

# Update on UK offshore wind farm projects

**Dr Alun Roberts**

Offshore Wind North East, 17 November 2016





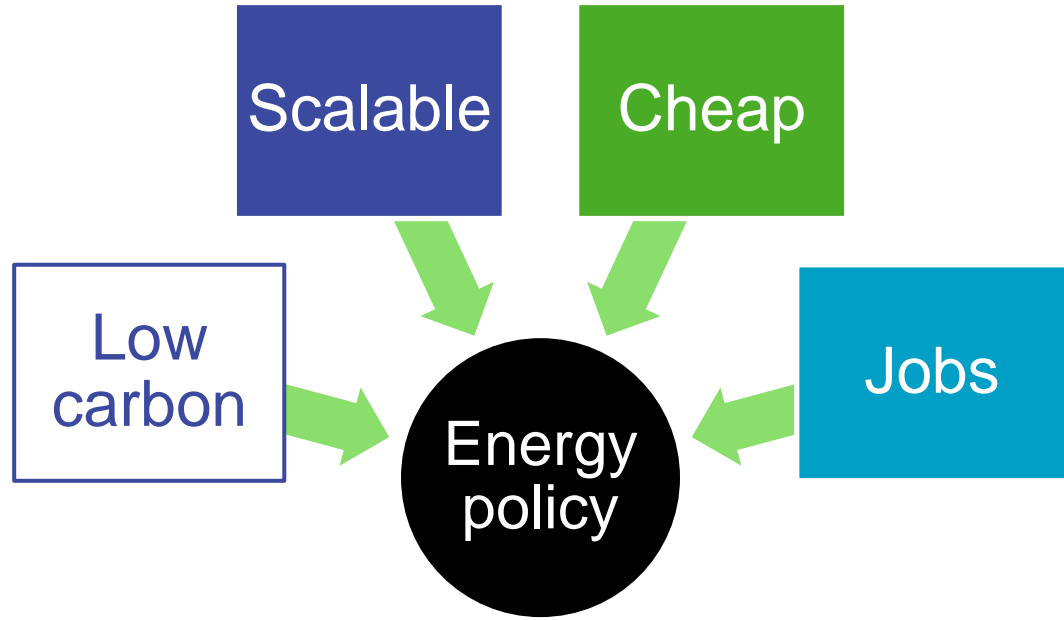
# Coming up ...

- Why do offshore wind?
- What are the drivers for sustained investment in offshore wind
- What progress are we making?

# Why do offshore wind?

## Solving the energy 'trilemma'

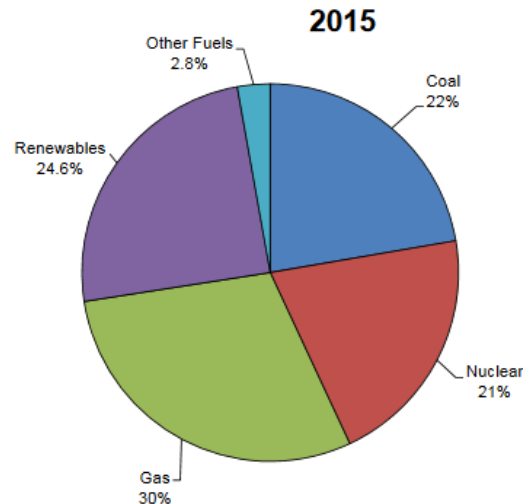
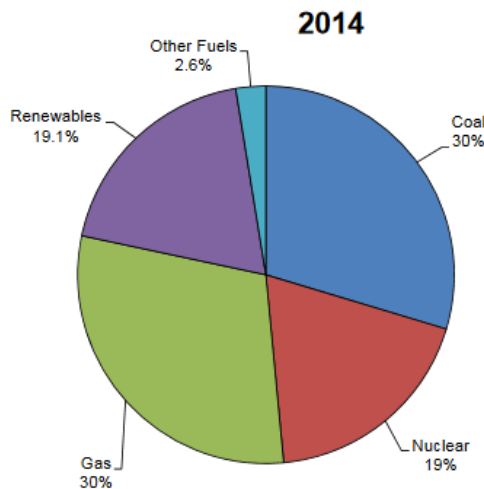
- World Energy Council coined the term the energy 'trilemma' to describe the criteria 'we' need to address in developing energy policy:
  - Environmental sustainability
  - Energy security
  - Energy equity



