

Offshore Wind – Making a Material Difference

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Credibility

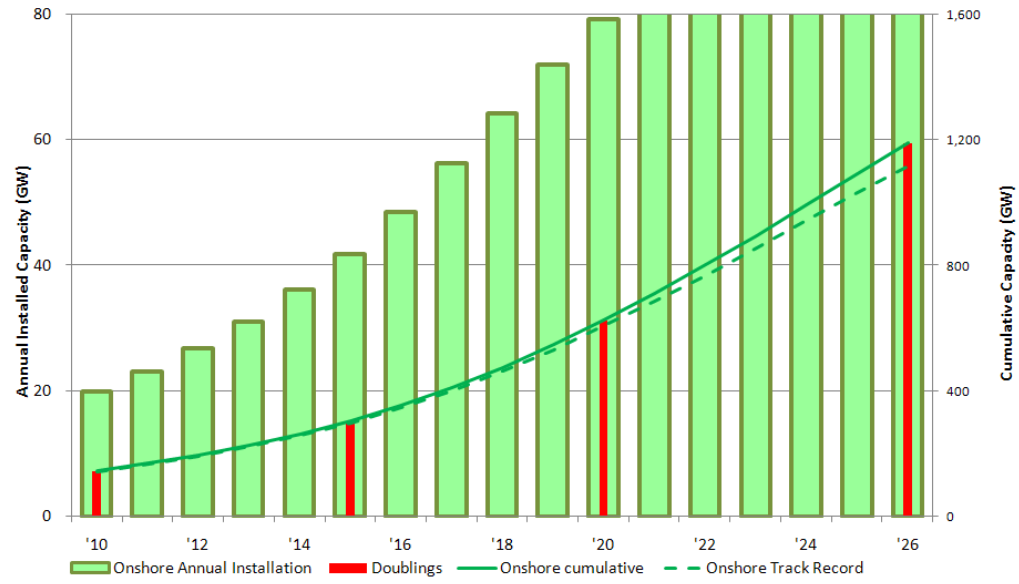


Credibility



Why Wind?

