Developing a market to accommodate future offshore wind projects in the UK & Europe

Bruce Valpy, 21 October 2010

BVG Associates

- Market analysis
- Business development
- New technology direction
- Technical due diligence
- Prototype wind farm development

DEPARTMENT OF ENERGY & CLIMATE CHANGE
Office for Renewable Energy Deployment

UK TRADE & INVESTMENT

CARBON TRUST

energy technologies institute

THE CROWN ESTATE


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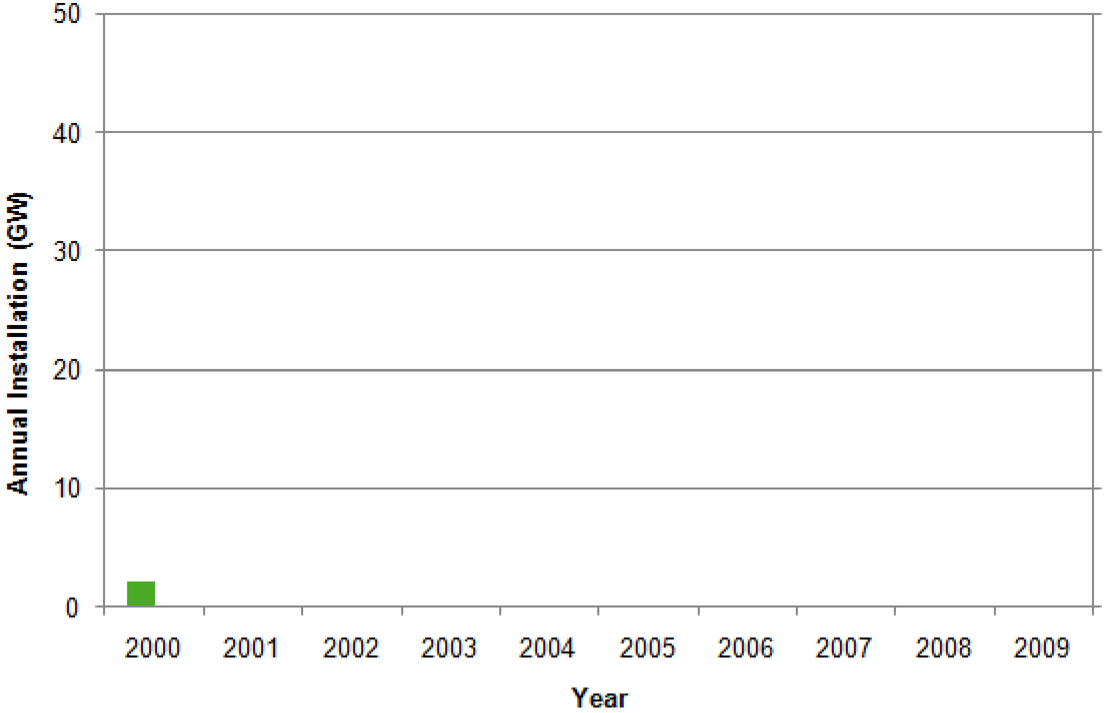
ABUS 25t
LYNN

Agenda

1. Forecast to 2030 and are we going to hit targets
2. Government policy decisions to help build a supply chain
3. How other countries are approaching offshore wind
4. Ingredients for long-term stability beyond Round 3?

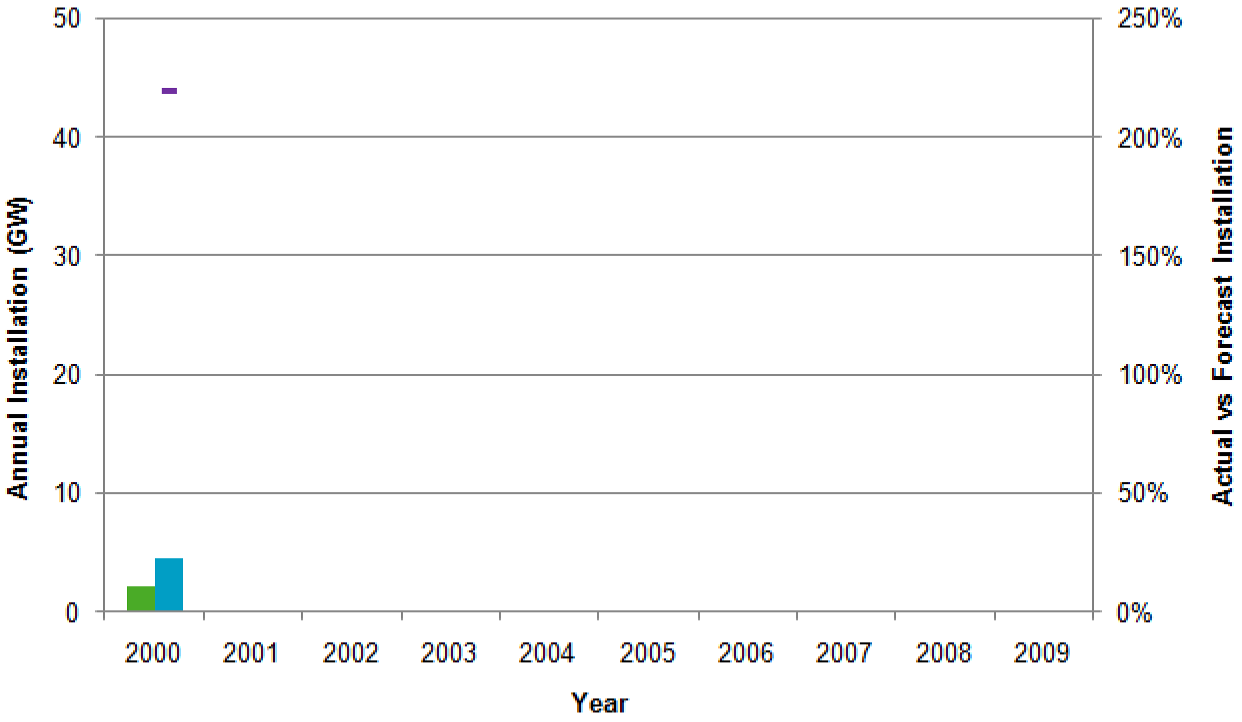
1. Forecasts, forecasts & more forecasts

- **Health warning: most wind energy forecasts exceeded**
- **BTM Consult – most respected around**
- **Global installation: 5-year ahead forecasts**



