Offshore wind power: big challenge, big opportunity

Implications of the SEA

Tom Jennings, Strategy Manager

22 October 2008

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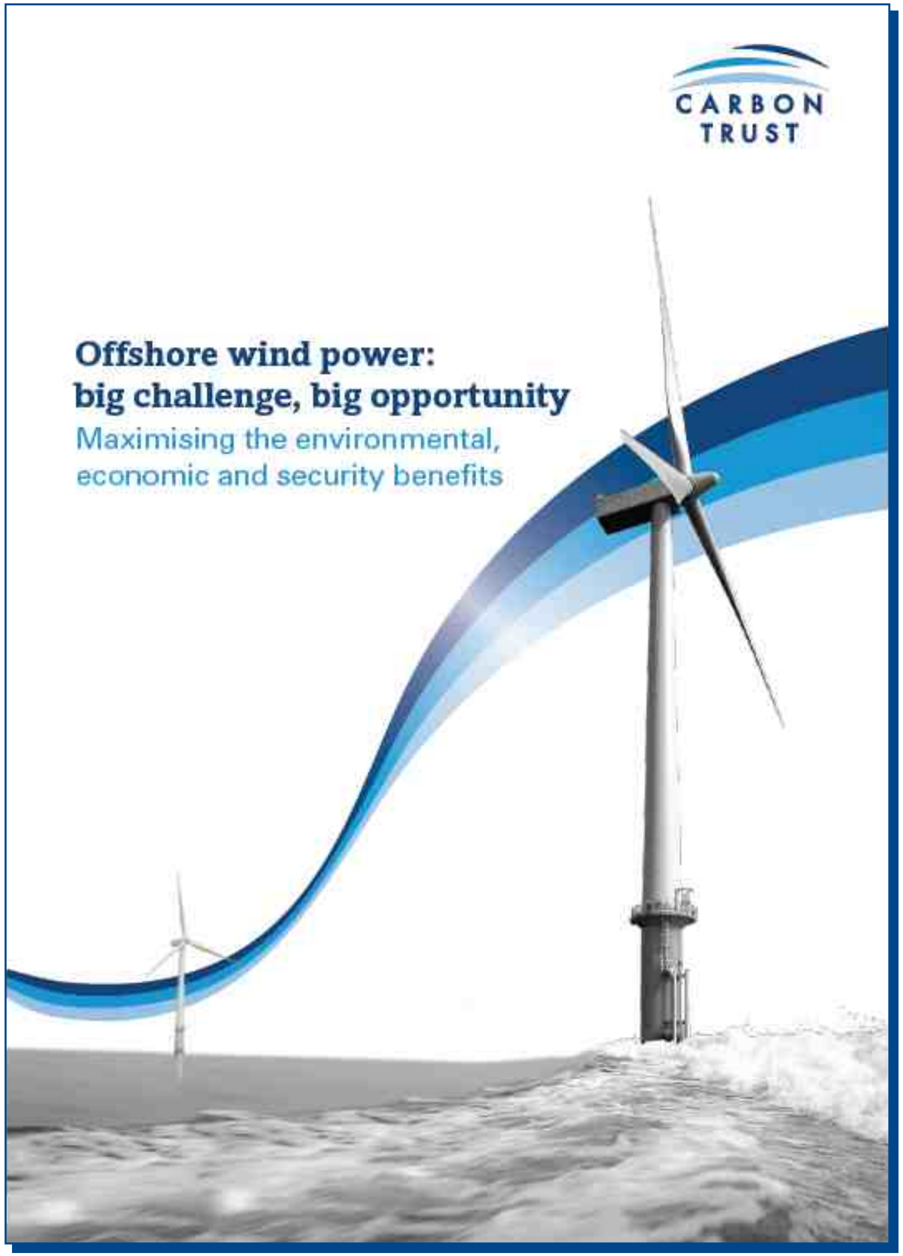

