

Energising The Future

Wind Energy Development in the UK

Stockholm December 2010

Rob Hastings

Director of The Marine Estates

The Crown Estate

A Brief History Of The Crown Estate

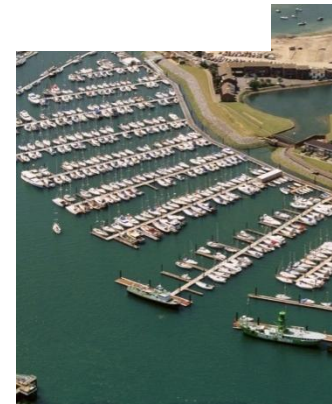
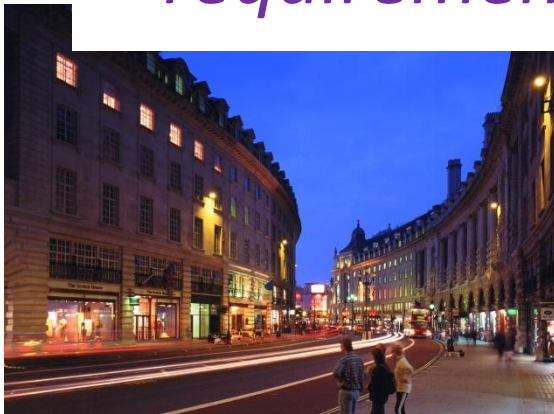
- *1760 George III*: the net revenues of the Crown were given to Parliament
- Monarch's expenses paid by government in return
- Similar arrangements been made by all succeeding Sovereigns



The Crown Estate

The Crown Estate Act 1961

Section 1(3) *“It shall be the general duty of the Commissioners, while maintaining the Crown Estate ... to ... enhance its value and the return obtained from it, but with due regard to the requirements of good management”*



What makes up our £7bn property portfolio...

Commercial

- Residential
- Retail
- Offices
- Industrial

Rural

- Land/Forestry
- Farms
- Quarries
- Parkland

Marine

- Seabed
- Foreshore
- Fish farms
- Wind farms

Other

- Castles
- Racecourse

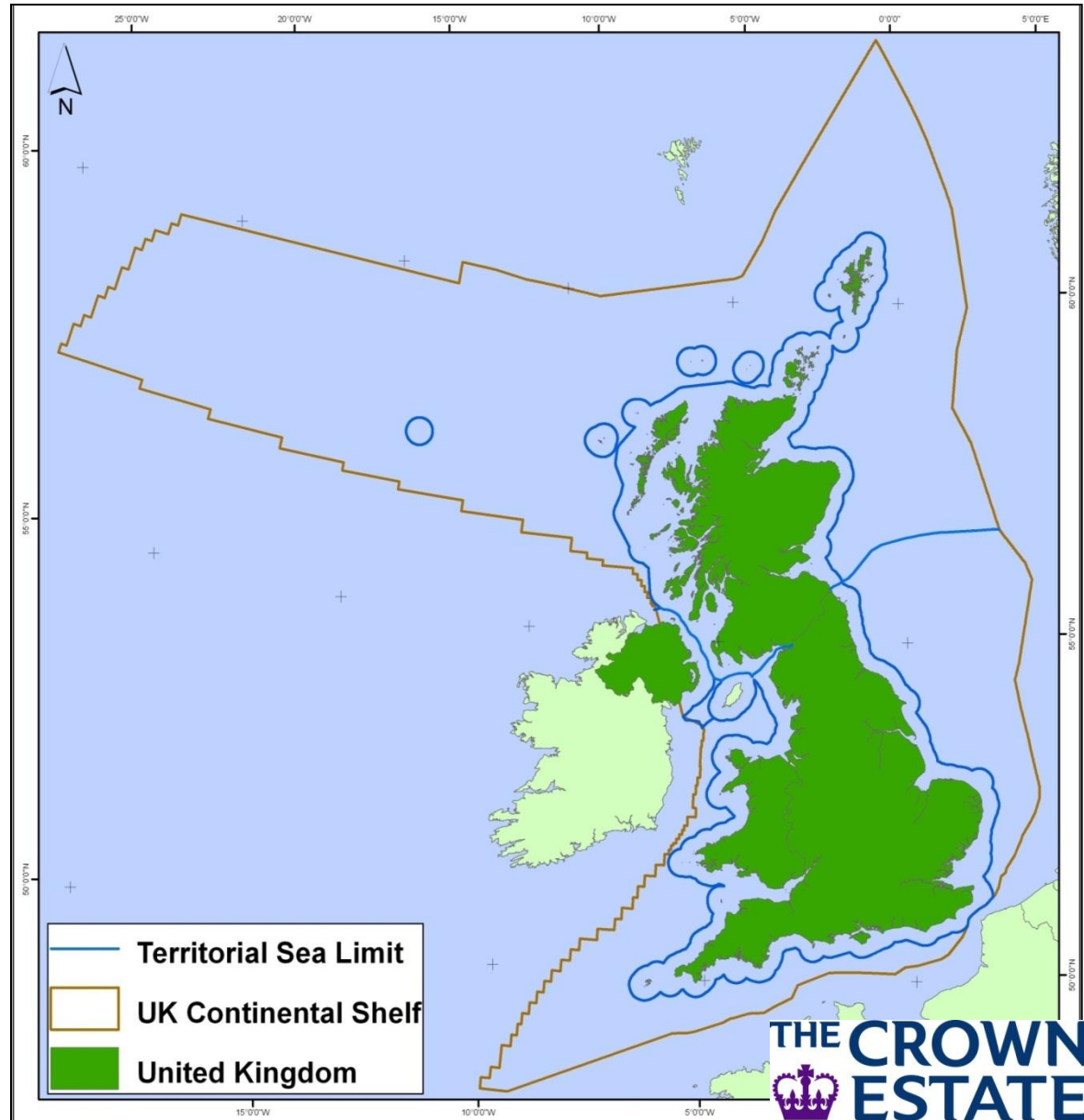
The Marine Estate



Ownership of approx 55% of the foreshore around the UK and virtually all the seabed within the Territorial sea (12nm)

Rights to explore & utilise the natural resources of the continental shelf out to 200nm (excluding hydrocarbons)

Rights to lease areas for the generation of renewable energy within the UK's Renewable Energy Zone