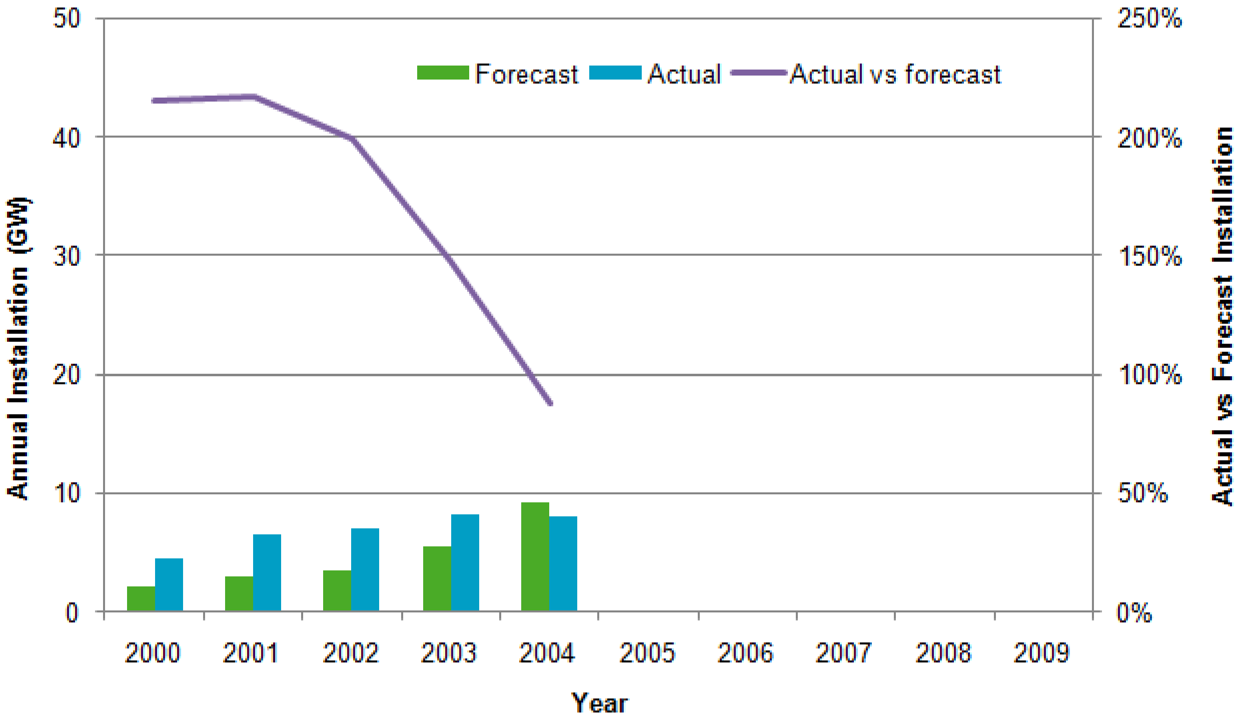
Forecasts, forecasts & more forecasts

- **Actual was 200% of forecast**



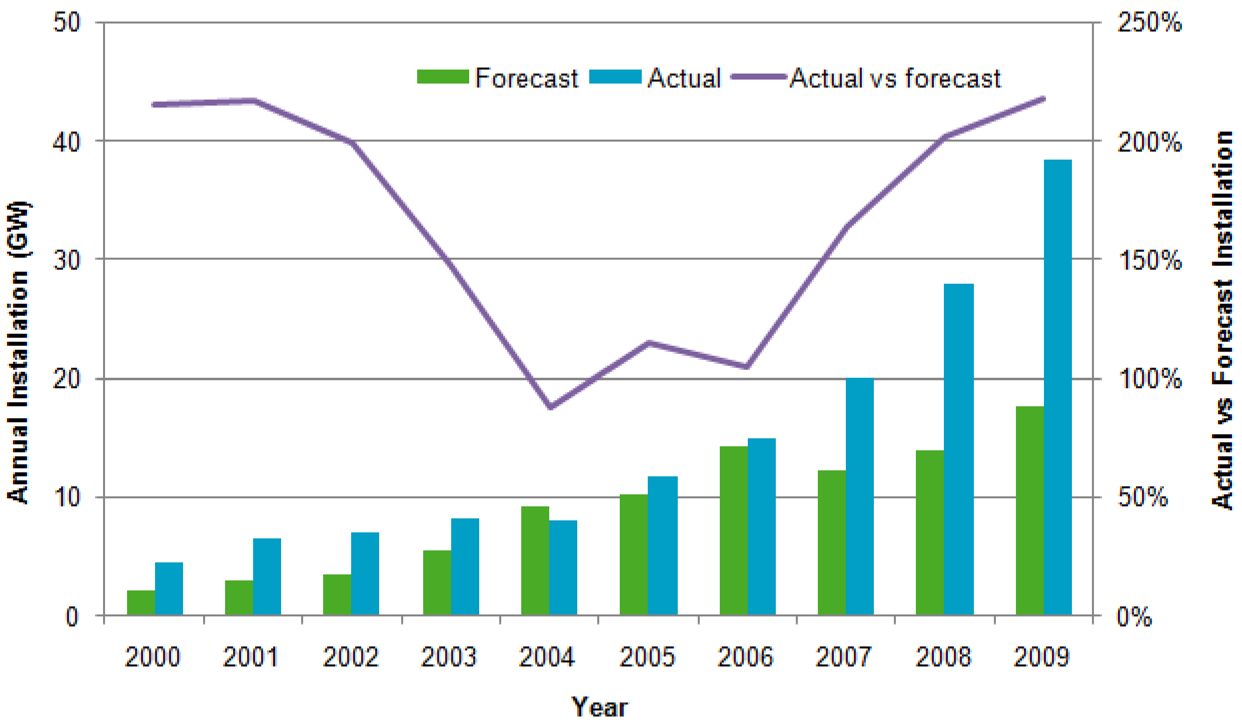
Forecasts, forecasts & more forecasts

- Early years – kept exceeding forecasts
- Getting better at forecasting (or worse at delivering)
- A cause of supply chain bottlenecks



Forecasts, forecasts & more forecasts

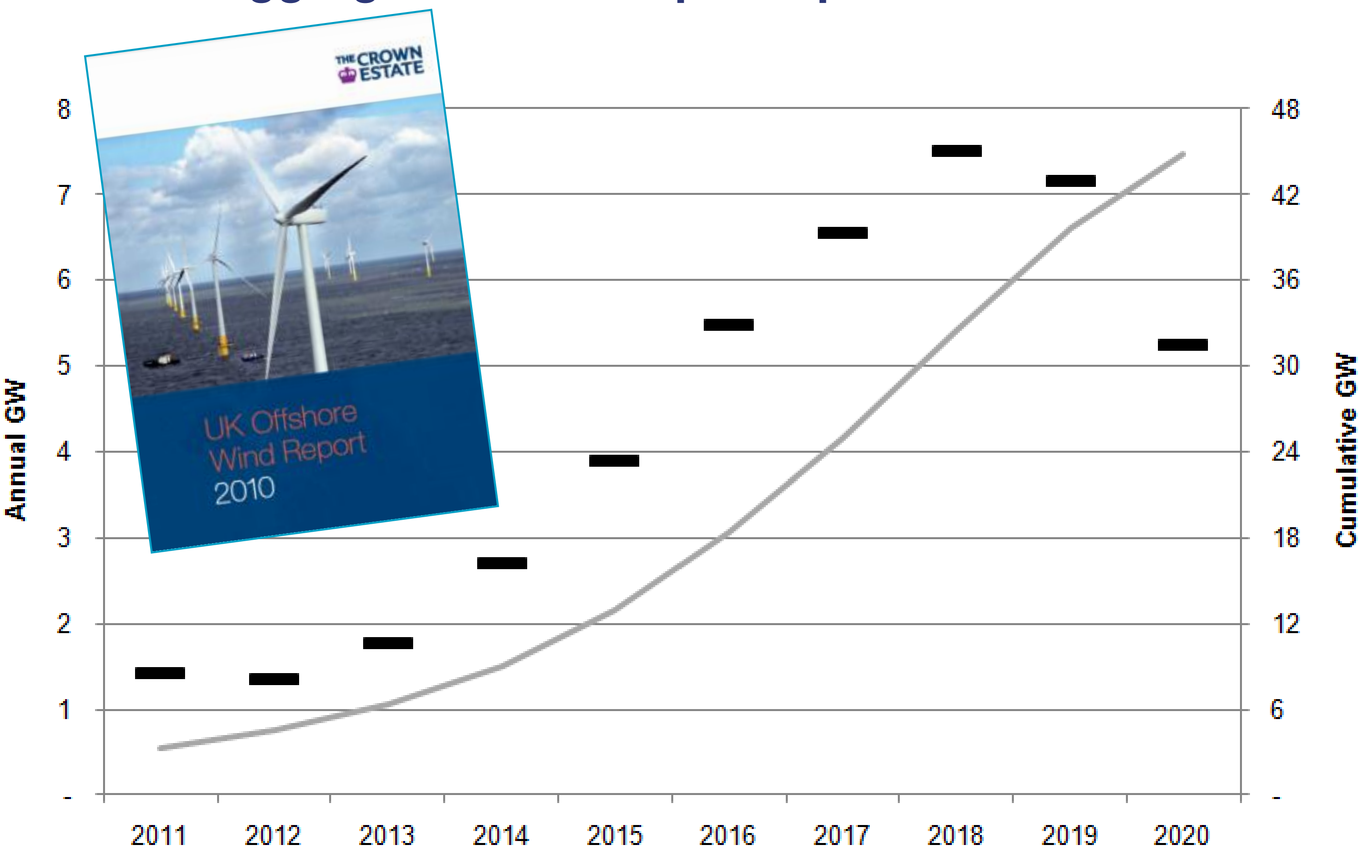
- Recent years - keep exceeding forecasts
- Forecasting is not easy



Forecasts, forecasts & more forecasts

The Crown Estate "potential"