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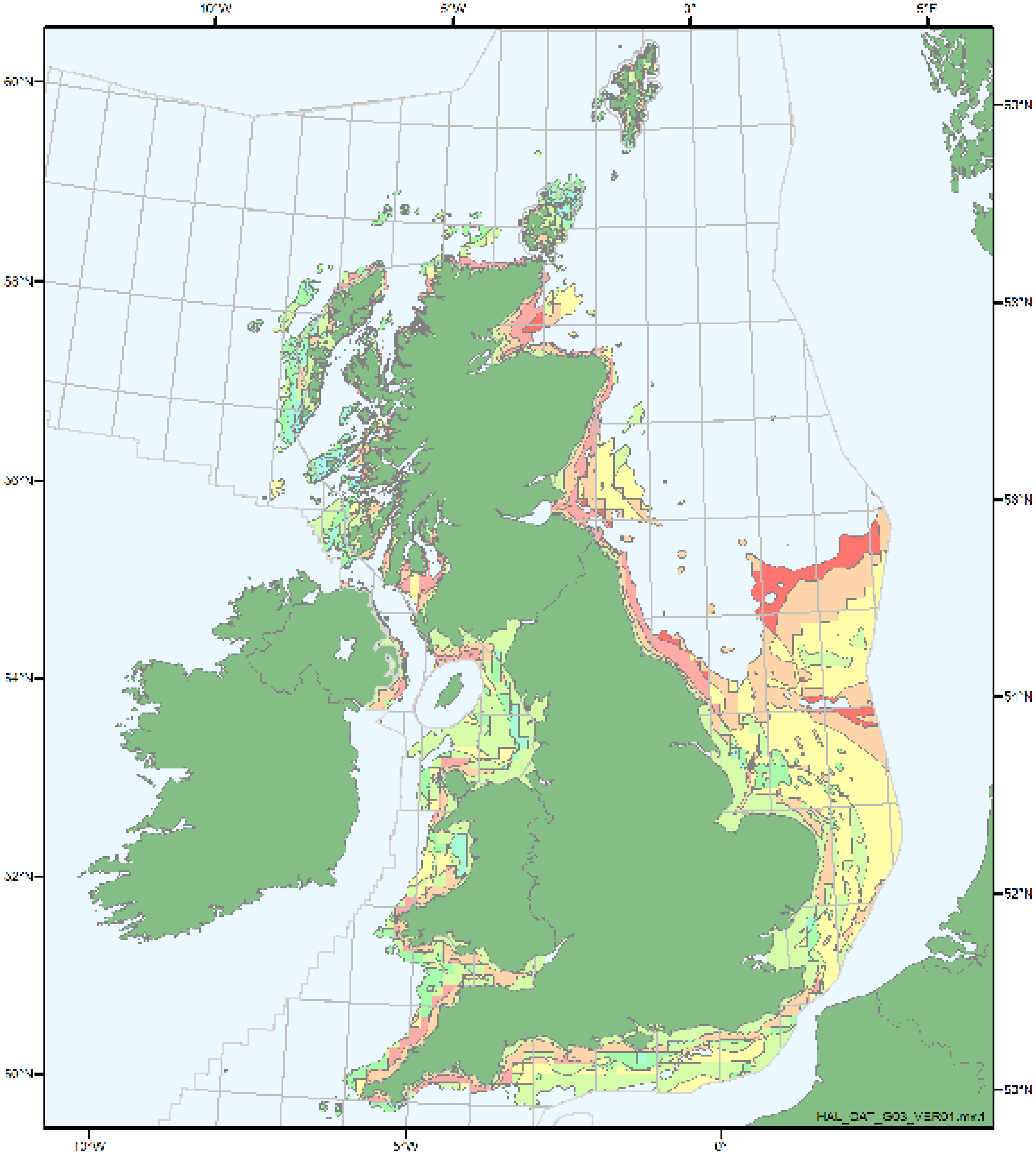
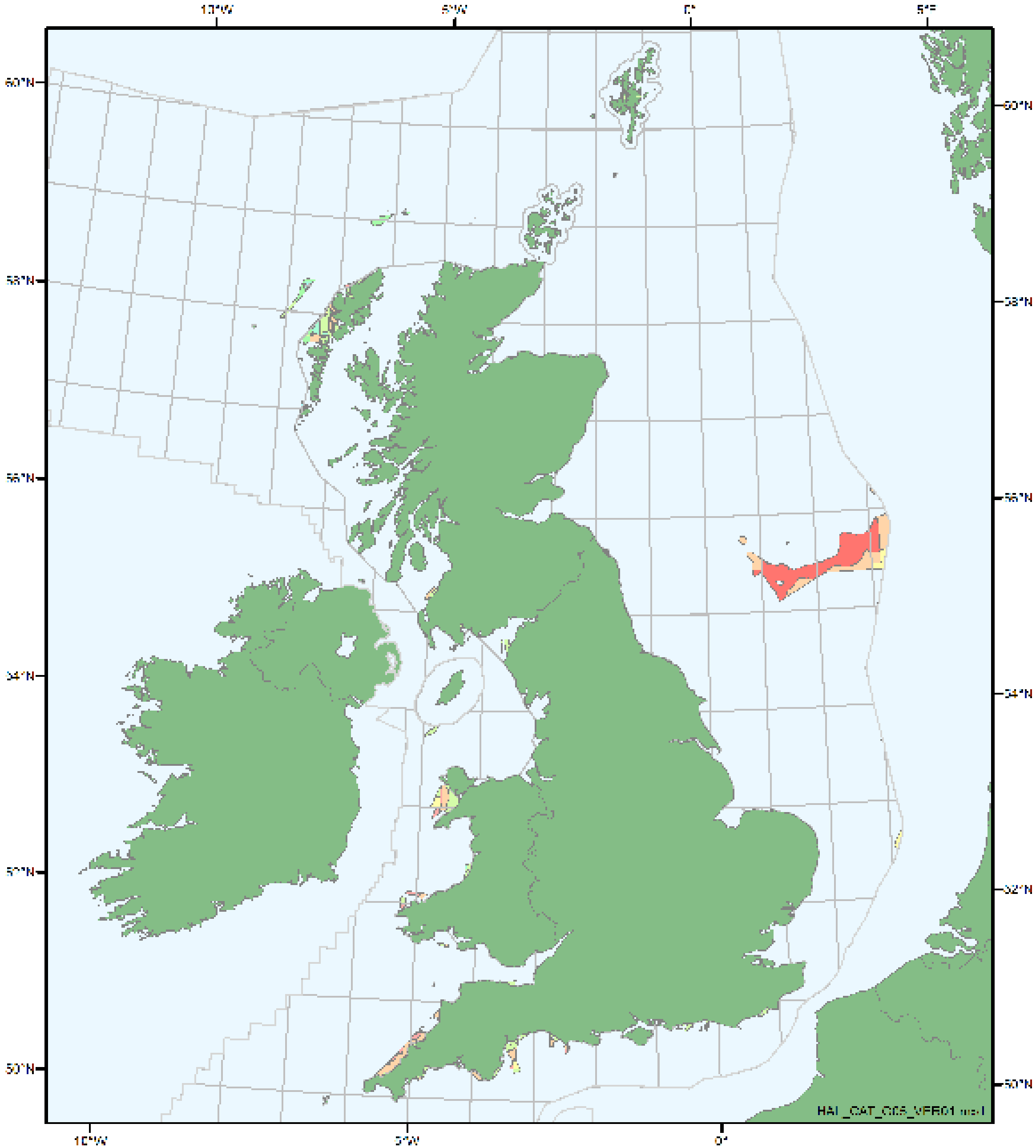