UK's Renewable Energy Targets



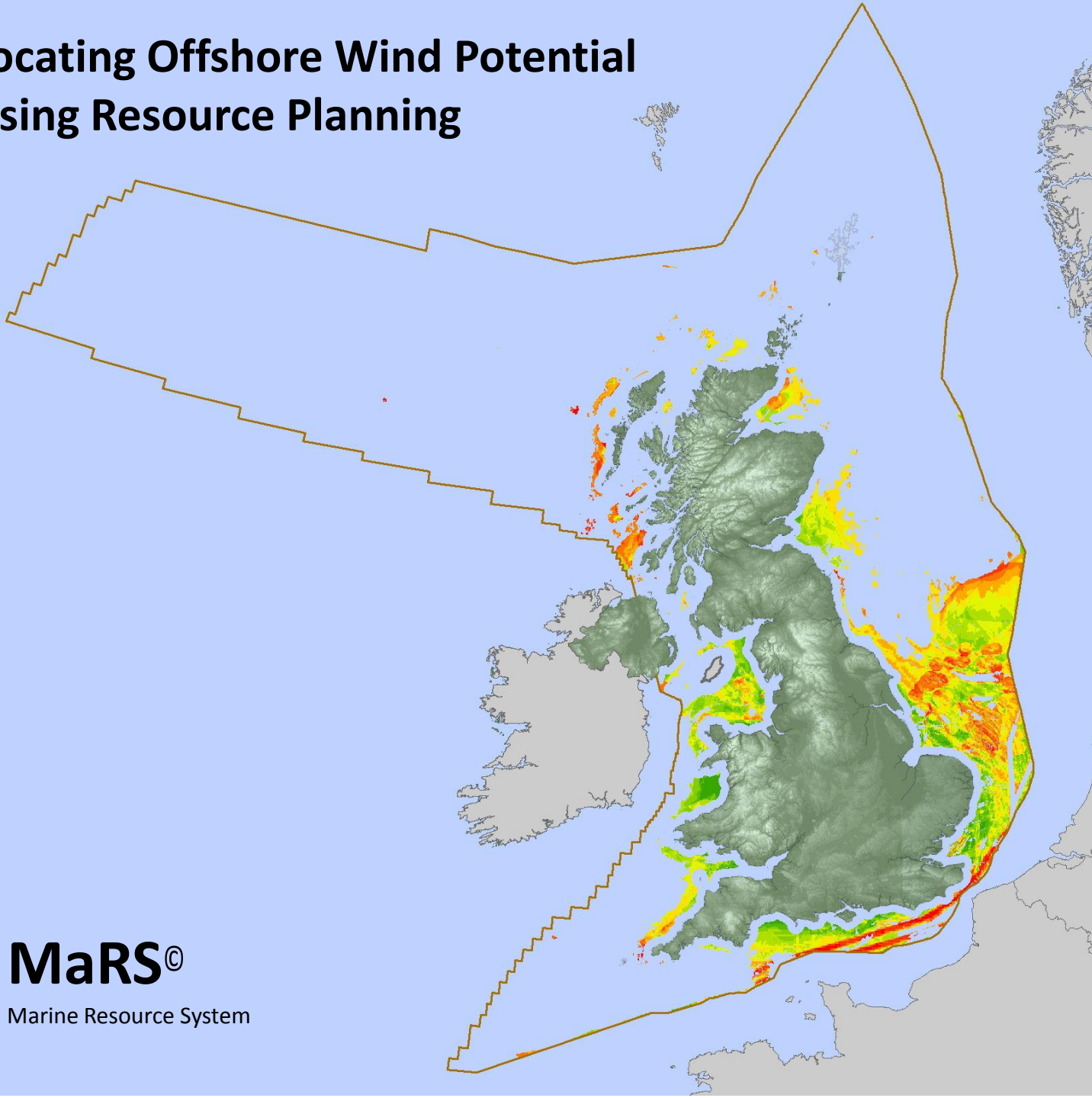
- 15% of all energy consumed within the UK including electrical, heat and transport fuel must come from renewable resources by 2020
- Heat and transport fuel present particularly difficult challenges
- Electricity provides greatest opportunity to distribute renewable energy and large scale electrification of UK's energy infrastructure is expected and at least 40% of electricity consumed by 2020 will be from renewable resources
- The majority of renewable electricity will come from wind energy, with the larger contribution from offshore.

Locating Offshore Wind Potential Using Resource Planning

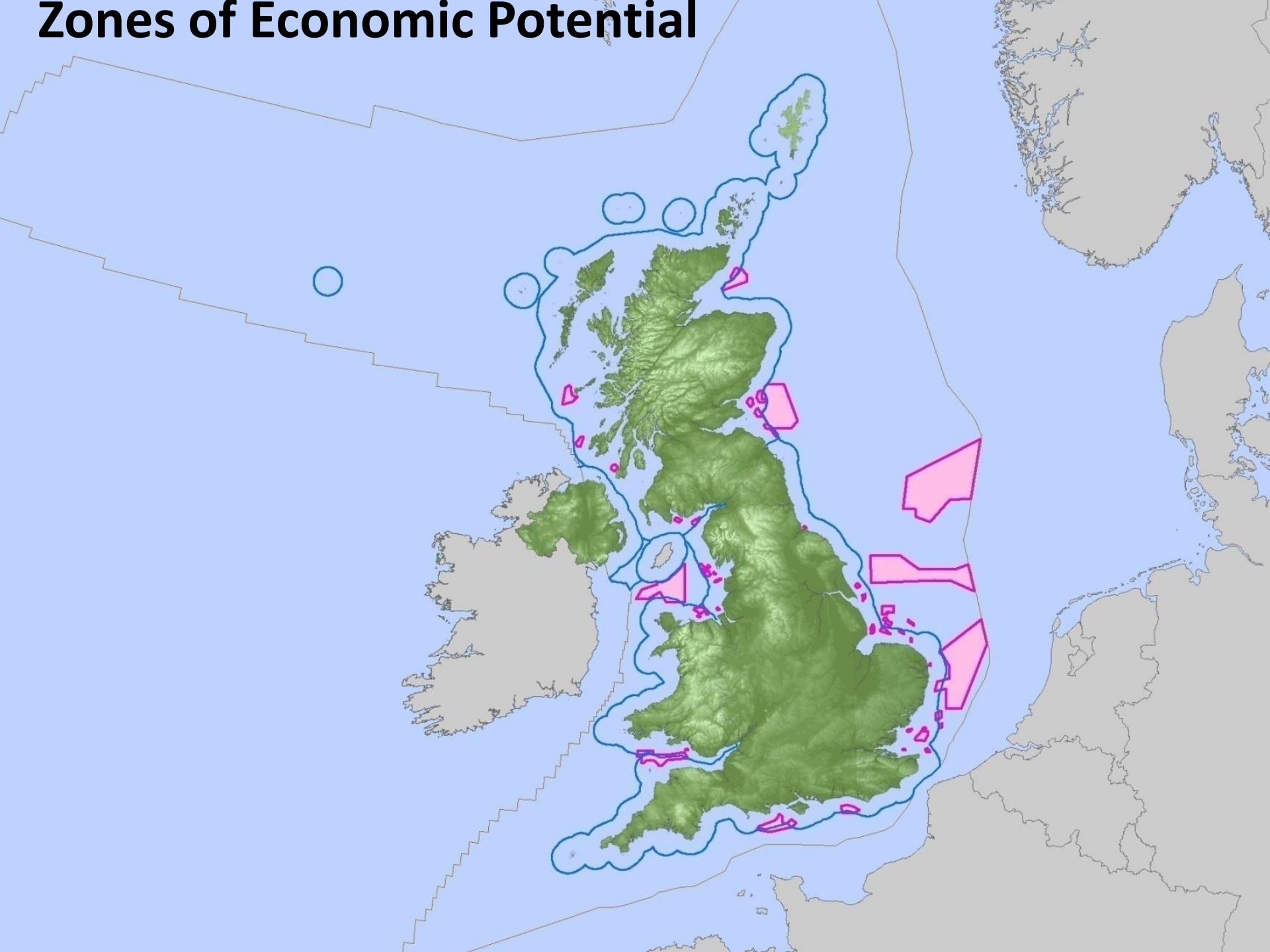
- Over 600 national datasets
- Uses sustainable development methodologies
- Produces development risk profile for an activity at a particular location