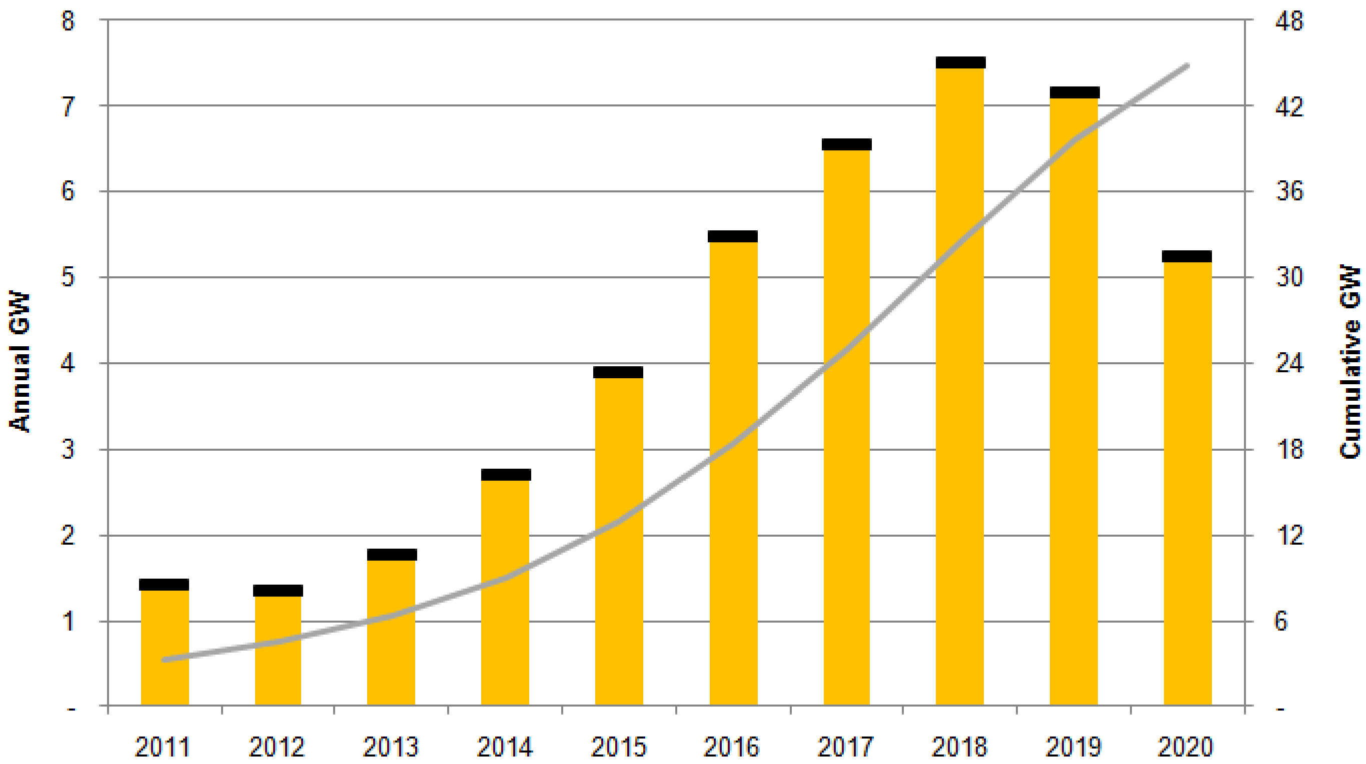
- Aggregate of developer expectations and commitments



Forecasts, forecasts & more forecasts

The Crown Estate "potential"

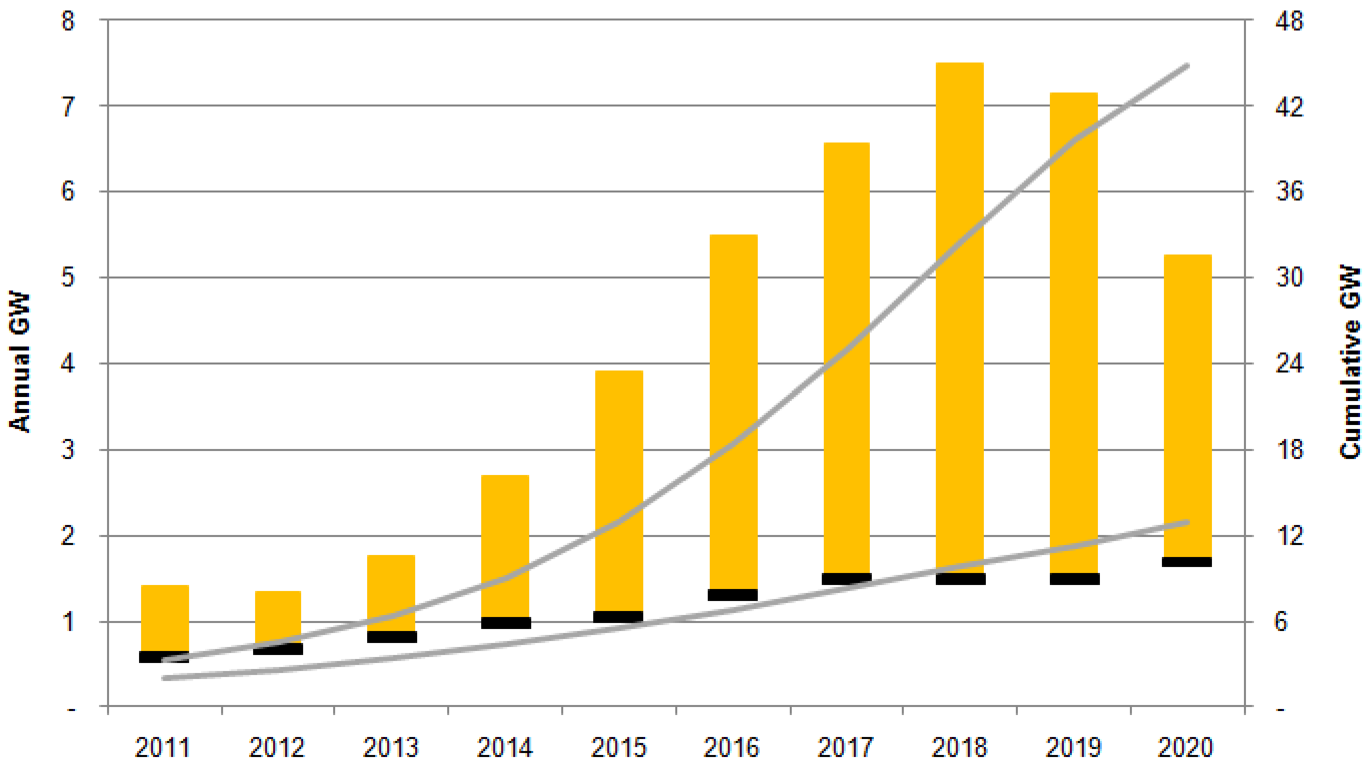
- **Upper bound**



Forecasts, forecasts & more forecasts

DECC National Action Plan (2010)

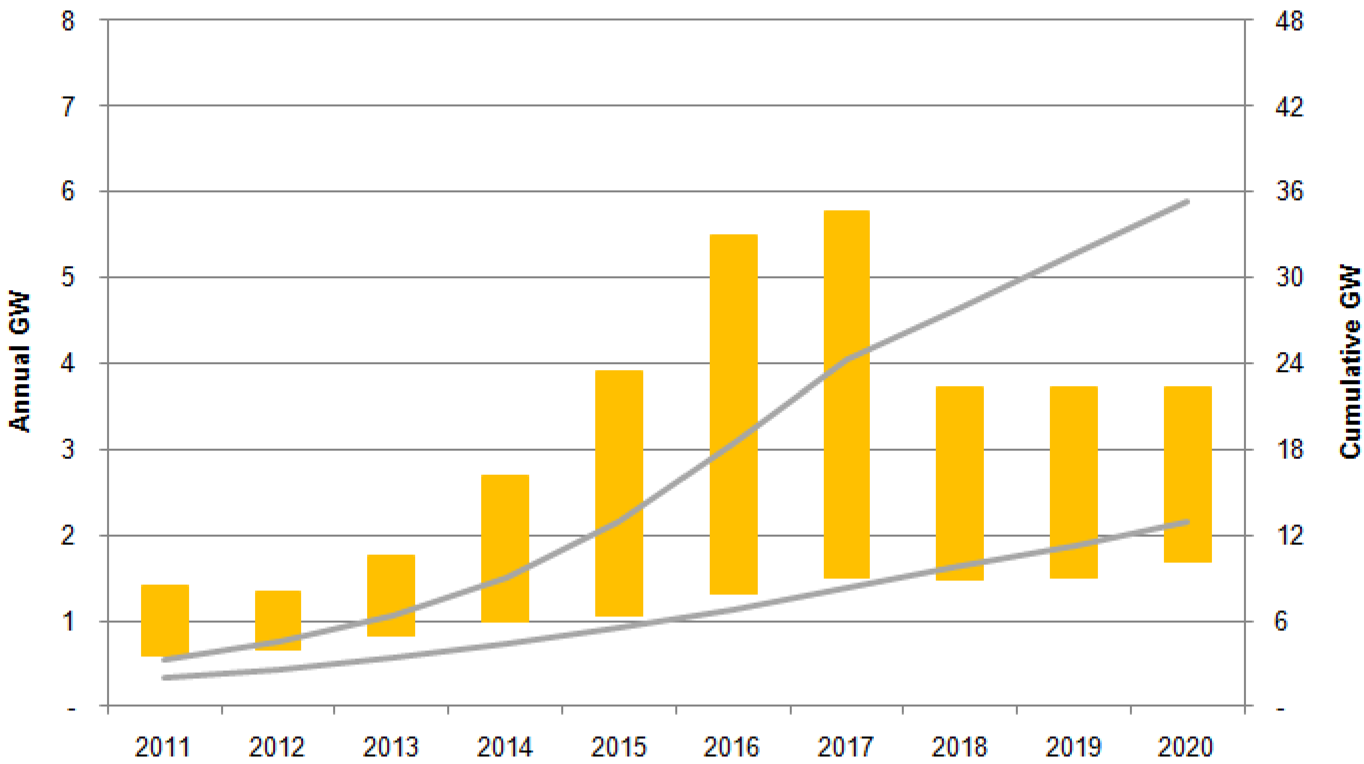
- **'a scenario' - lower bound   "much greater levels of deployment"**