Levelised cost £/MWh (2008)

- <80
- 80-87
- 87-94
- 94-100
- 100-104
- 104-111
- 111-118
- >118

 Source: BERR Renewable Atlas, UK Deal, Hartley Anderson, SKM, BCG analysis

All potential constraints



Levelised cost £/MWh (2008)

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Relax one "soft" constraint

 Source: BERR Renewable Atlas, UK Deal, Hartley Anderson, SKM, BCG analysis

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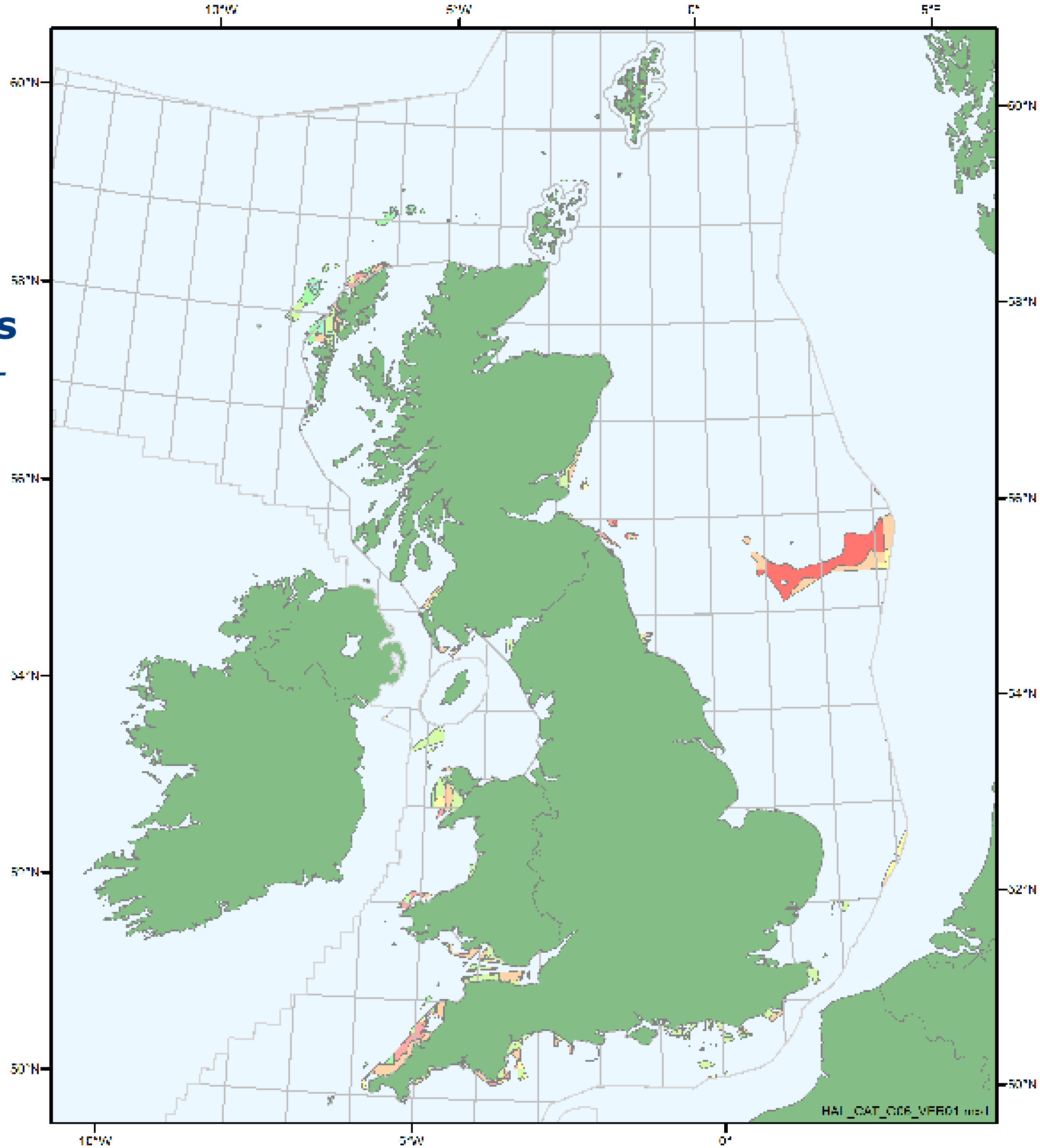
Relax potential shipping "soft" constraints
(i.e. MCA OREI 2 – siting possible comprehensive assessment)