MaRS[©]

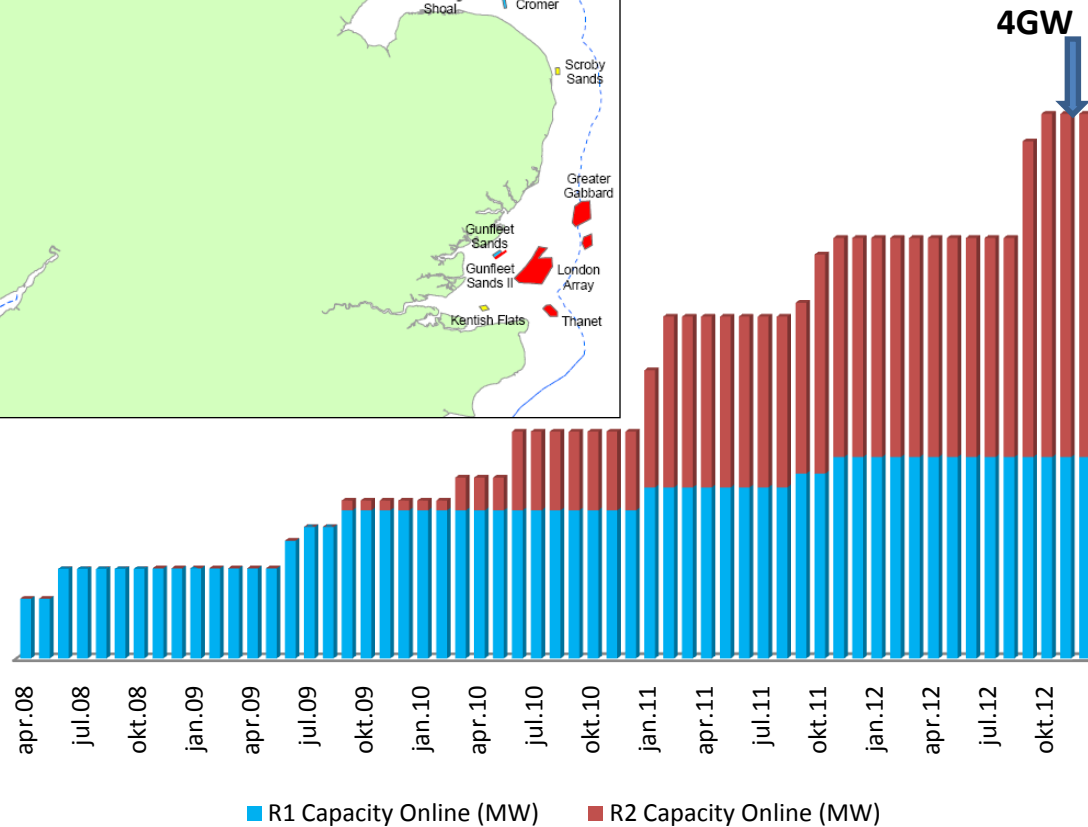
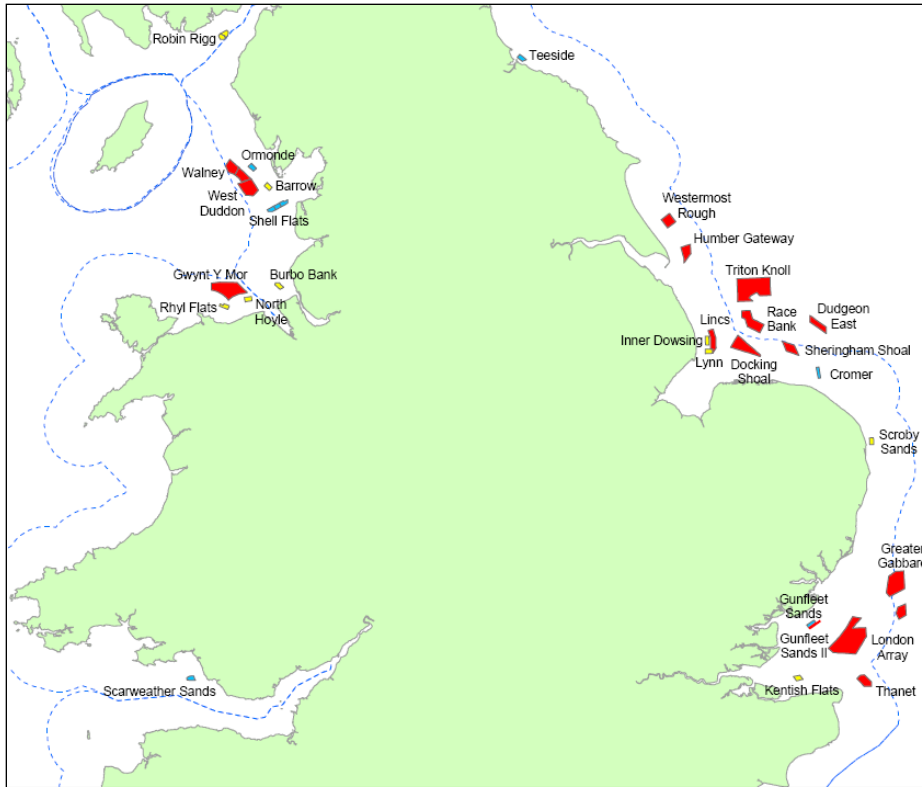
Marine Resource System