Forecasts, forecasts & more forecasts

National Grid 'Accelerated plan' (2010)

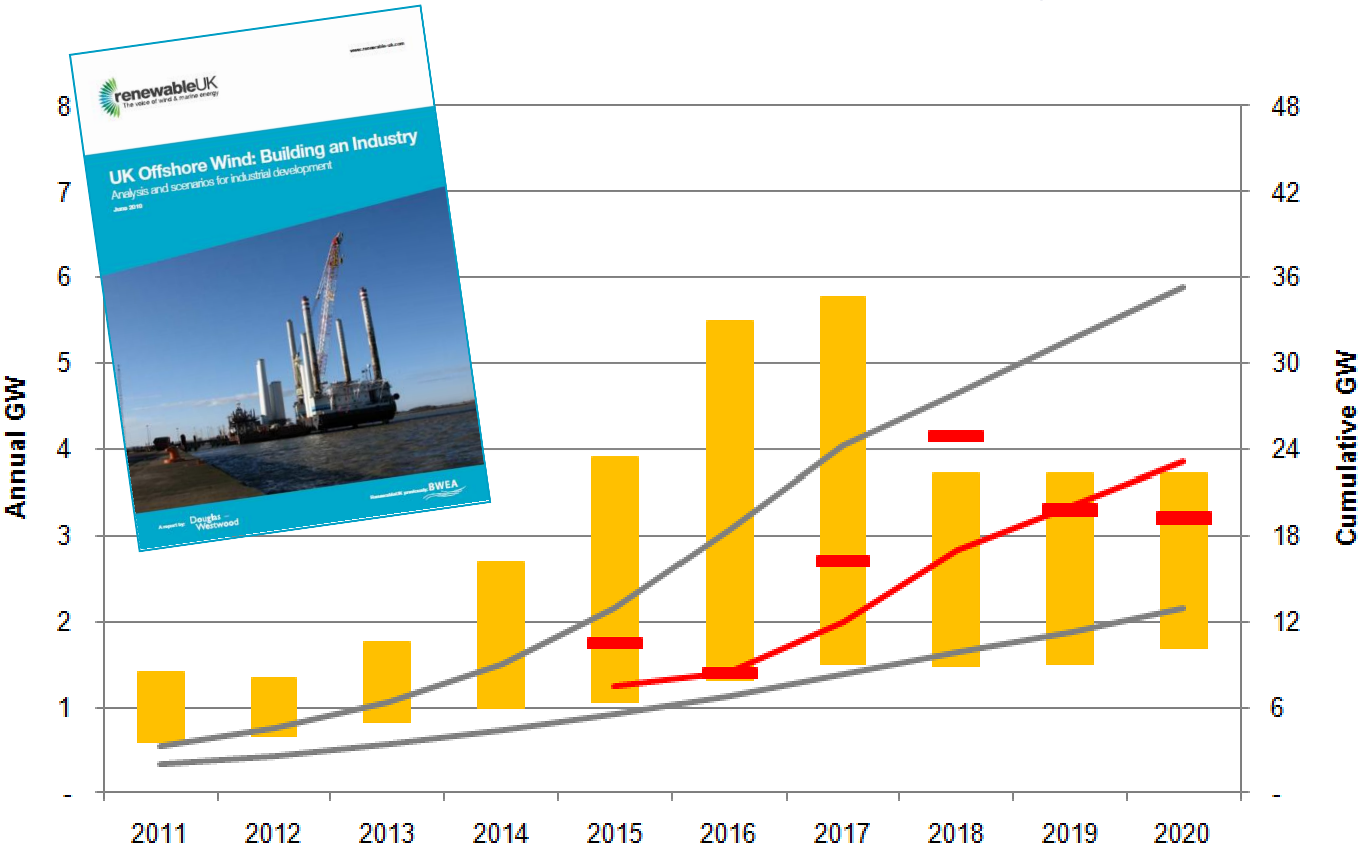
- Constraint



Forecasts, forecasts & more forecasts

Renewable UK ‘Healthy industry‘ (2010)

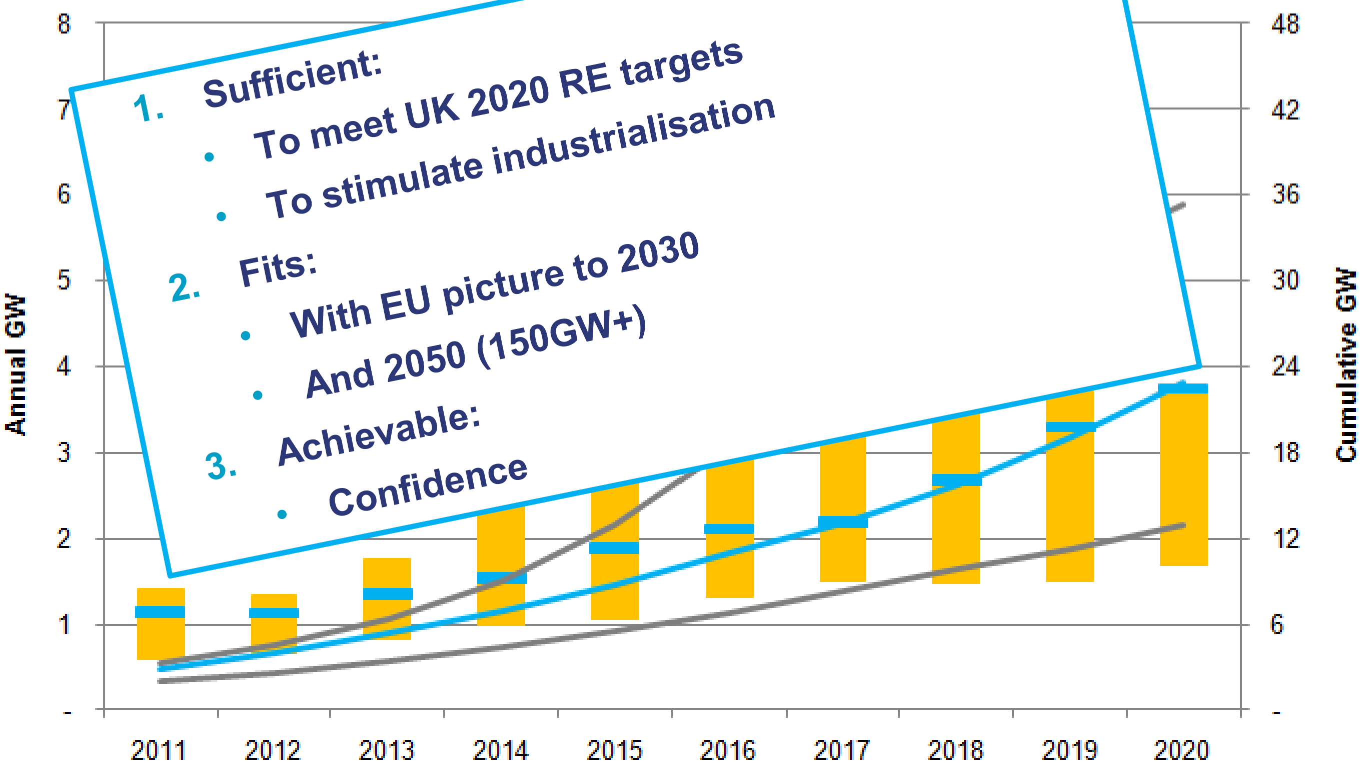
- ‘Realistic scenario based on industry feedback’