# Significant new capacity in the pipeline

A significant attraction of offshore wind is that it can be deployed at scale

- UK offshore wind now has 5GW of installed capacity, which makes up 7% of UK generating capacity.
- In 2015, it contributed about 5% of total UK generation

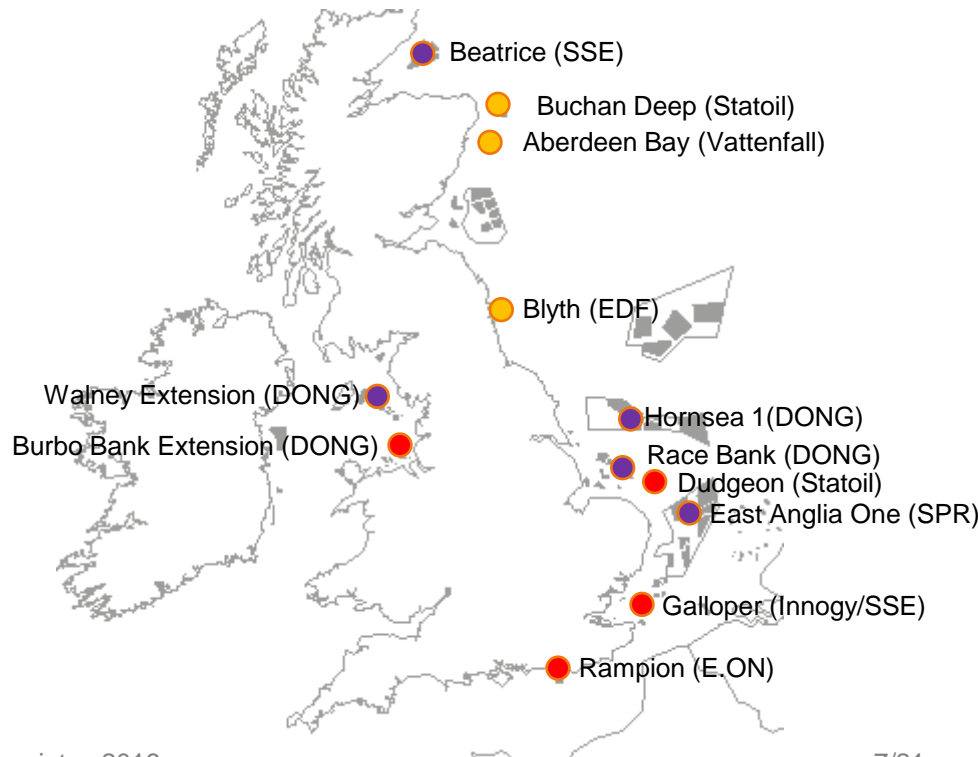


# UK offshore projects coming up

## Significant activity between now and 2020

### Capacity will reach 10GW but little more

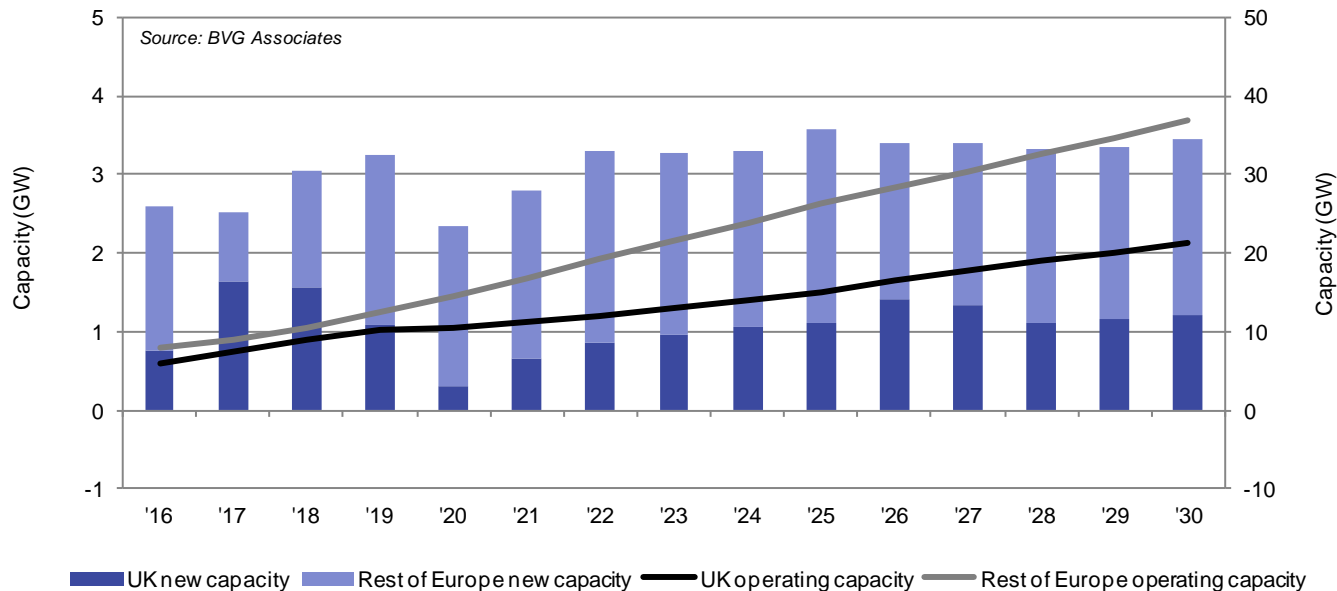