Zones of Economic Potential



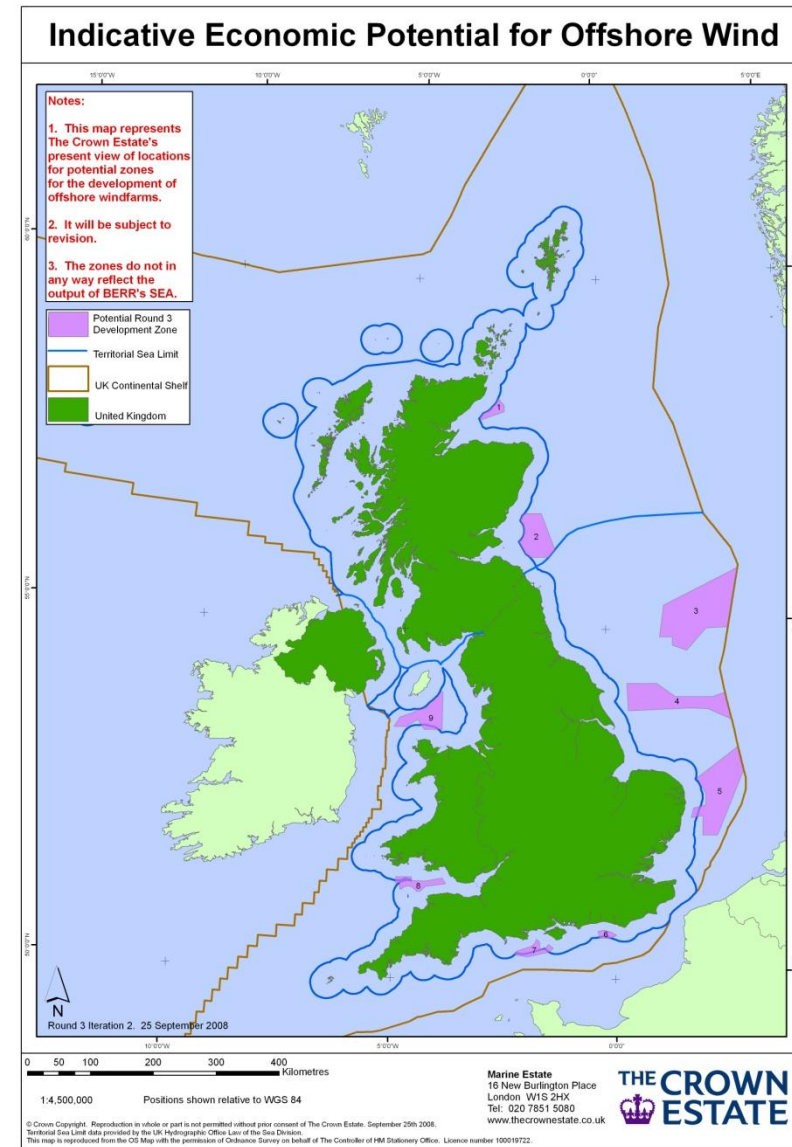
Round One & Two Sites



7-8GW of wind farms either Under construction or in operation by 2020

Round 3 Timeframe

Year	Milestone
Q2 2009	Government Decision on SEA
Q3 2009	Planning Act: IPC Finalise Zones Awarded Zones
2010	Commenced Zonal Development Plans
2011	SPCs formed
2012/13	Site consents
2014	Construction commences
2020	25GW under construction or operation



Scottish Territorial Offshore Wind Farm Program (Inside 12nm)