Our forecast

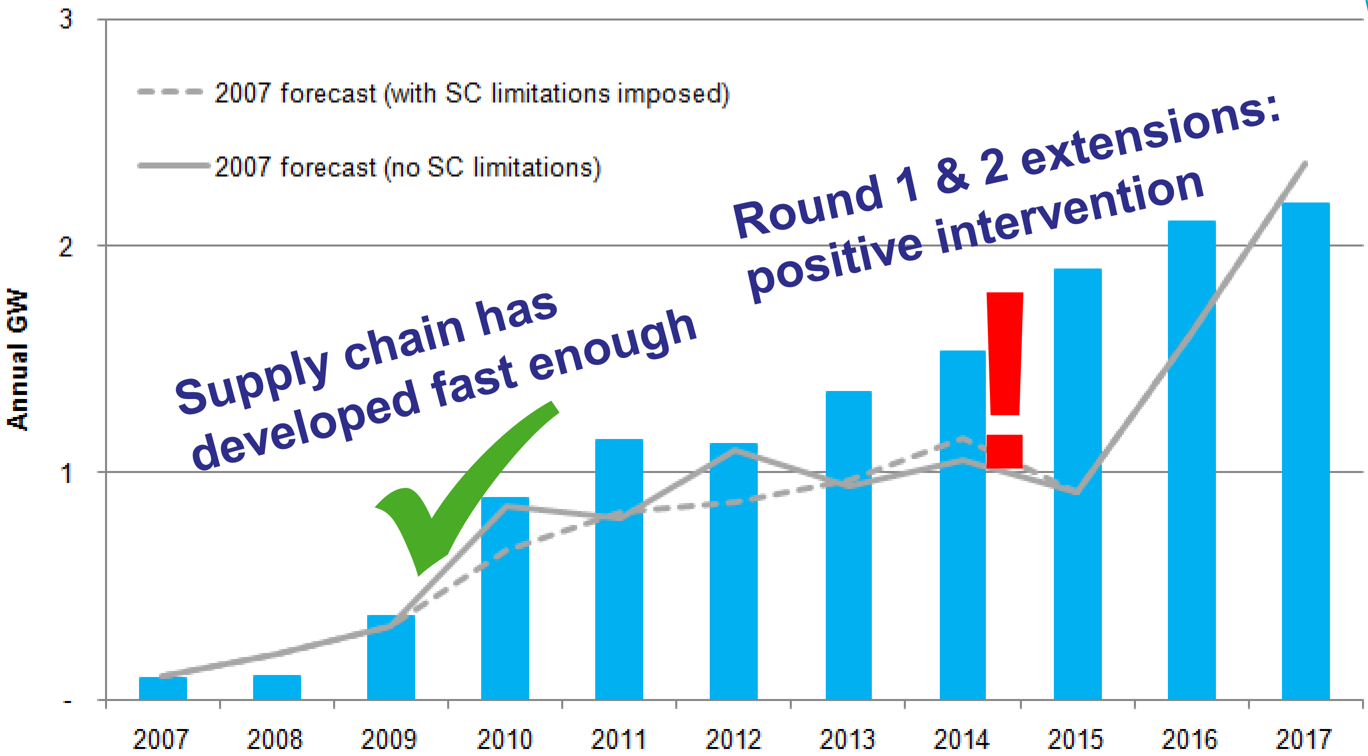
- Dialogue with many stakeholders - probabilistic, rationalised and contextualised
- Bottom-up and top-down

1. Sufficient:
   - To meet UK 2020 RE targets
   - To stimulate industrialisation
2. Fits:
   - With EU picture to 2030
   - And 2050 (150GW+)
3. Achievable:
   - Confidence