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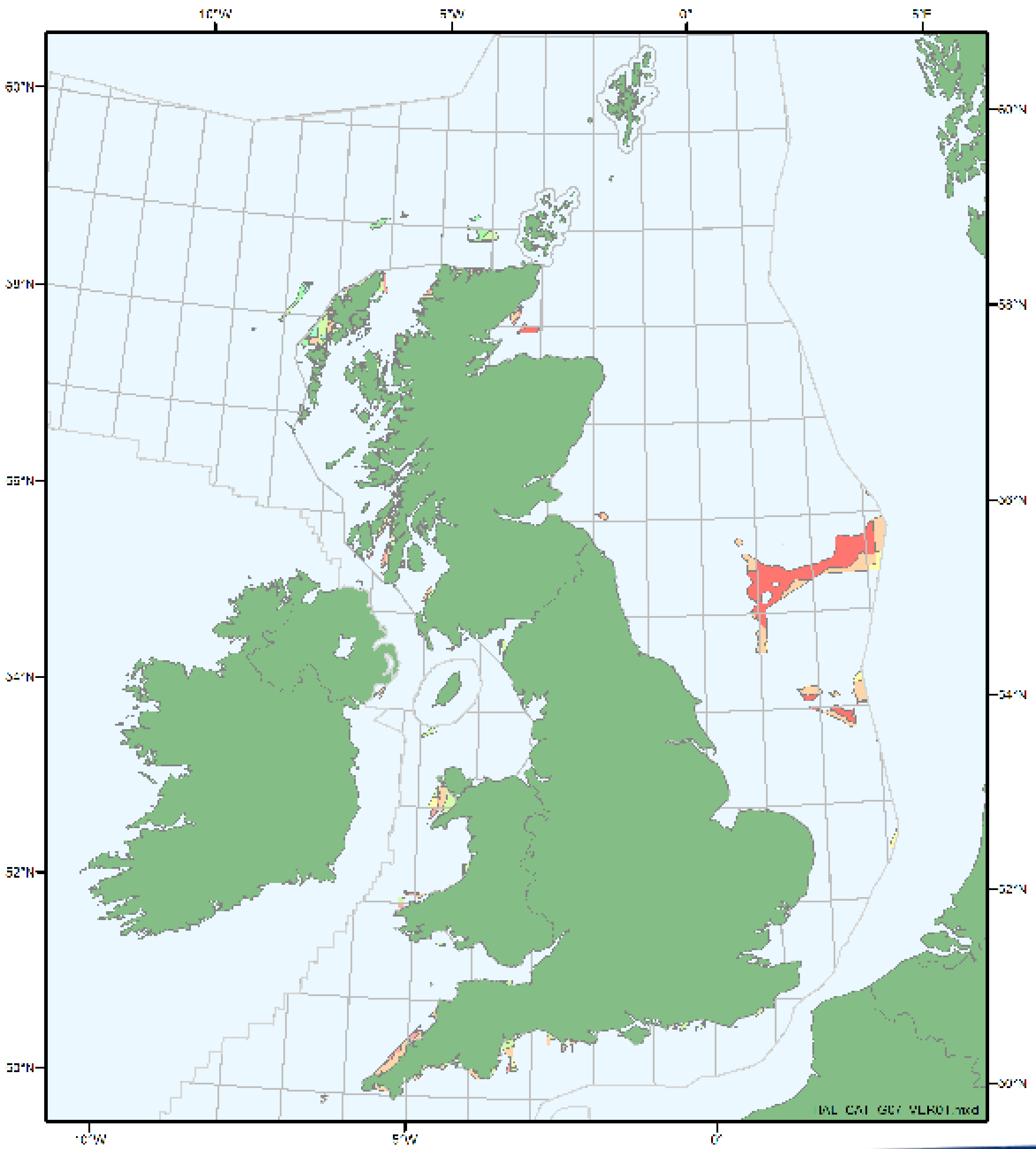
Relax potential MOD "soft" constraints
(i.e. MoD PEXA exercise areas)



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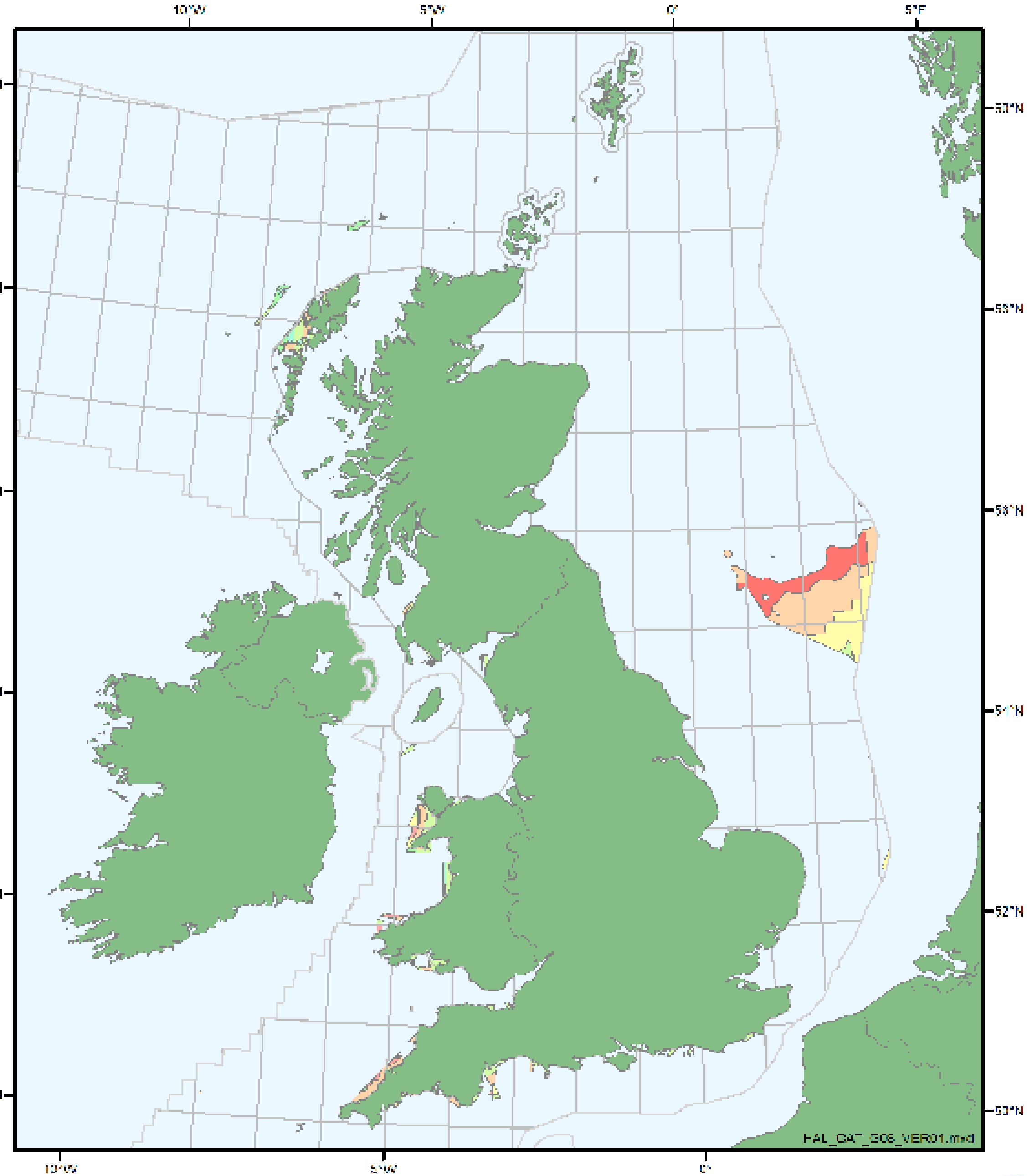
Relax potential environmental "soft" constraints