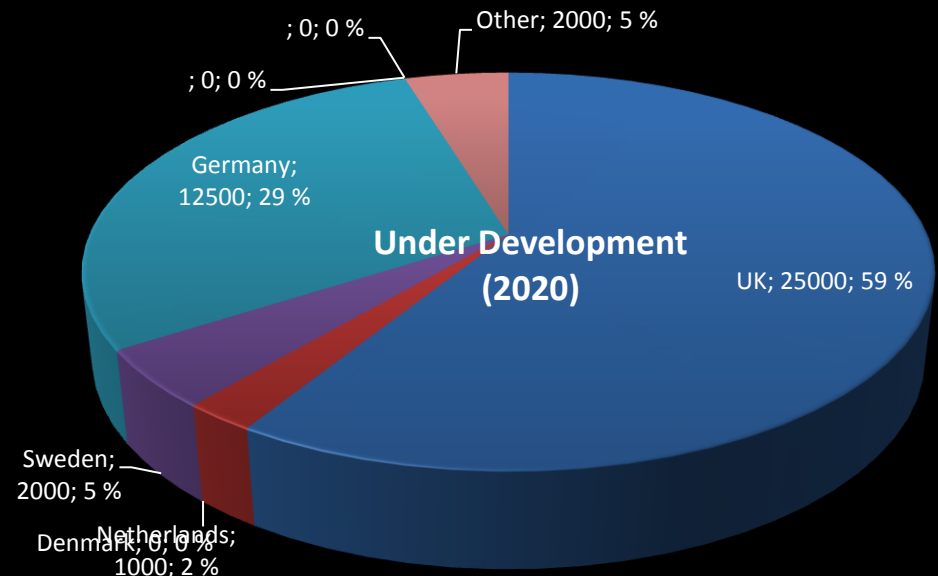
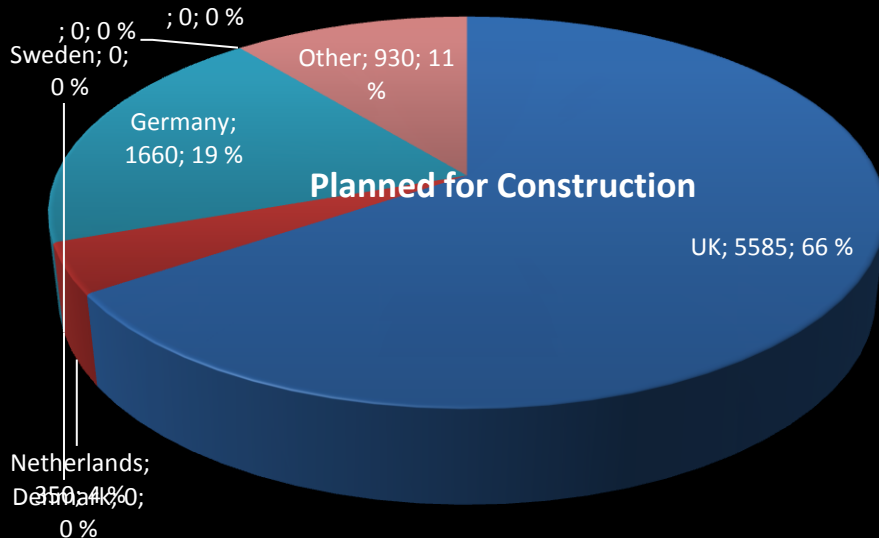
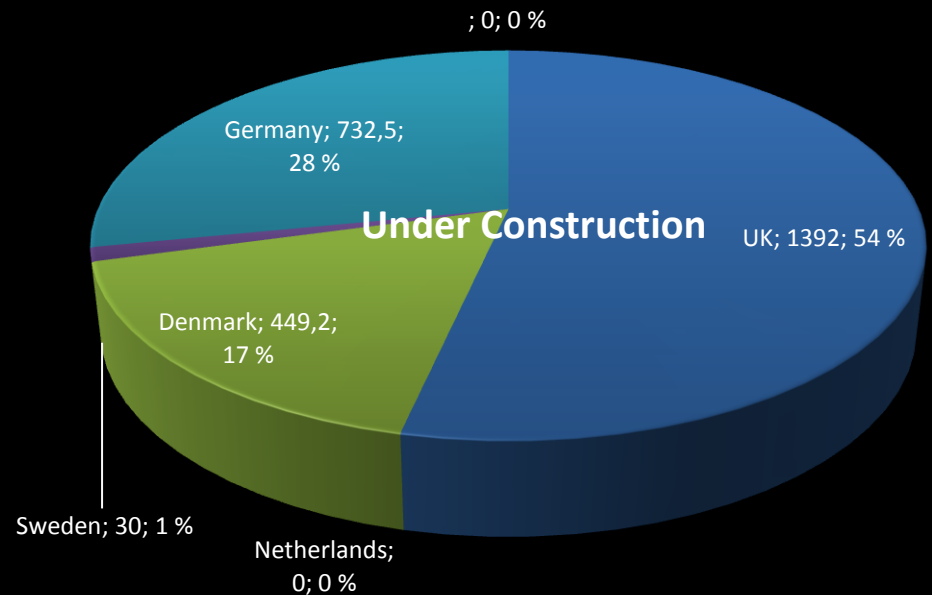
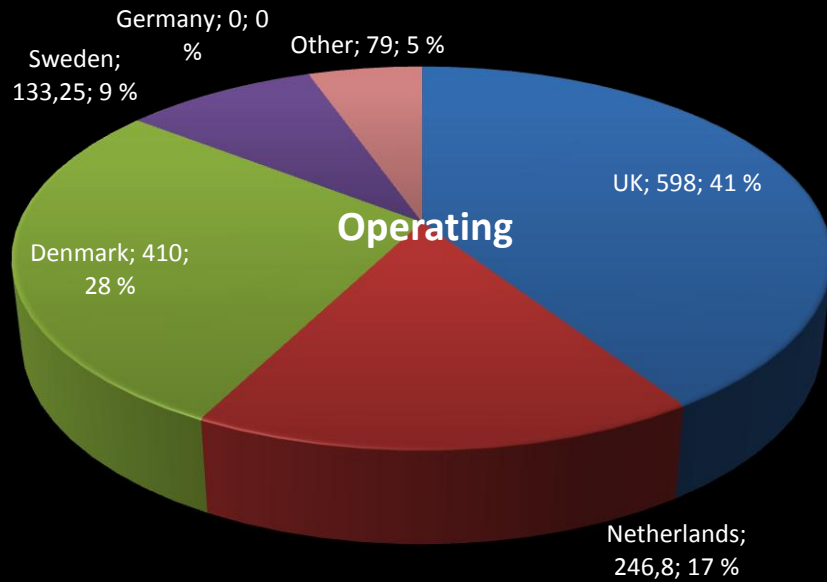
- Separate process for wind inside Scottish Territorial Waters
- 5-7GW of projects either under construction or in operation by 2010



Current Status of the UK's Offshore Wind Industry

- Over 50GW under Development
- £750m Currently being spent on development
- £7bn already invested in offshore Wind assets
- Potential to deliver 33GW by 2020
- The most attractive location for investment in the world – Ernst & Young

European Offshore Wind Status



How has UK Offshore Wind Captured Global Investor Attention?

- Abundant resource
- Attractive Support Policy
- Planning decisions are made
- A clearly targeted program which is hitting milestones
- There is a market