- We know with some certainty what will be built between now and 2020.
- If you don't have a CfD or you're not under construction now, you will not be generating until 2021



# A secure supply – looking further ahead

Offshore wind can be deployed at scale and is not sensitive to global fuel prices

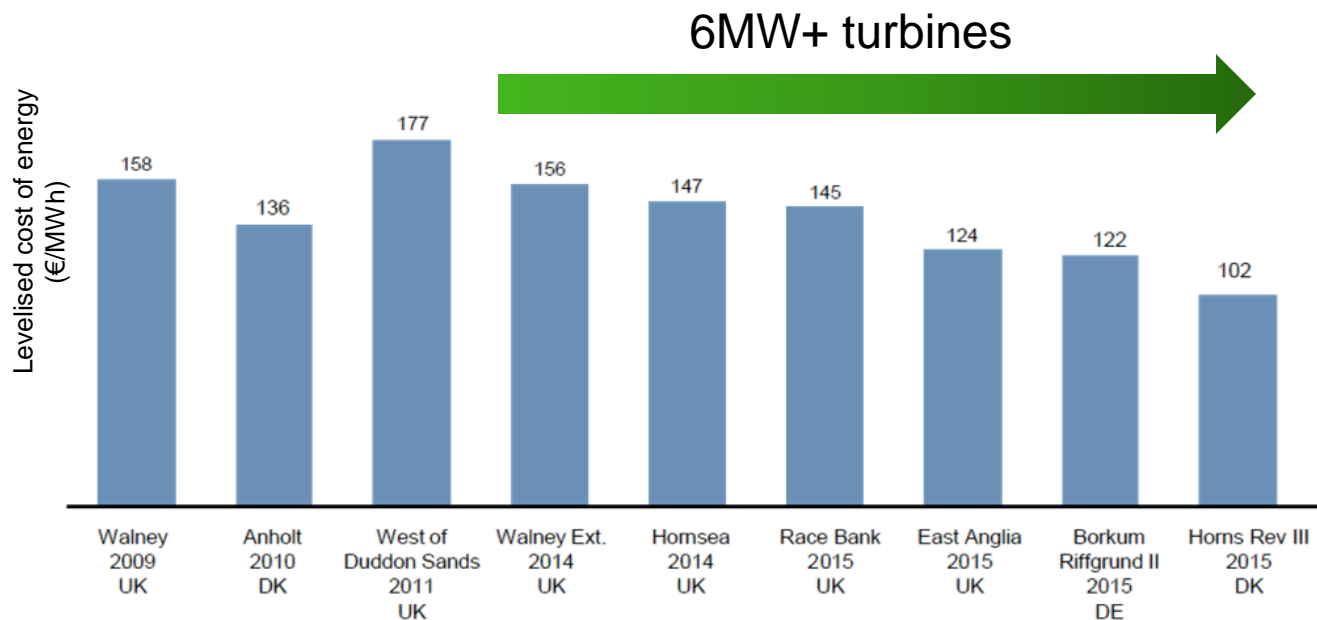
The outlook is a stable market but not increasing significantly