(i.e. Special Areas of Conservation & Special Protection Areas)



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Source: BERR Renewable Atlas, UK Deal, Hartley Anderson, SKM, BCG analysis

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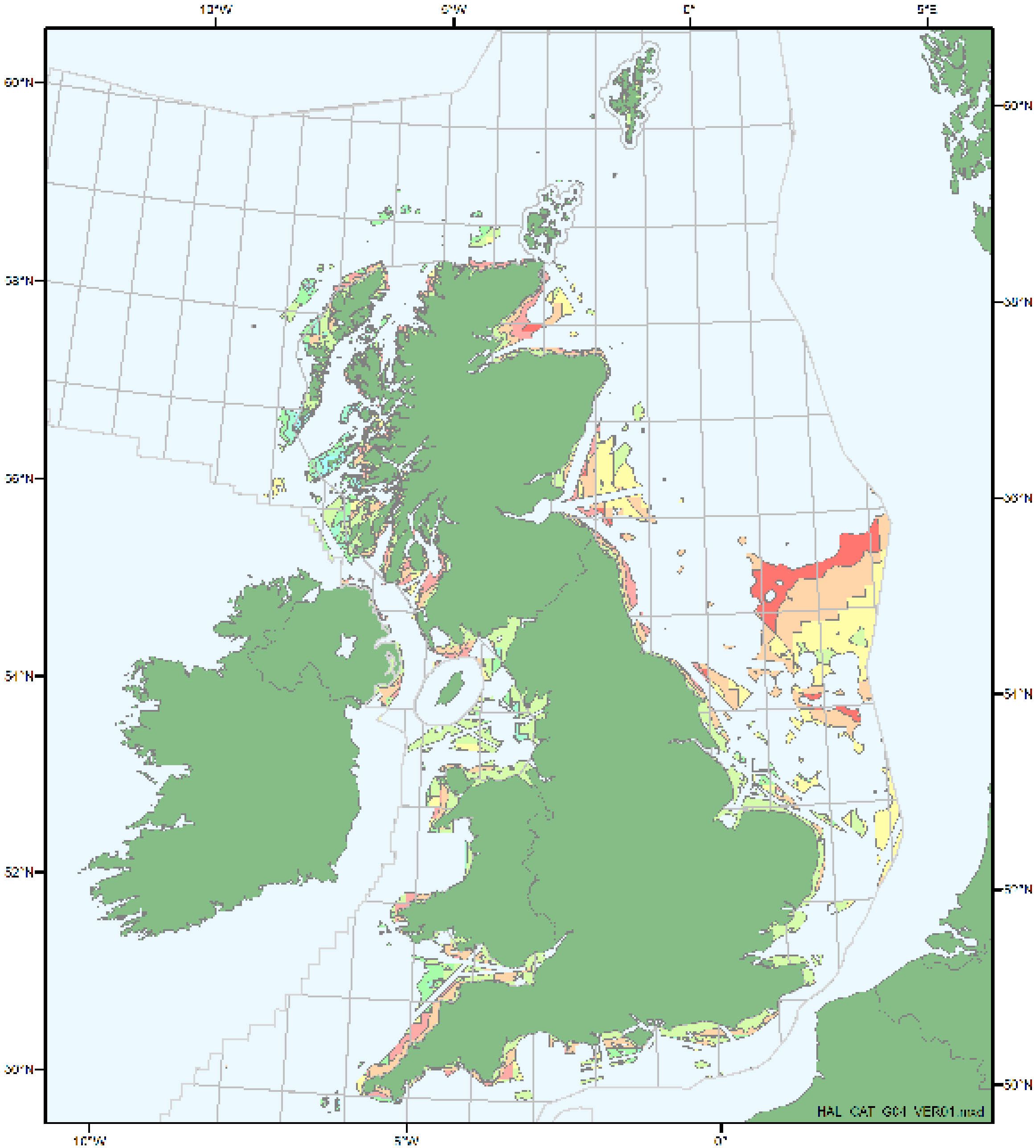
Relax all "soft" constraints



