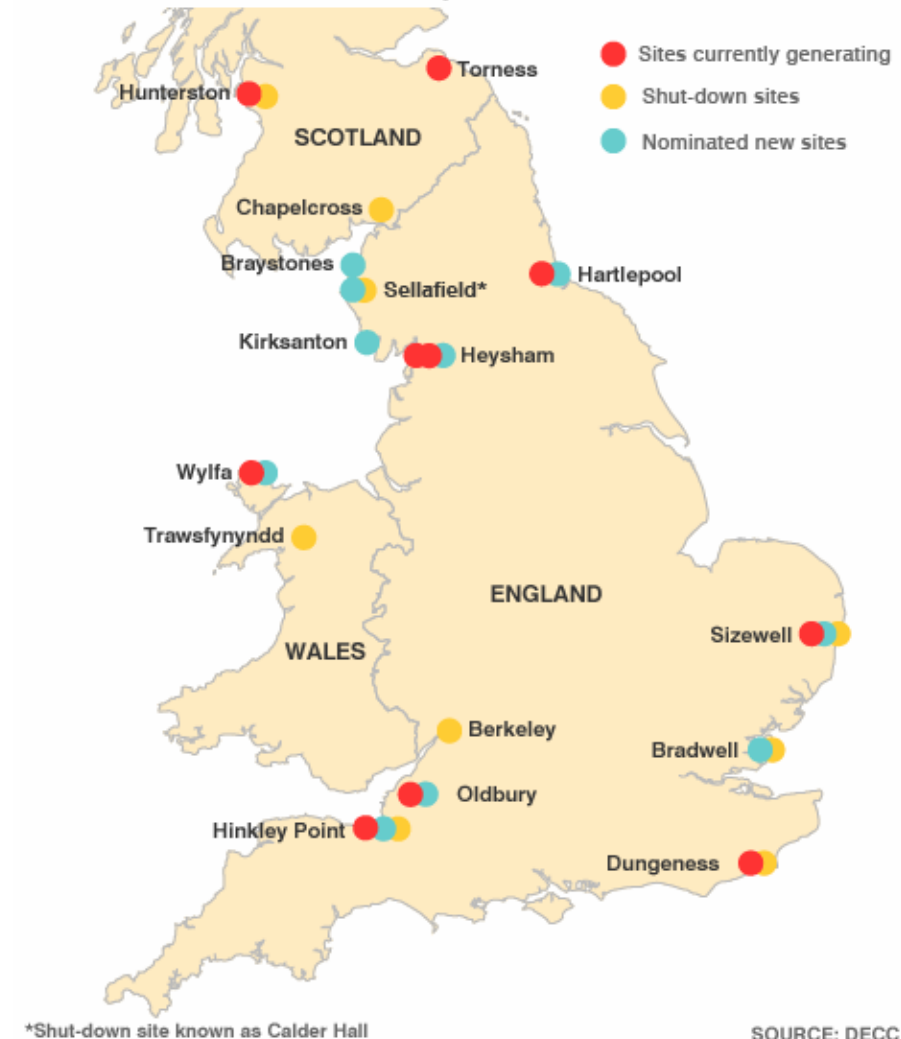


TIDAL BARRAGES

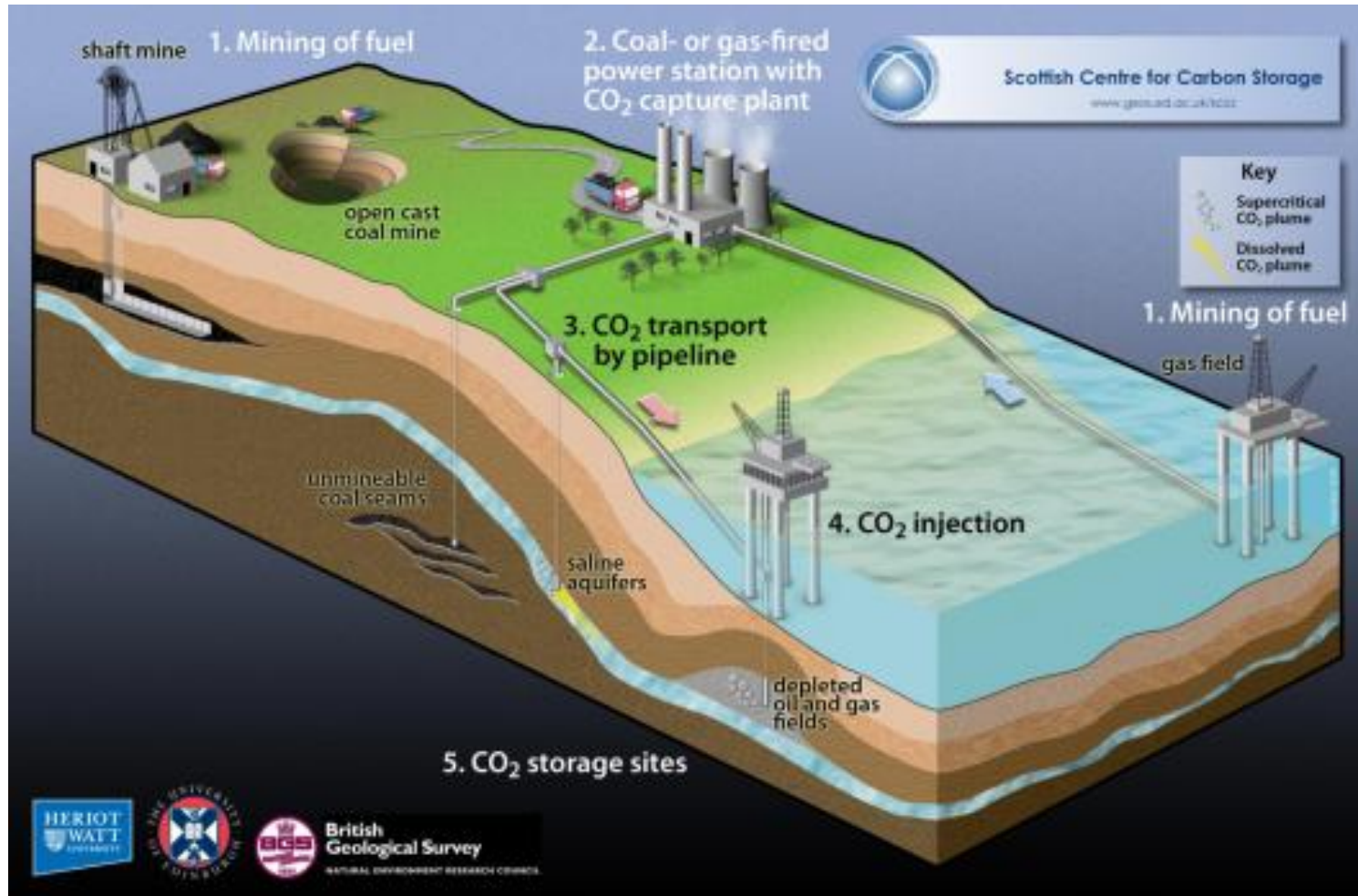


NUCLEAR POWER

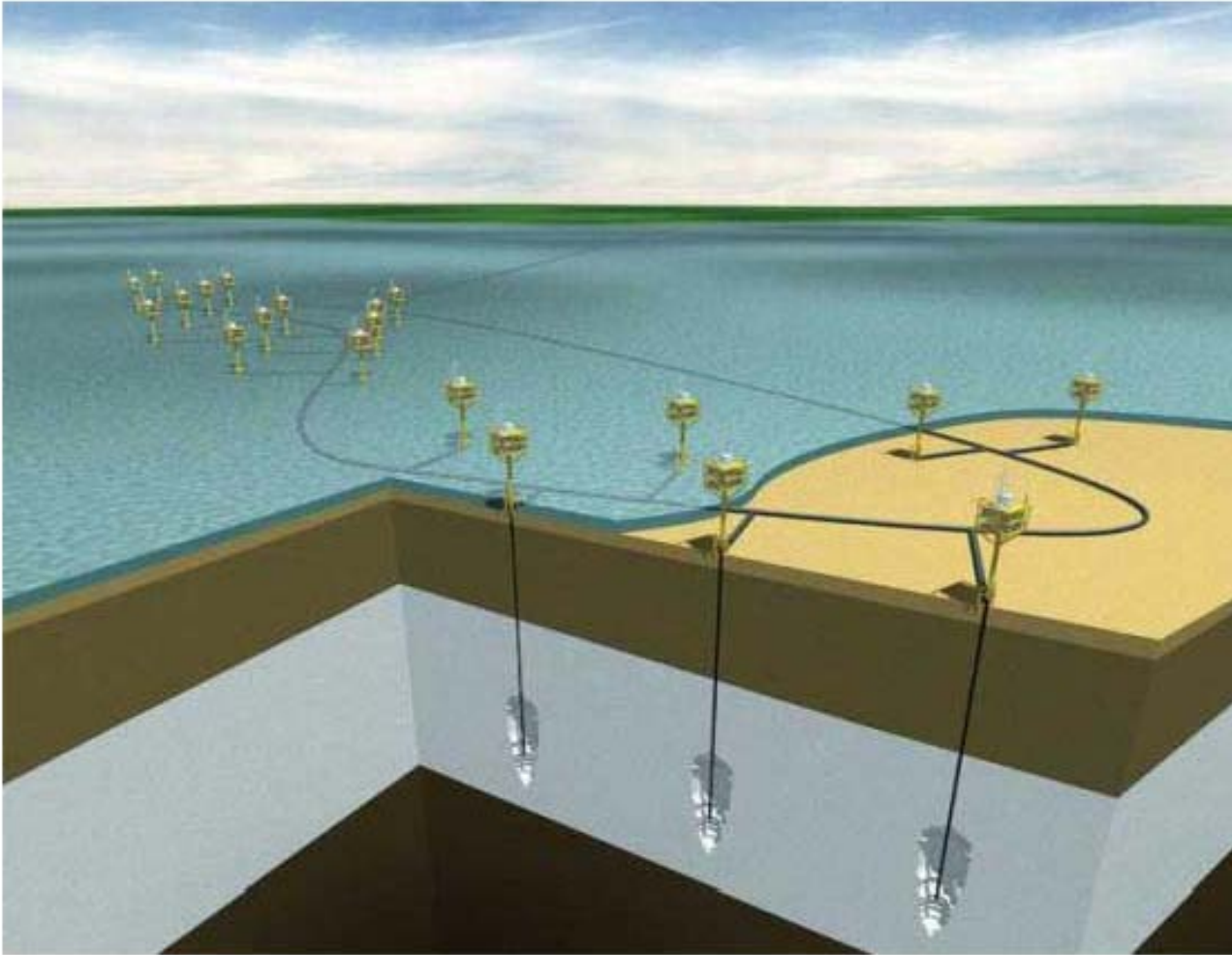
Nominated sites for new nuclear power stations



CARBON CAPTURE & STORAGE



Offshore Gas Storage



WHERE ENGINEERING MEETS THE ENVIRONMENT



SuperGrid

1st Phase 2020

Fully operational 2050



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WHAT ARE THE CHALLENGES?

- Ability of the marine survey industry to change and adapt to some of the new challenges
- Limited number of 'Consultants'
 - Some very niched
 - Some coming off the land because they see a huge prize
 - Only a few with significant marine credentials



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WHAT ARE THE CHALLENGES?

- Limited number of Contractors
 - 3 or 4 'Premier Division' Contractors
 - 4 or 5 'First Division' Contractors
 - Some with aspirations to become 'Contrultants'
- Availability of trained and experienced staff
 - who want to work offshore
- Availability of survey vessels and equipment suitable for the variety of tasks



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WHAT ARE THE CHALLENGES?

- Uncertainty in the political and financial will
- Very tight finances
- Project Teams only just crystallising
- Lack of understanding of the marine environment
- Lack of an integrated approach?
- The Procurement Process pushing down prices and quality



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WHAT ARE THE SOLUTIONS?

- Increase in education of a wide range of marine disciplines – except possibly biology.
- Greater transfer of oil and gas skills into the new energy markets
- Greater use of advisors (consultants)
- Better planning and programming
- Improved purchasing & contract procedures



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WHAT ARE THE SOLUTIONS?

Appropriate Contractors, equipment, and vessels

Integrate as much marine survey as possible

Recognise that we are dealing with a complex, multi-faceted environment



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THANK YOU FOR STICKING WITH ME

ANY QUESTIONS?