# Cost reduction – a major industry focus

## Selected projects since 2009

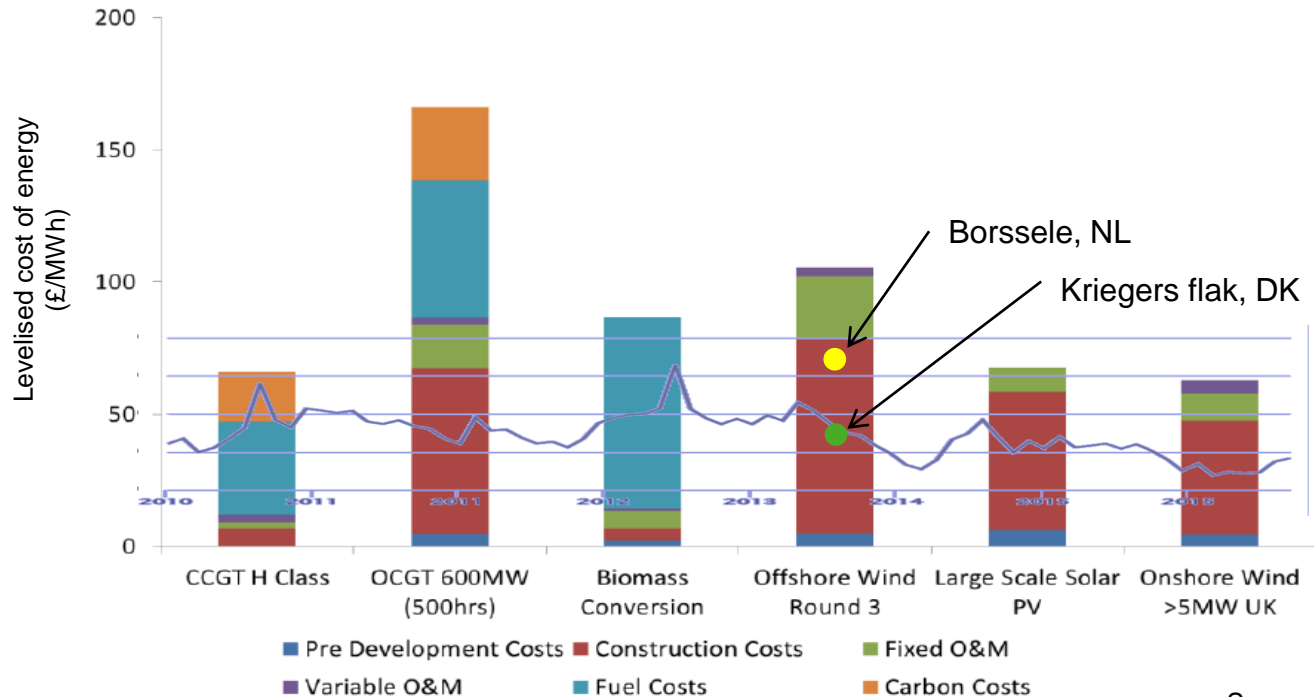


Levelised revenue incl. transmission cost

Sources: DONG

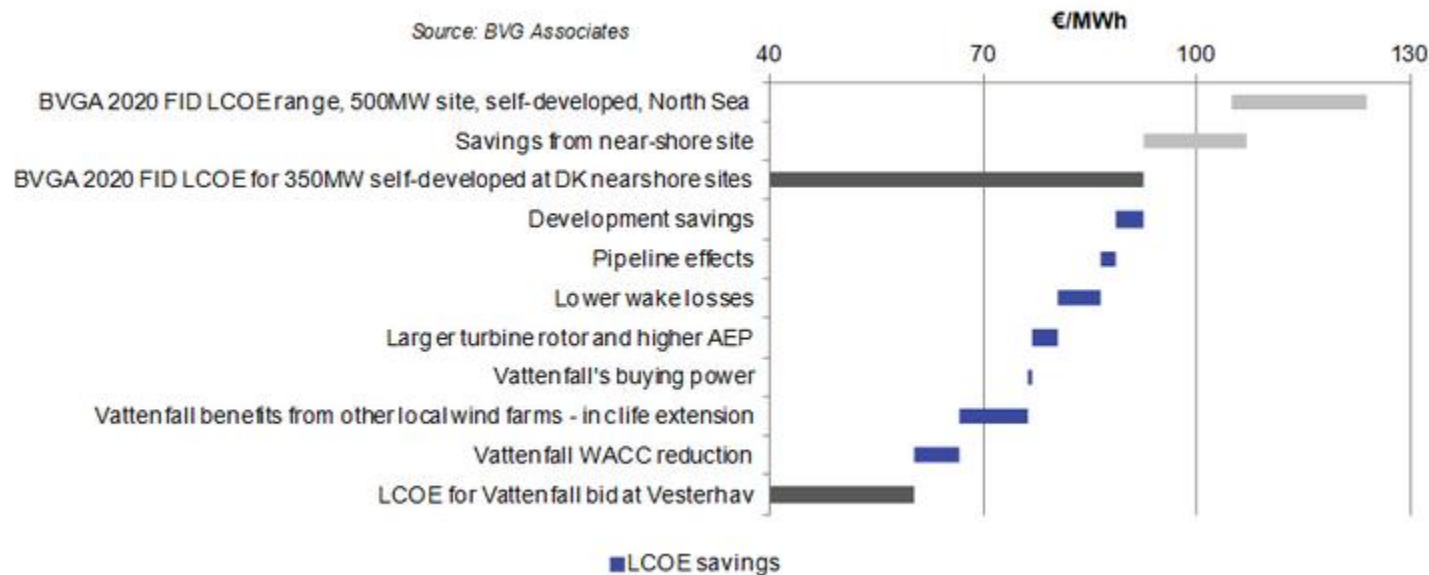