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Source: BERR Renewable Atlas, UK Deal, Hartley Anderson, SKM, BCG analysis

Planned decommissioning of oil and gas platforms will make more sites available 12-60nm from shore

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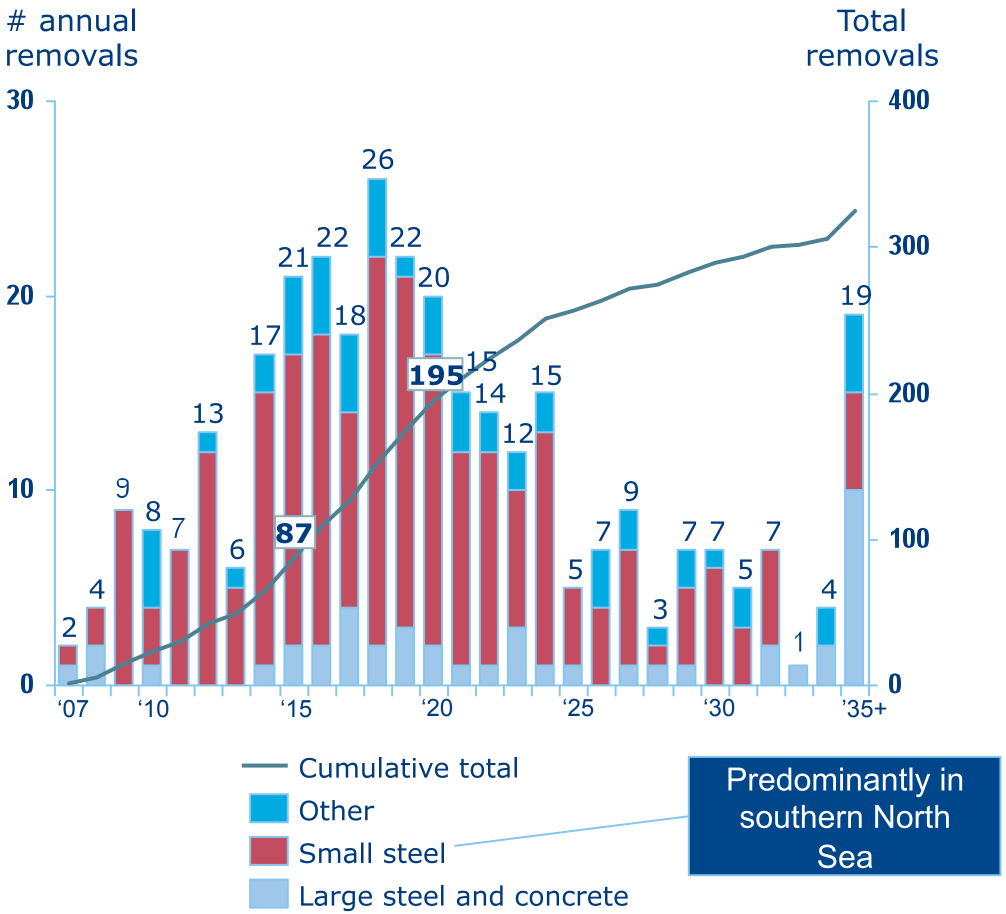
Forecast removal dates of oil and gas platforms



Potentially opening up more economic sites

Bulk of decommissioning scheduled for between 2014 and 2024

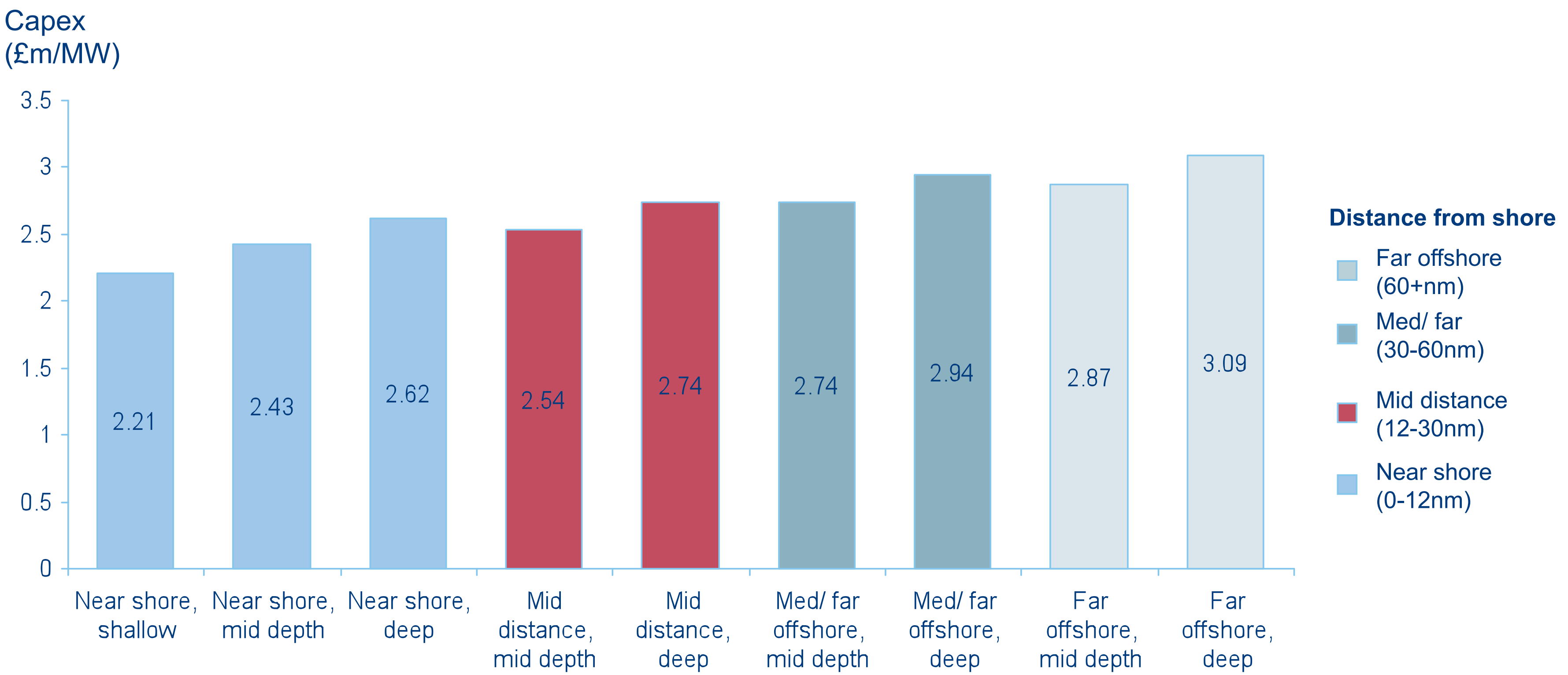
- By 2015, 87 of 325 platforms (27%) will have been decommissioned and removed
- Rising to 195 platforms (60% of total) by 2020