But big Challenges remain

- Economics
- Supply Chain
- Regulation & Policy
- Grid
- Capital Markets

The Regulatory Challenge

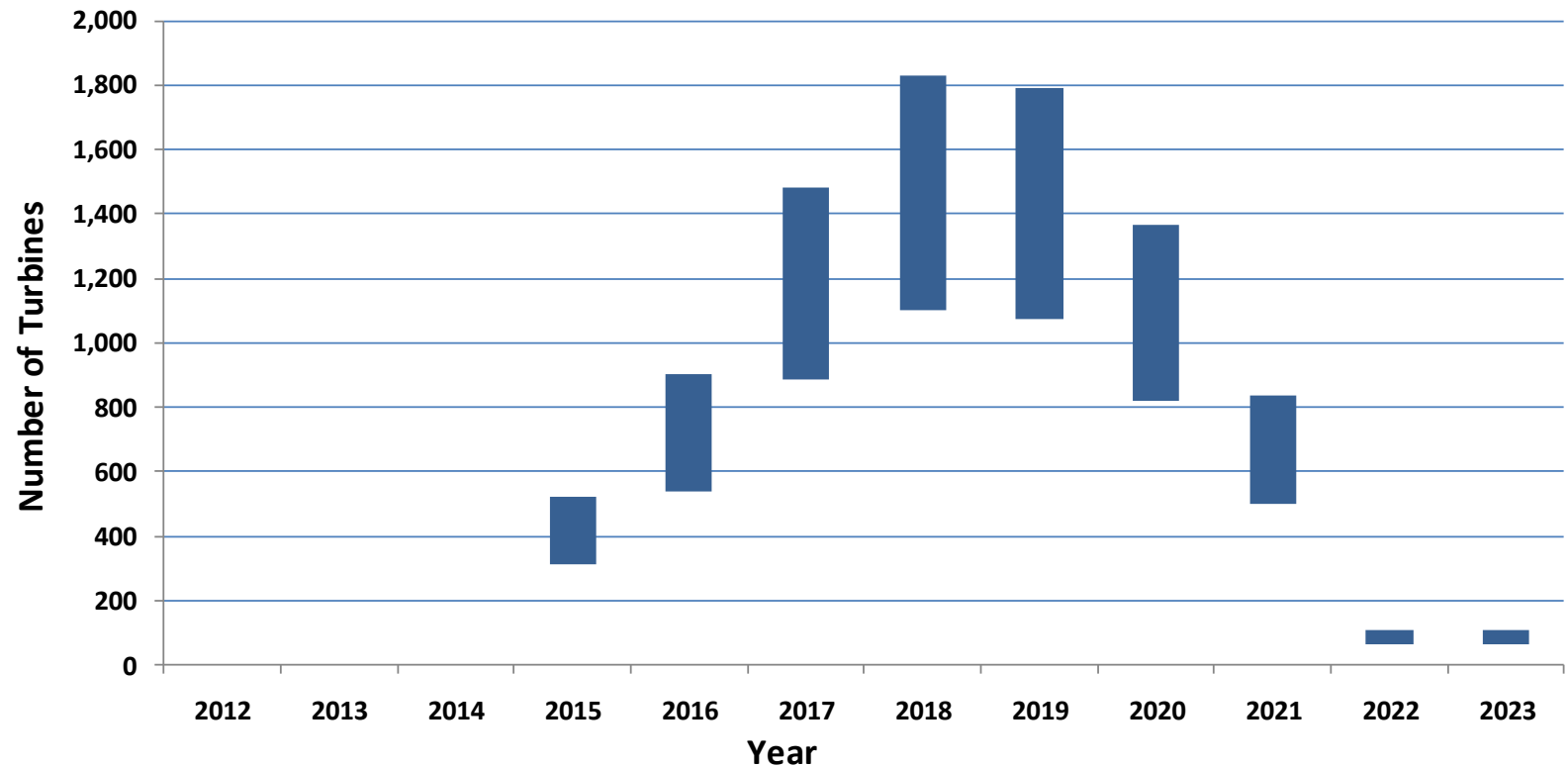
- UK Renewables policy objectives/commitments
- EU Directives:
 - ❖ Environmental - habitats & designations
 - ❖ Anti Competition in the Electricity markets
 - ❖ General Anti competition

The Technology Challenge

- Far offshore Wind Turbines
- Offshore installation capability
- Offshore electricity transmission
- High value/High volume production technology

Turbines

Potential Number of turbines required annually (3.6MW vs 6MW)