# Ever closer to cost parity

## Electricity generation costs for projects commissioned in 2020



# Cost reduction – how?

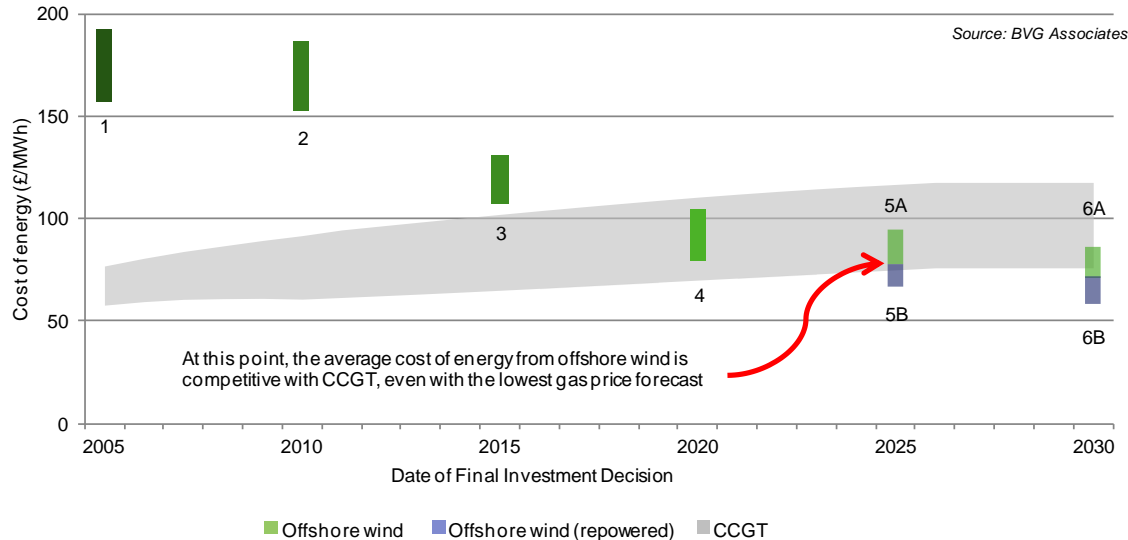
## BVGA analysis of Kriegers Flak



Sources: BVGA