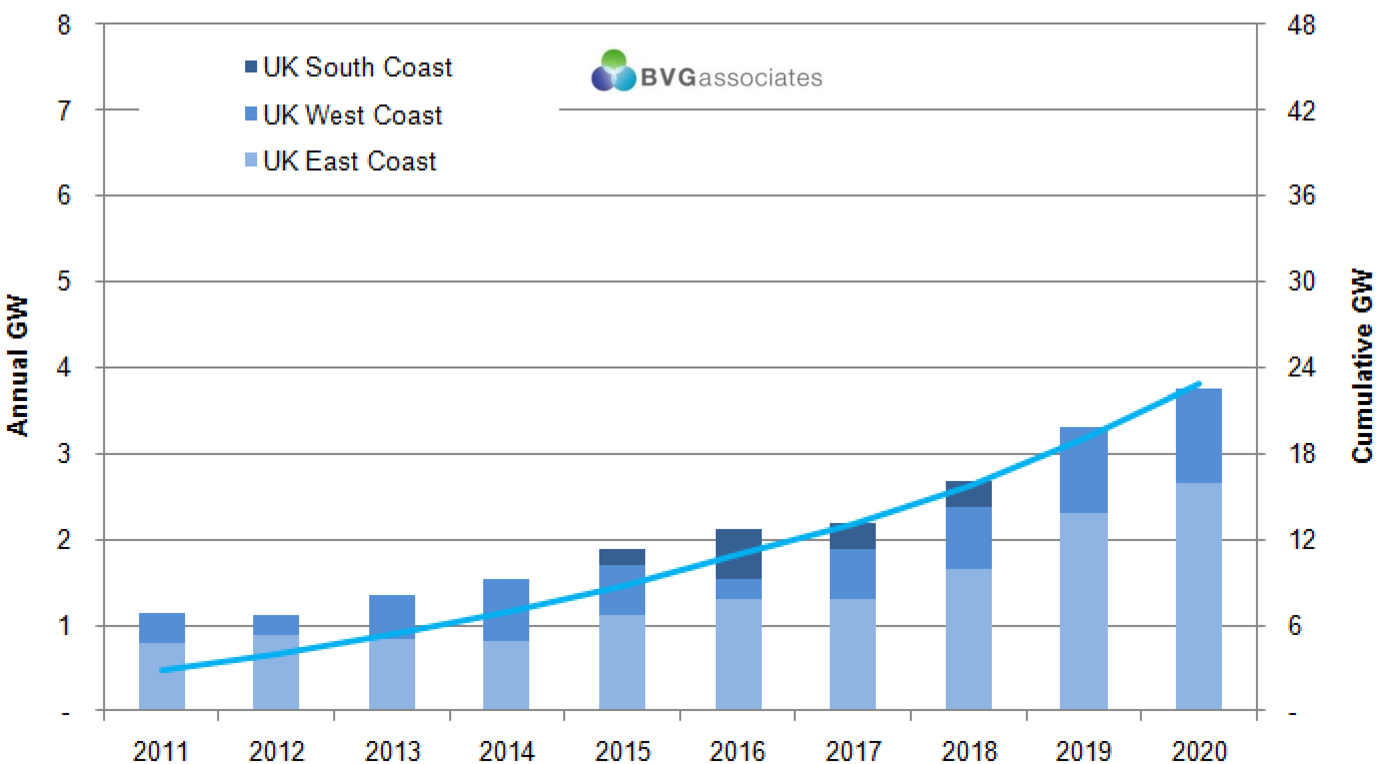
Our forecast

- **Compare 2010 forecast with BWEA's *Moving up a gear* (2007)**



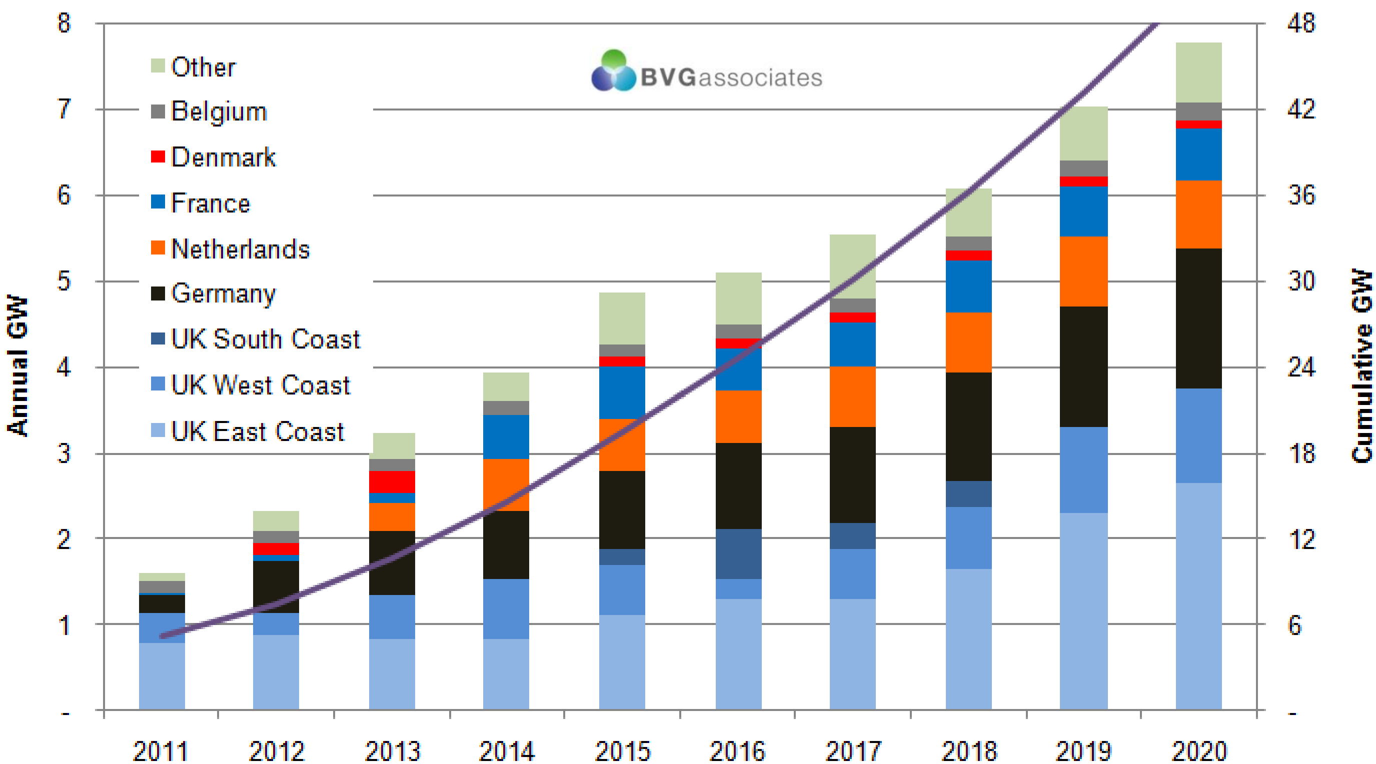
Our forecast

- **UK by location**

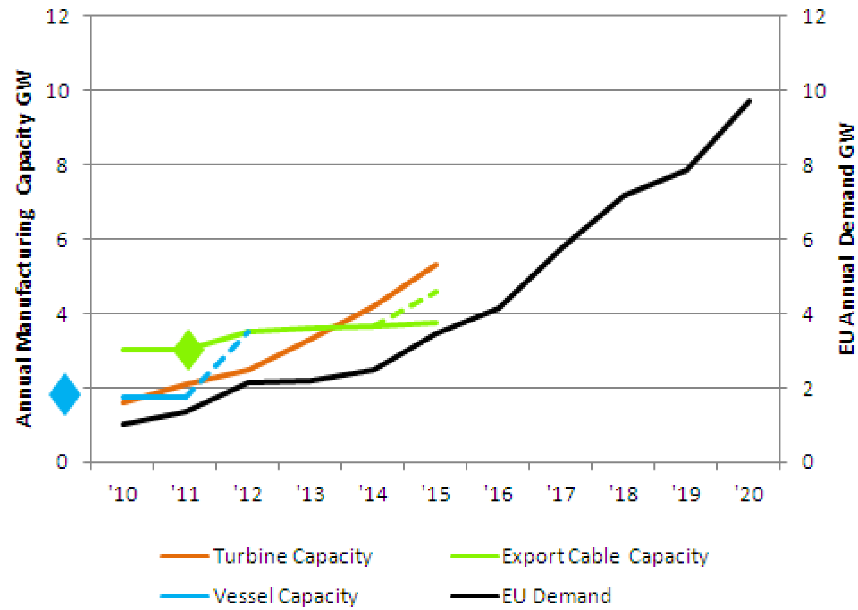


Our forecast

- **EU-wide**



Our forecast – key risks



Early 2009

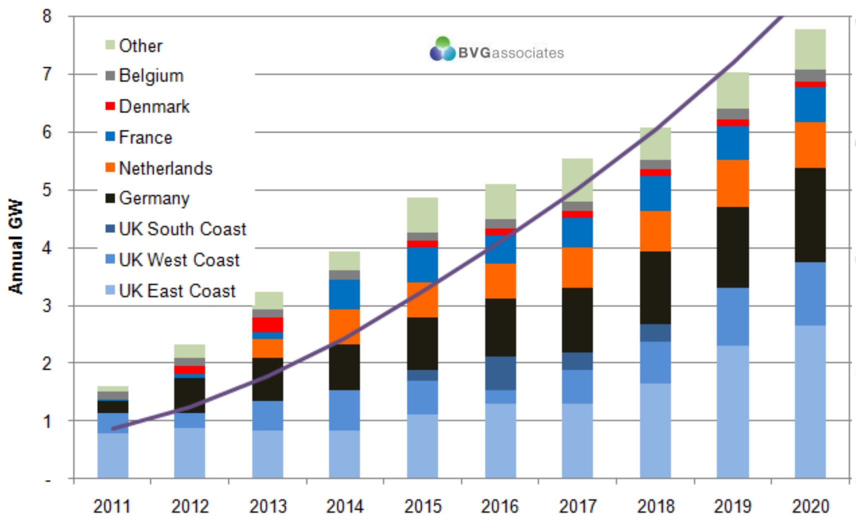
- Supply chain
- Economics – 'Good budget'
- Grid OFTO arguments