Ports and Harbours

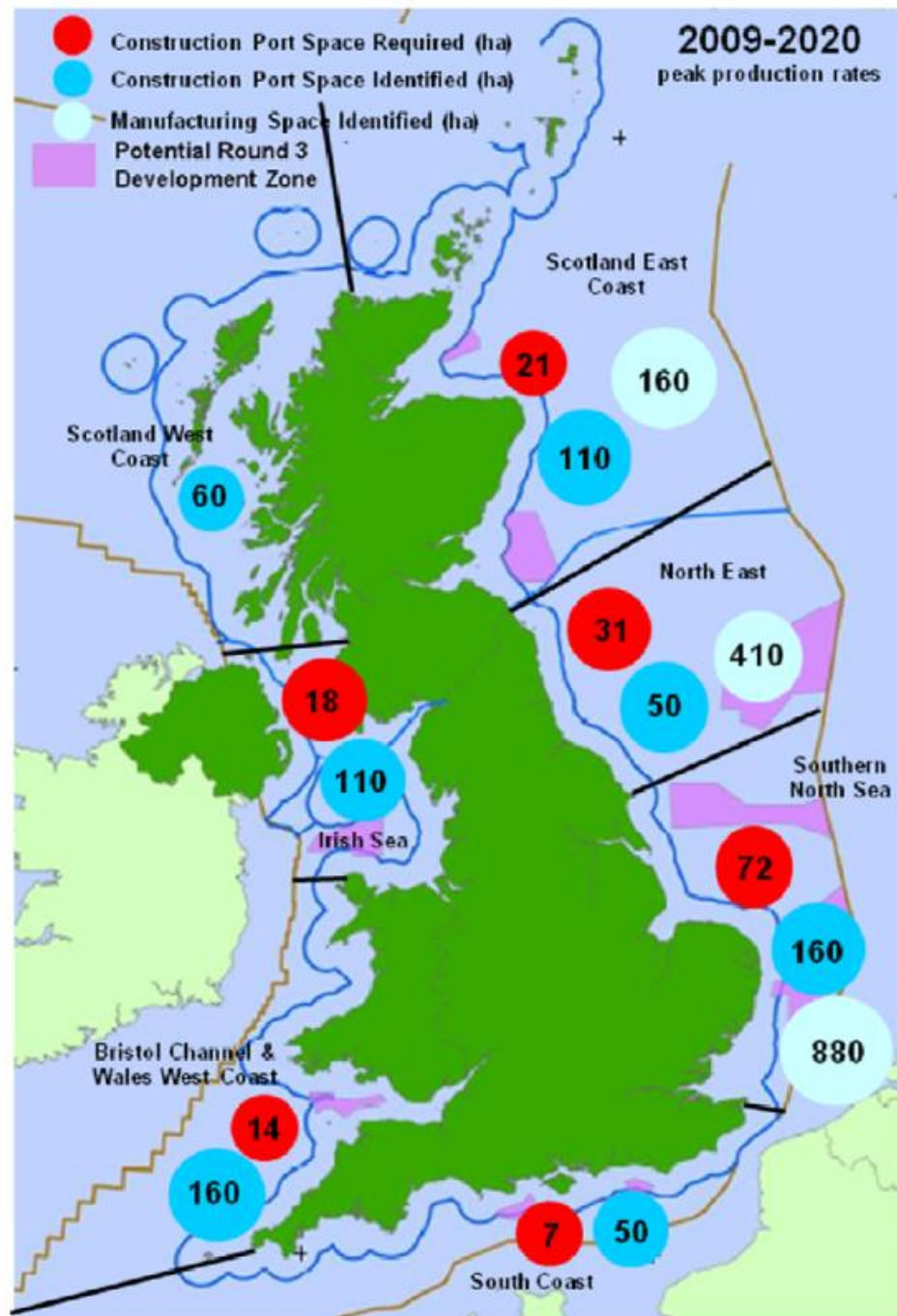
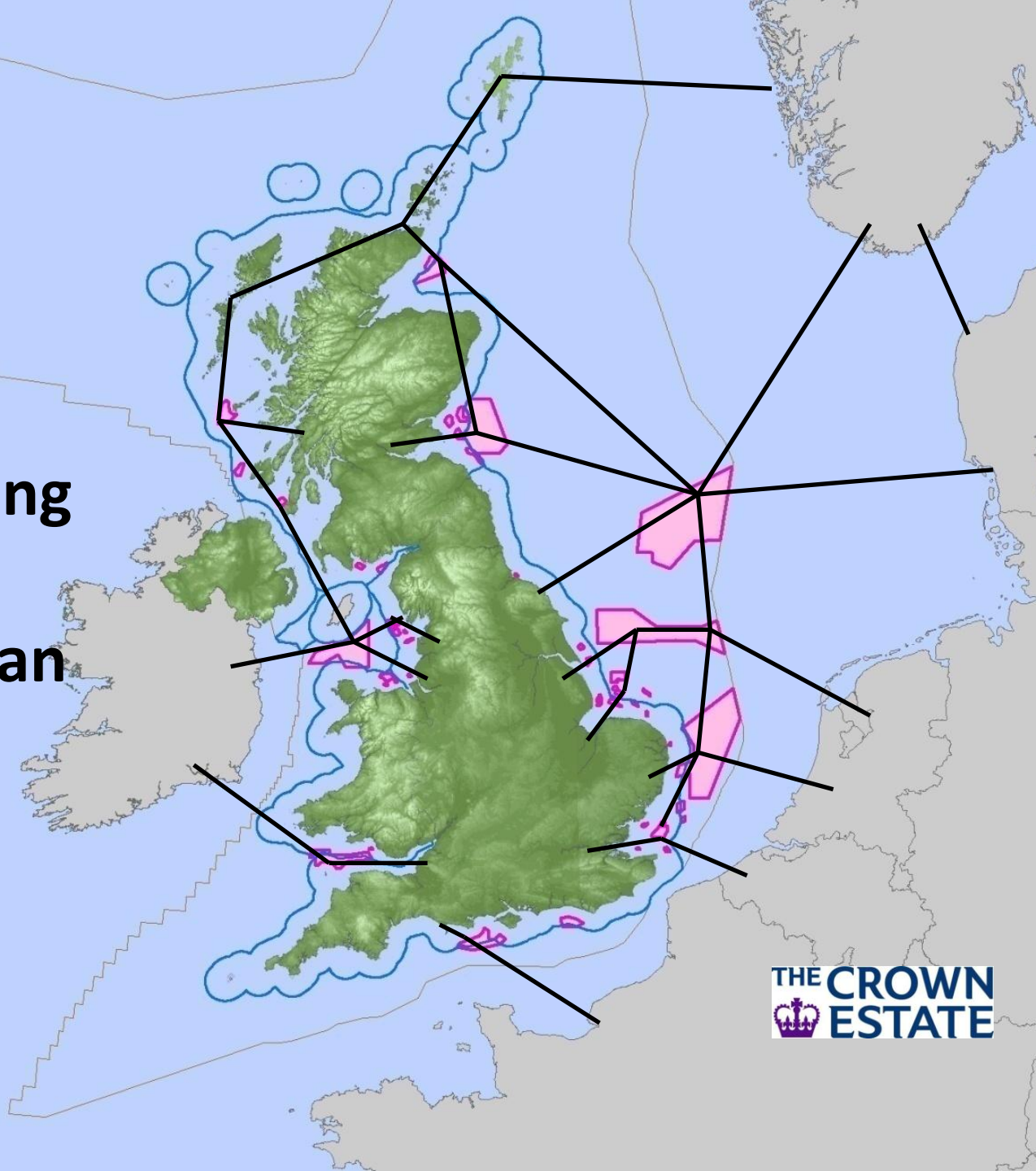


Illustration courtesy of BVG Associates

Figure 5.1 – The space identified at UK ports for offshore wind construction and manufacturing.