# Cost reduction – looking ahead

## Offshore wind LCOE to 2030



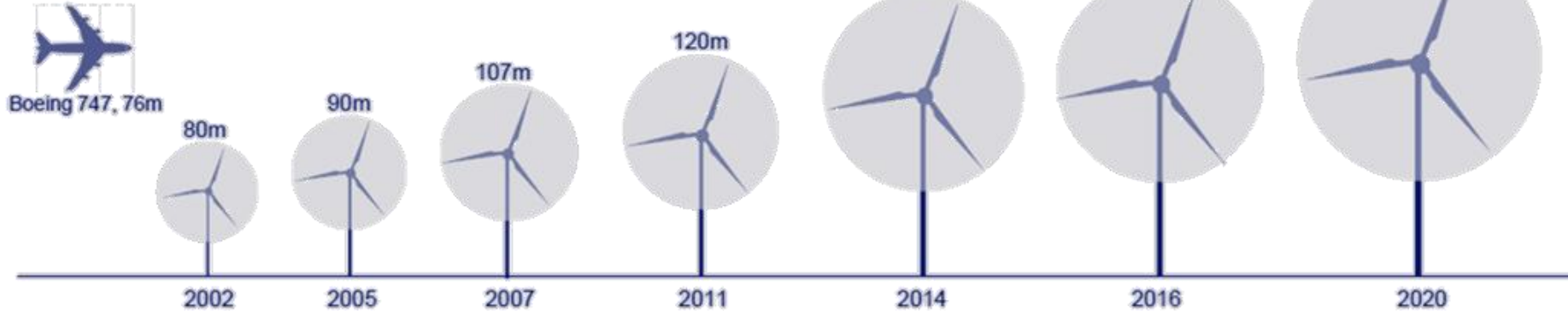
- Data from 2015 analysis
- Forecasts for both CCGT and offshore wind are probably both too high
- The overall message remains unchanged