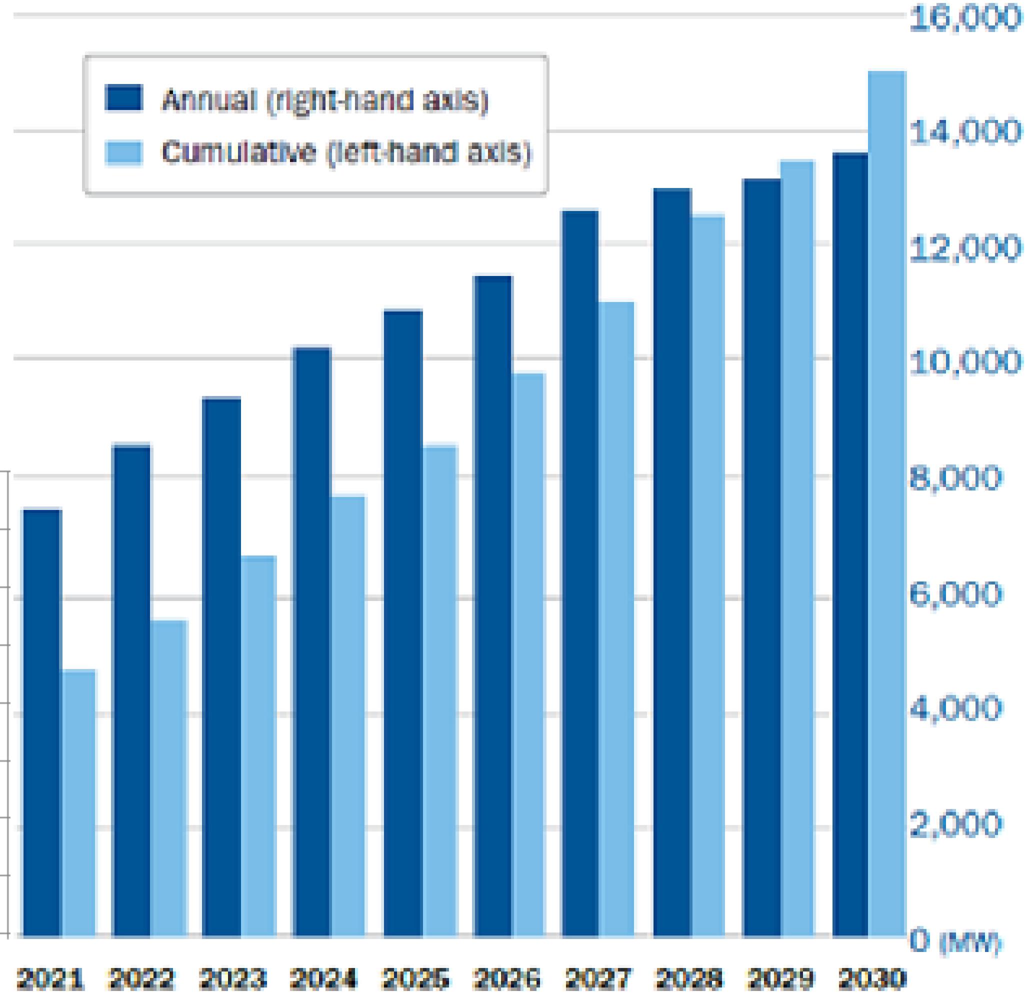
2010

- Grid
- Finance
- Electricity Market Reform
- Government intent

Our forecast

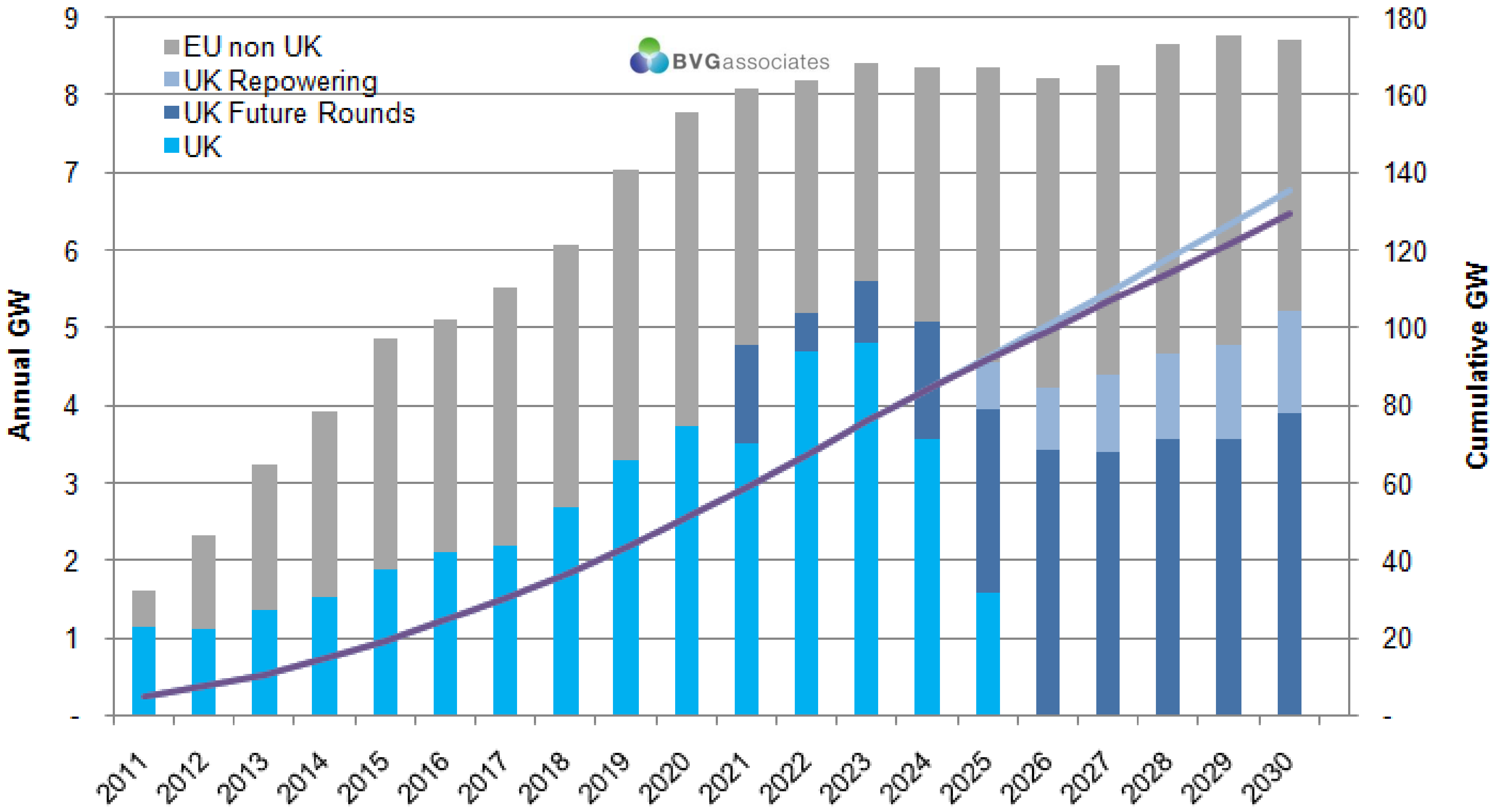
- **To 2030**





Our forecast

- **To 2030**



2. Government intent

Government intent: previous

Stable market

- ✓ Viable framework
- ✓ Additional ROCS
- ? Grid framework

Inward investment

- ✓ UK Renewables Service & UKTI
- ✓ Ports dialogue and ‘competition’

R&D Support

- ✓ ETF £30m
- ✓ Carbon Trust
- ✓ Energy Technologies Institute

Supply chain support

- ✓ UK Renewables Service
- ? Cash

Renewable energy country attractiveness indices

Ernst & Young Quality In Everything We Do

Wind indices at August 2010

Rank[1]		Country	Onshore wind	Offshore wind
1	(1)	China	78	67
2	(2)	US[2]	72	56
3	(3)	UK	64	77
4	(4)	Germany	63	71
5	(5)	India	71	42
6	(6)	Italy	65	53

Government intent: previous

Stable market

✓ Viable framework

✓ Additional ROCS

? Grid framework

Inward investment

✓ UK Renewables Service & UKTI

✓ Ports dialogue and 'competition'

R&D Support

✓ ETF Offshore Wind Demo

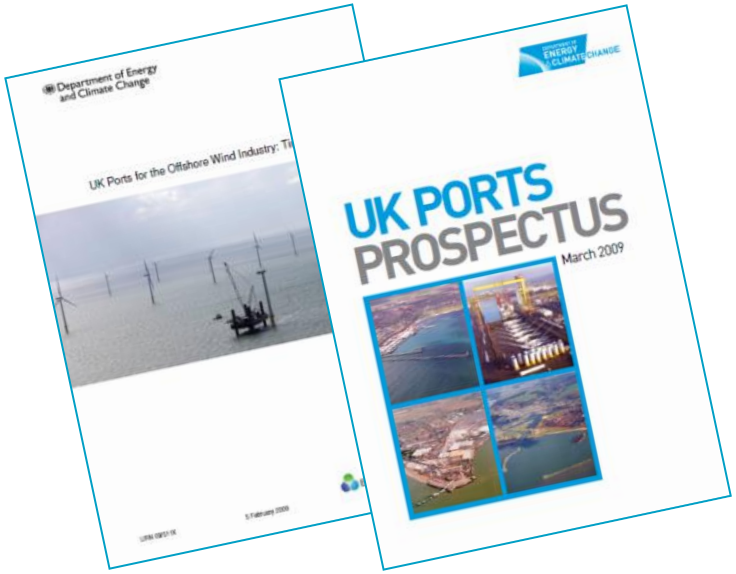
✓ Carbon Trust OWA

✓ Energy Technologies Institute

Supply chain support

✓ UK Renewables Service

? Cash



Government intent: previous

Stable market

- ✓ Viable framework
- ✓ Additional ROCS
- ? Grid framework

Inward investment

- ✓ UK Renewables Service & UKTI
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R&D Support

- ✓ ETF Offshore Wind Demo
- ✓ Carbon Trust OWA
- ✓ Energy Technologies Institute

Supply chain support

- ✓ UK Renewables Service
- ? Cash

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ETF (short-term)

Vestas, Siemens, MHI, Clipper, Converteam, JDR, BiFab, South Boats, MTL TAG, Artemis, NGenTec, Blade Dynamics

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OWA (medium-term)

Statoil, DONG energy, SSE Renewables, Statkraft, ScottishPower Renewables, e.on, RWE The energy to lead, Mainstream Renewable Power

energy technologies institute

ETI (long term)

bp, Caterpillar, EDF Energy, e.on, Rolls-Royce, Shell

Government impact: previous

Stable market

✓ Viable framework

✓ Additional ROCS

? Grid framework

Inward investment

✓ UK Renewables Service & UKTI

✓ Ports dialogue and 'competition'

R&D Support

✓ ETF Offshore Wind Demo

✓ Carbon Trust OWA

✓ Energy Technologies Institute

Supply chain support

✓ UK Renewables Service

? Cash

Government intent: current

Stable market

- ? Electricity market reform
- ? Move away from ROCs?

Inward investment

- ? ORED & UKTI
- ✓ Ports ‘competition’