Reduction in small steel platforms (mainly in southern North Sea) could free up as much as 4-5,000km² by 2015 and 8-9,000km² by 2020

Assumes all existing oil and gas stations feature in the BERR decommissioning forecast
Source: BERR 2007, BCG analysis

Capex varies by up to 40% across site types

Current capex for 5MW[1] turbines at different types of site, 2008



1 An average offshore wind turbine size of 5MW is expected between 2008 and 2020, assuming current wind turbine sizes of 3MW increase to 7.5MW before 2020

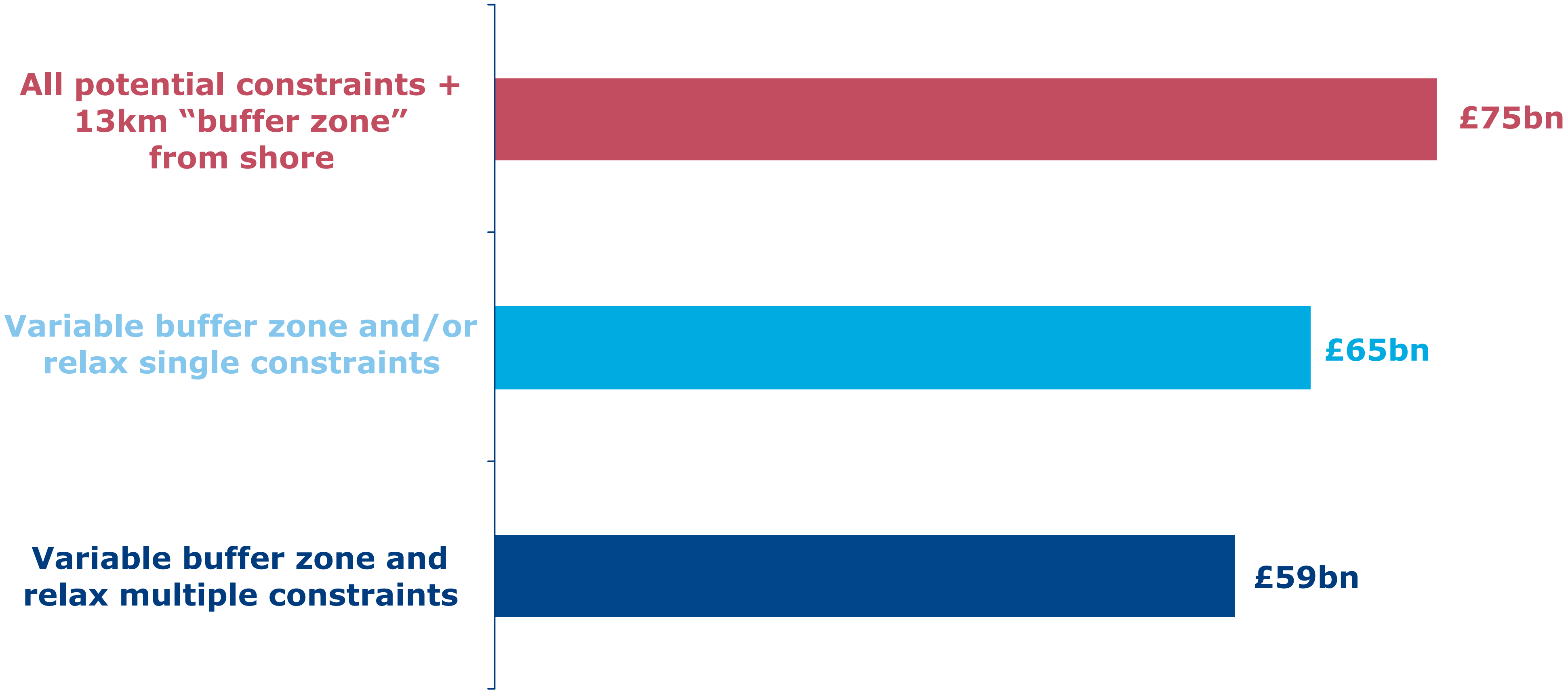
Note: Capex/MW includes offshore grid connection costs