# Cost reduction – where next?

## Turbine size still the main driver

### Rapid technological development

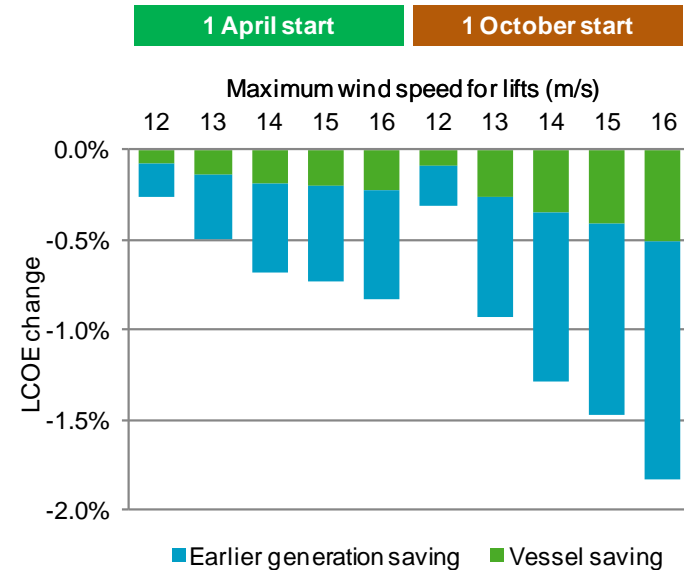
Wind turbine rotor diameter, year of commissioning



Sources: DONG

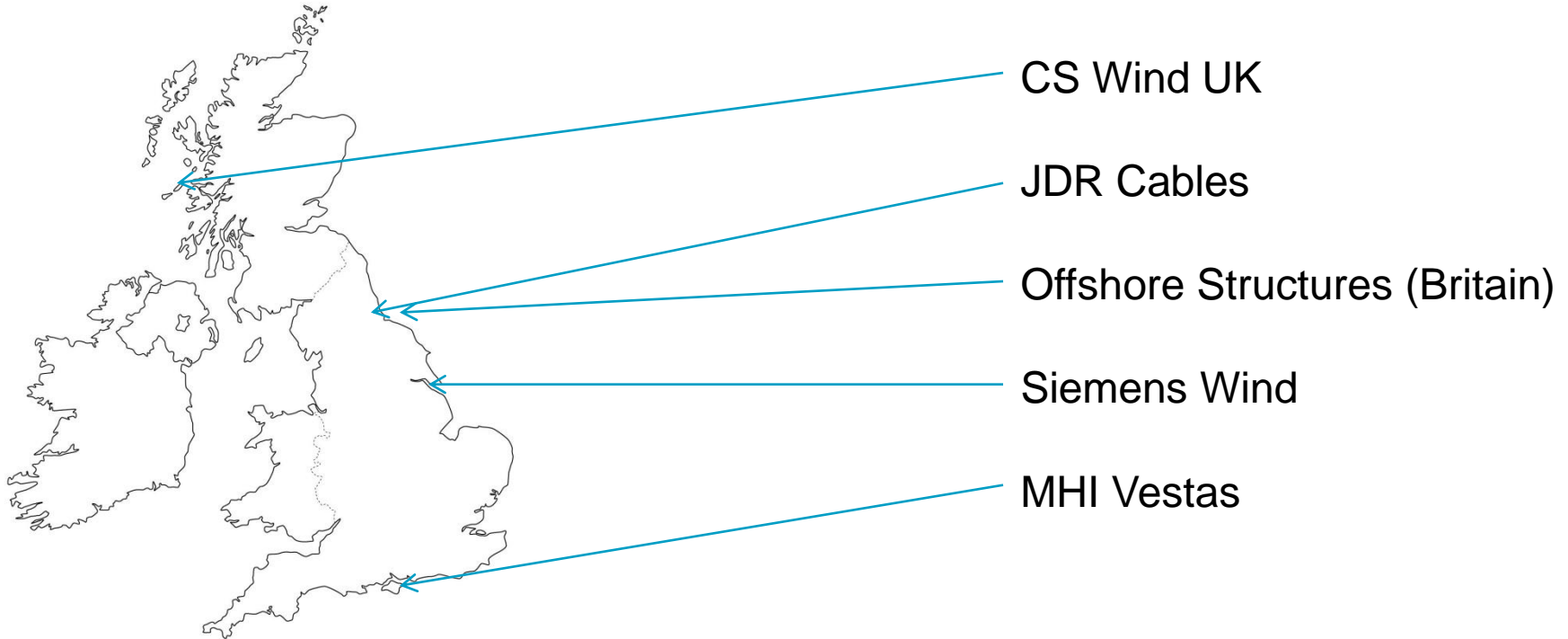
# Cost reduction – where next?