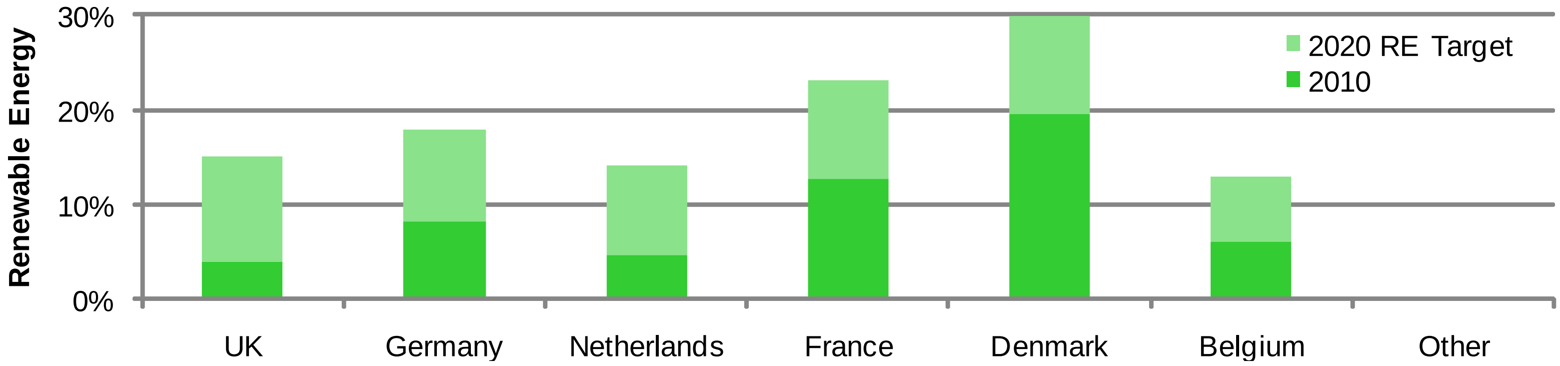
R&D Support

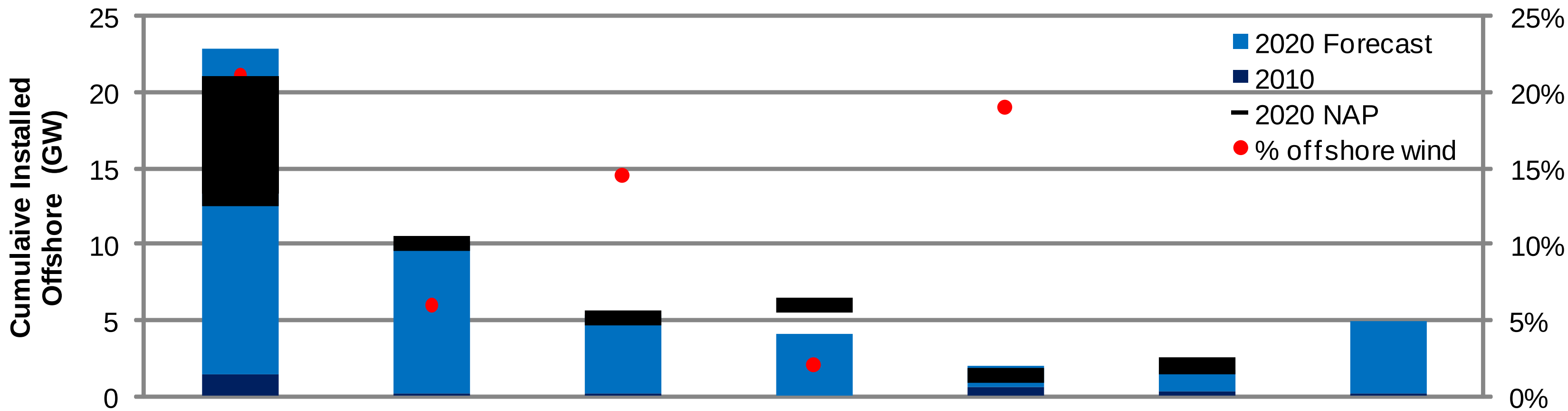
- ? ETF
- ↓ Carbon Trust
- ✓ Energy Technologies Institute

Supply chain support

- ? ORED
- ? Cash

3. EU picture





Framework	✓✓✓	✓✓✓	✓✓	✓	✓✓	✓✓	✓
Consenting	✓✓	✓✓✓	✓✓	?	✓✓✓	✓✓	✓✓
Grid	✓	✓✓	✓✓	✓✓	✓✓✓	✓✓	✓ to ✓✓✓
Economics	✓✓?	✓✓	✓✓	✓	✓✓	✓✓	?

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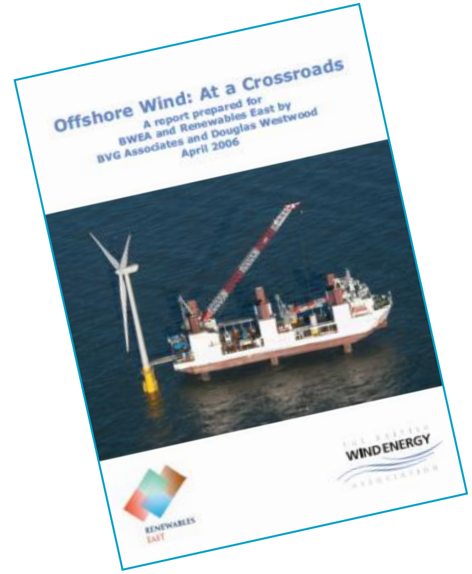
Consequences for UK



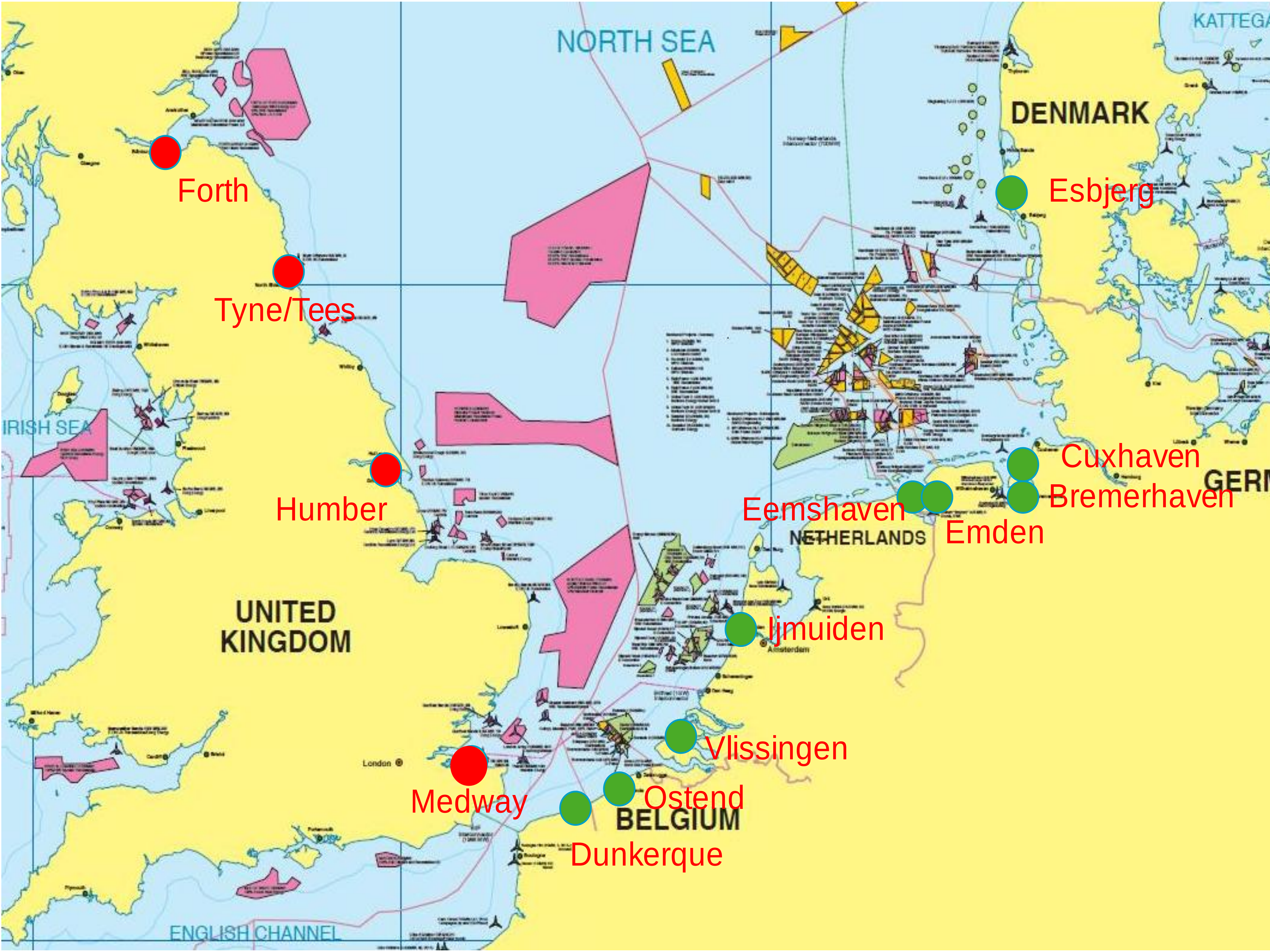
2006 Offshore Wind: at a crossroads = economics

2010 crossroads = UK jobs

- **GVA for wind in UK £850m in 2008, 11,000 jobs**
- **2010 double?**
- **Government intent is key**
- **Looking positive...**

Nacelle Assembly	4-5 facilities
Blade manufacture	2-3
Towers & foundations	5-6
Gearboxes	0-1
Direct-drive generators	1-2
Supply chain	many, varied

- **Being ‘in’ the market works...**


NORTH SEA
DENMARK
KATTEGA
Forth
Tyne/Tees
Esbjerg
IRISH SEA
Humber
Cuxhaven
GERM
Bremerhaven
Eemshaven
Emden
NETHERLANDS
UNITED KINGDOM
Ijmuiden
Amsterdam
London
Vlissingen
Medway
Ostend
BELGIUM
Dunkerque
ENGLISH CHANNEL

4. Stability beyond Round 3

Ingredients:

1. **Excellent track record**
   - **H&S, delivery, energy, OPEX control**
2. **Grid – UK & beyond**
3. **Finance**
4. **UK jobs and supply**
5. **Significant cost improvement**
   - **Commercial & technical**
6. **Further licensing:**

   2000 Round 1 – 9 years to peak

   2003 Round 2 – 9 years

   2009 STW – 8 years

   2010 Round 3 – 10 years

   2015 awards, latest

➢ **Need announcements by 2014**


Thank you...