Assumes long-term exchange rate of 1.4 Euros per Pound

Source: SKM, BCG analysis

Relaxing potential constraints could reduce the cost of deploying offshore wind power by up to £16bn

Impact of potential site constraints on capex of 29GW* of offshore wind power

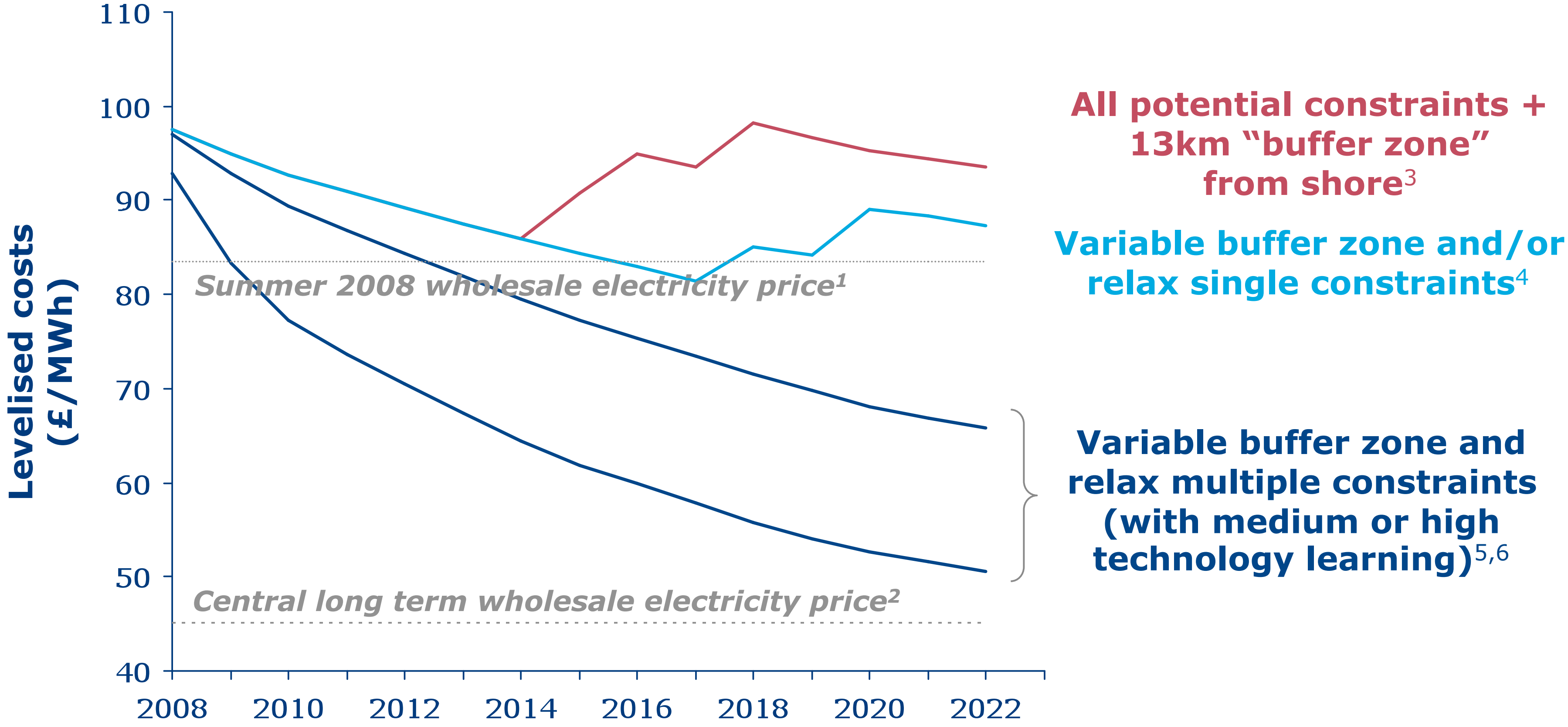


* 29GW of offshore wind power required to meet EU 2020 renewable energy target assuming 10% renewable heat and 11GW of onshore wind

Source: SKM, BCG analysis

...and also enables UK offshore wind to potentially become cost competitive by 2020

UK offshore wind cost scenarios



1. EnergyQuote, 27 June 2008
2. BERR central case energy price scenario
3. Assumes that no offshore wind farm site constraints relaxed and that low/base case learning rate (weighted average 9%) achieved
4. Assumes that offshore wind farms can be built with 7 nautical miles of shore in some places, that single, soft site constraints are relaxed and that the low/base learning scenario (weighted average learning rate 9%) is achieved
5. Assumes that offshore wind farms can be built with 7 nautical miles of shore in some places, that multiple soft and hard site constraints are relaxed and that the middle learning scenario (weighted average learning rate 13%) is achieved
6. Assumes the most economically attractive sites are made available and that the high learning scenario (weighted average learning rate 15%) is achieved
Source: BCG analysis

Implications to achieve potential cost reduction

Potential cost reduction

1. Any potential "buffer zone" from shore to not be applied uniformly along the coastline and be less than 13km in some places
2. Areas with oil platforms not in use or due to be decommissioned to be released as quickly as possible
3. Relaxation of multiple potential constraint, without negatively impacting economic and environmental concerns

- Reduce capex by up to £16bn
- Enable cost competitiveness by 2020

Achieving most of the potential cost reduction will require leadership from Government & compromise across stakeholders