Plenty of scope elsewhere



# Jobs and UK content

## CAPEX...



# Jobs and UK content

## OPEX...



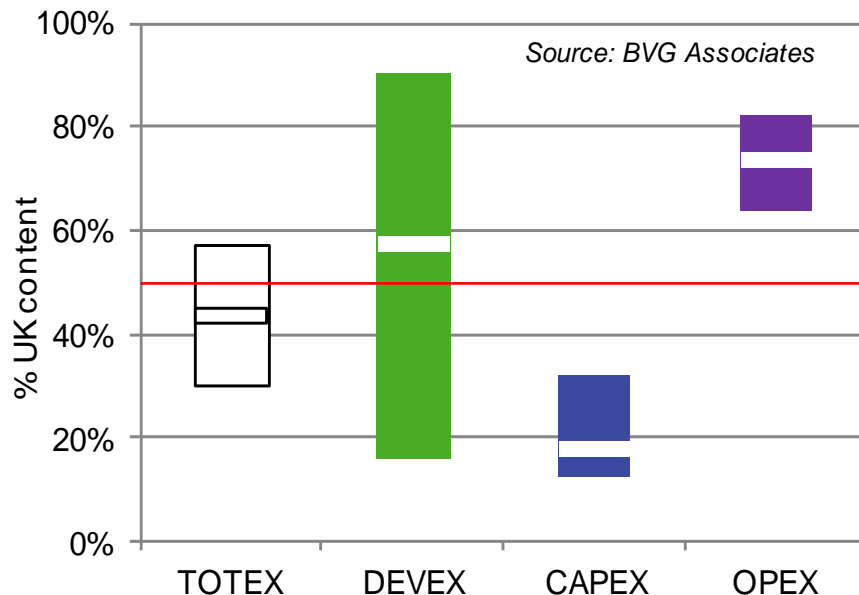


# Jobs and UK content

## Is it enough?

### Vision for 50% UK content

- Industry has an ambition to reach 50% UK content in lifetime undiscounted expenditure
- Baseline from early projects is 43% (18% for CAPEX)
- Investments will improve figure but increases in project size and entrance of large marine contractors is making hard for UK suppliers
- Concern that offshore wind is compared unfavourably with nuclear and oil and gas (however the data was calculated)



# Jobs and UK content

## Prospects for the future

- UK content is in the minds of developers and turbine manufacturers
- It will help UK companies get shortlisted and developers are likely to ensure there are no obstacles
- It is probably a mistake for UK companies to promote their UK content too strongly
- Non-UK companies are likely to explore what subcontracted services can be sourced in the UK but significant inward investment is unlikely – the market is currently not big enough.



# Jobs and UK content

## Where do the opportunities lie?

- Overseas fabricators may be looking for UK partners for final assembly, coatings and secondary steel.
- Vessel operators/EPCI contractors looking for port services, sea fastenings, fuel, agency services, catering, waste, CTVs. Vessel equipment probably not sourced for a project but strong capability in this area. Already some good examples.
- Turbine manufacturers are most likely to be looking for services around project execution (some overlap with the above)
- For O&M, local suppliers are always well placed but scope for greater UK content is probably limited – it may even be under threat if SOVs break the link to a local operations base

# Conclusions

- Offshore wind is a significant contributor to UK generating capacity and retains government support
- Capacity will reach 10GW in 2020 and Government has indicated that capacity can reach 20GW. It is likely to be about 30-40% of annual installed capacity in Europe
- Recent bid prices for offshore wind in Netherlands and Denmark have surprised many. UK prices are unlikely to be as low in the short term but expect new smaller developments (including extensions) with highly competitive bids
- Innovation by turbine manufacturers and optimised project development will have the biggest impacts but opportunities across the supply chain – a real opportunity to add value
- Big pressure on cost of energy but local economic benefit is still an important issue. Increases in UK content without a price premium are difficult. Any ideas?

# Thank you

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