GRID

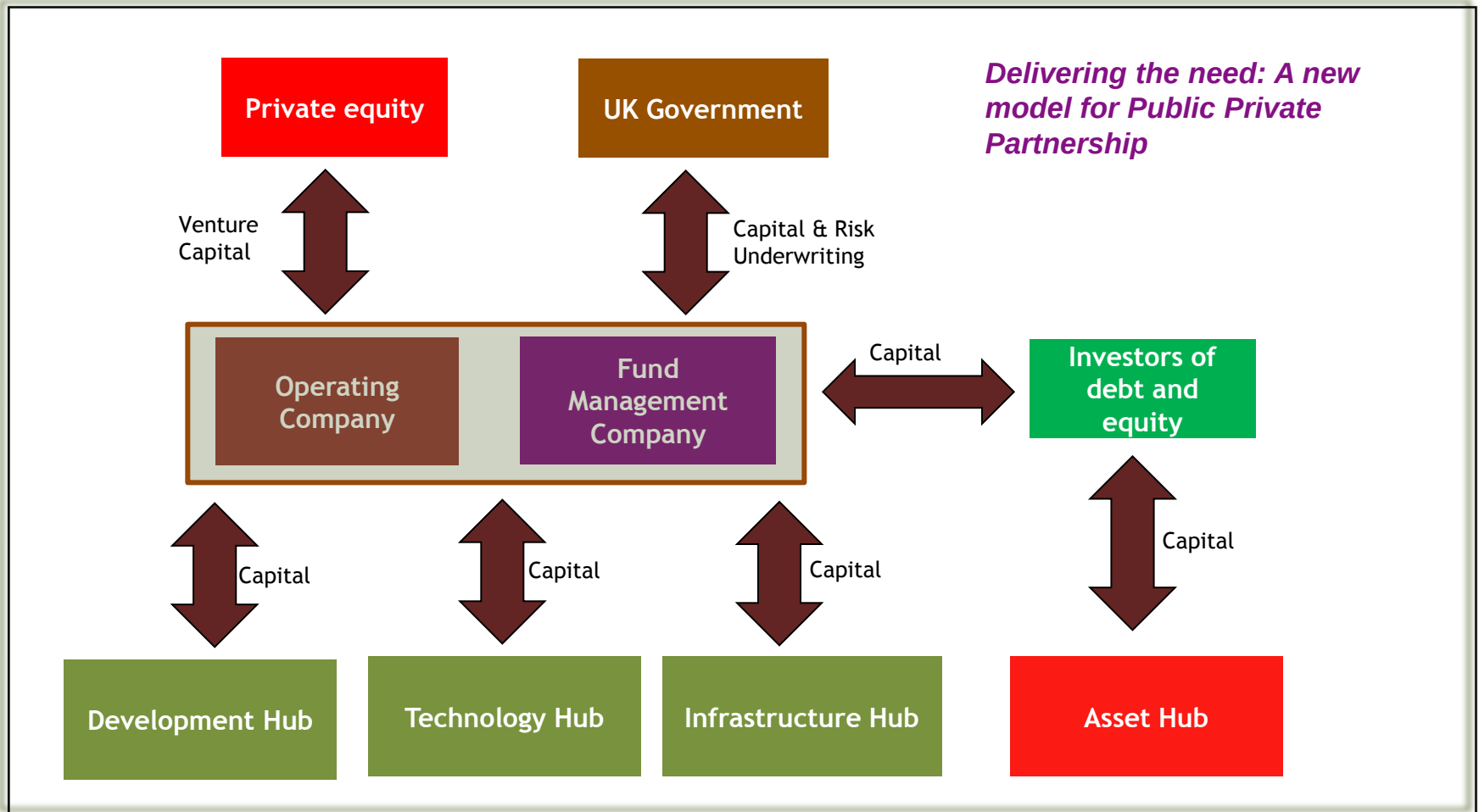
- It needs centralised planning
- It needs European collaboration



INVESTMENT CAPITAL CHALLENGE

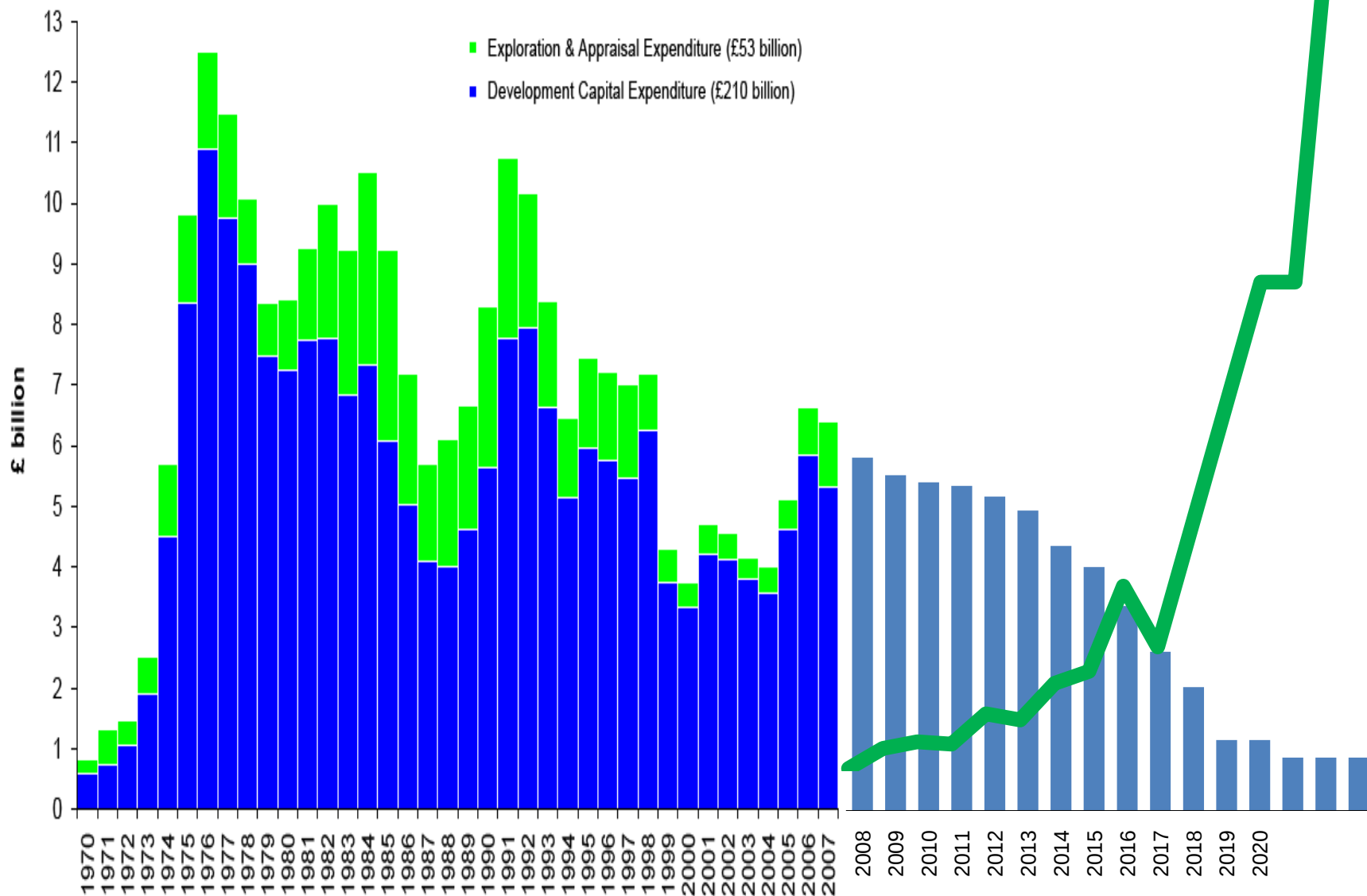
- There are 17 “Operators” in UK offshore wind at present
- By our assessment they have £35bn of balance sheet capacity to invest in offshore wind (including gearing)
- Possibility of at least one Operator exiting & 2-3 Operator entering before 2020
- Expected net balance sheet capacity is therefore £40bn
- Program Shortfall of £80bn

A New Model For Private - Public Partnerships



**Delivering such an ambition has
been done before.....**

UKCS Capital Expenditure 1970–2007 (2007 prices)



Thank you