- **Fastest** growing sector of the power generation industry – \$40bn/yr

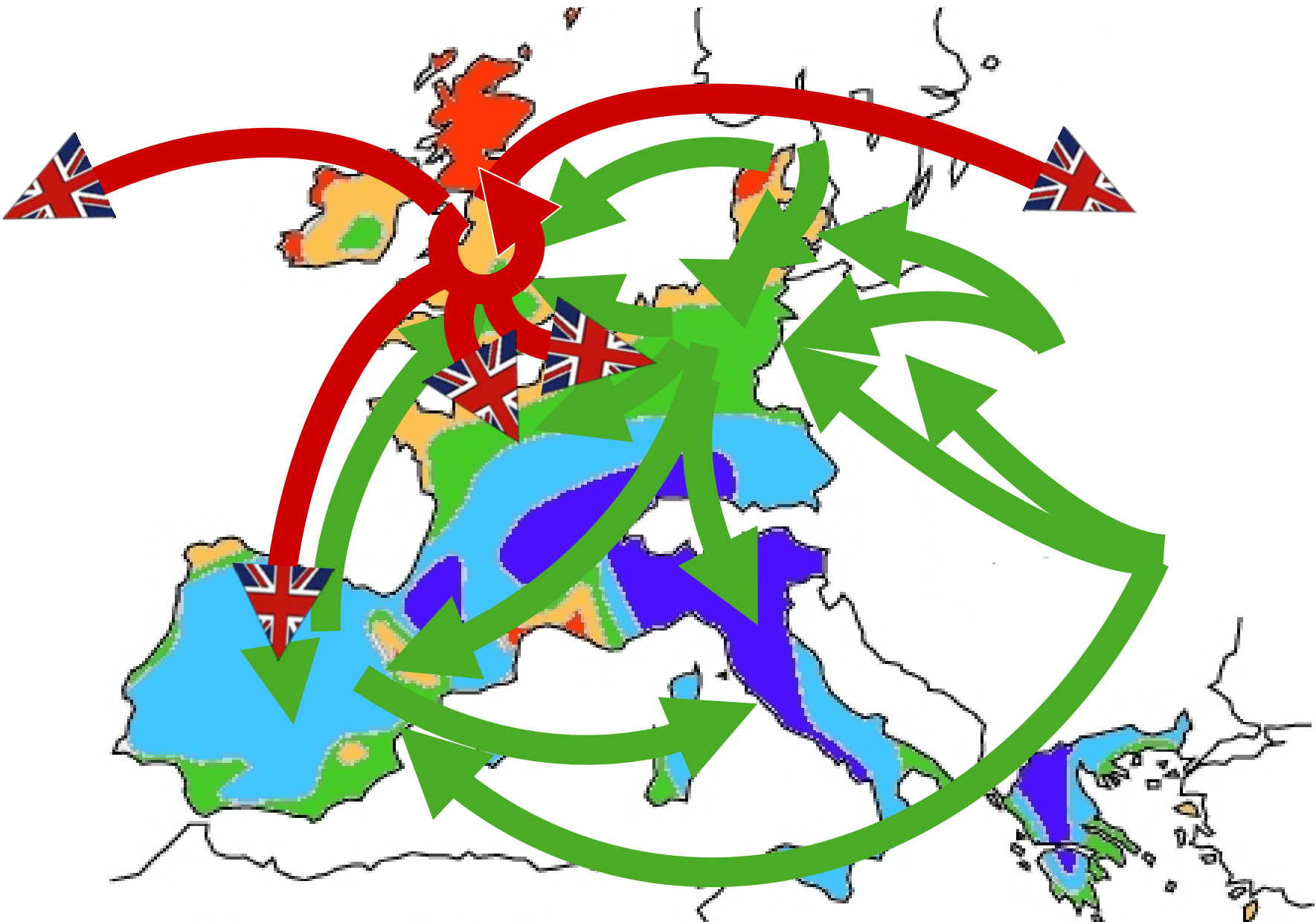


- **Big** technology challenges remain (10%+ learning rate)
- **Big** user of materials

Why UK Wind?

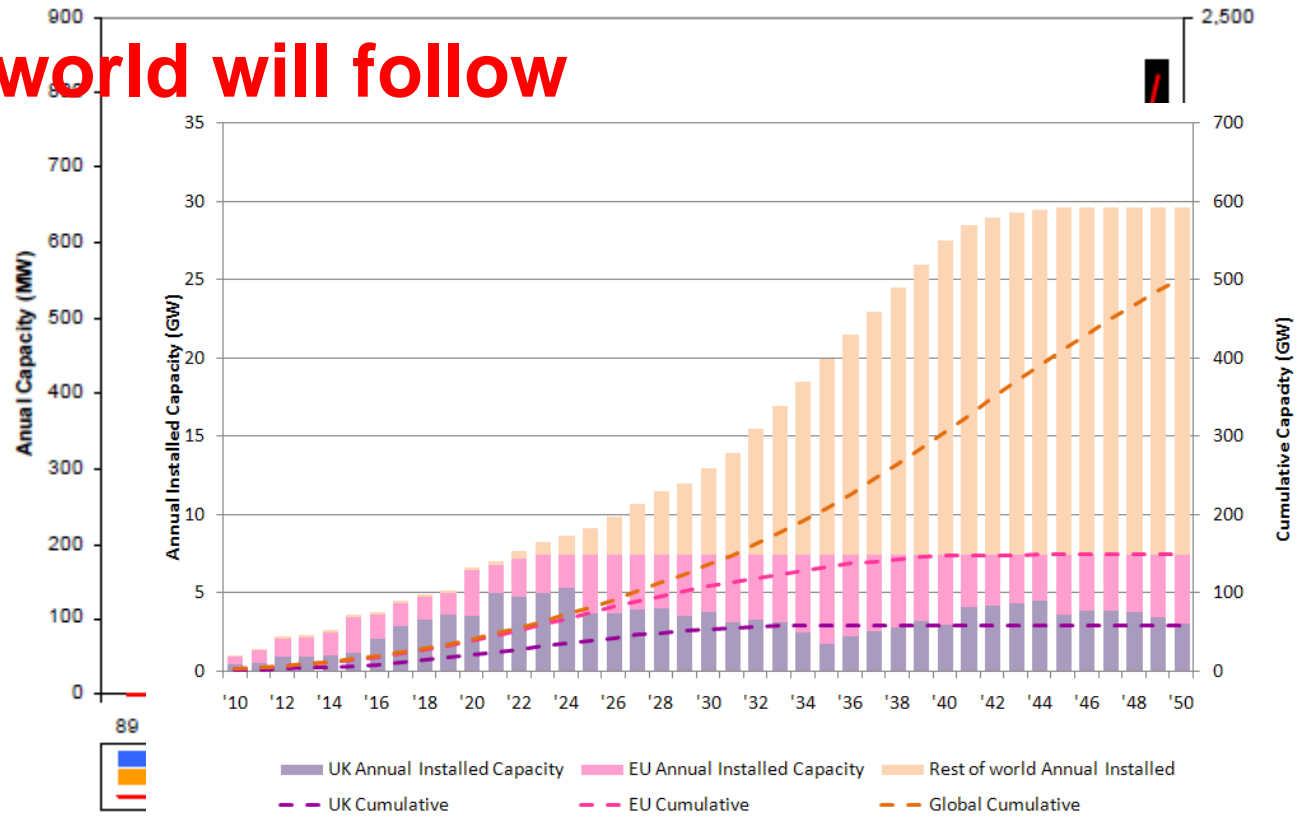
- UK 4th most **attractive wind market**
- **No.1** offshore wind market
- **Greatest wind** resource in EU
- Spend **£60bn+** by 2020
- Massive supply chain **growth** required
- UK has **opportunity** to industrialise





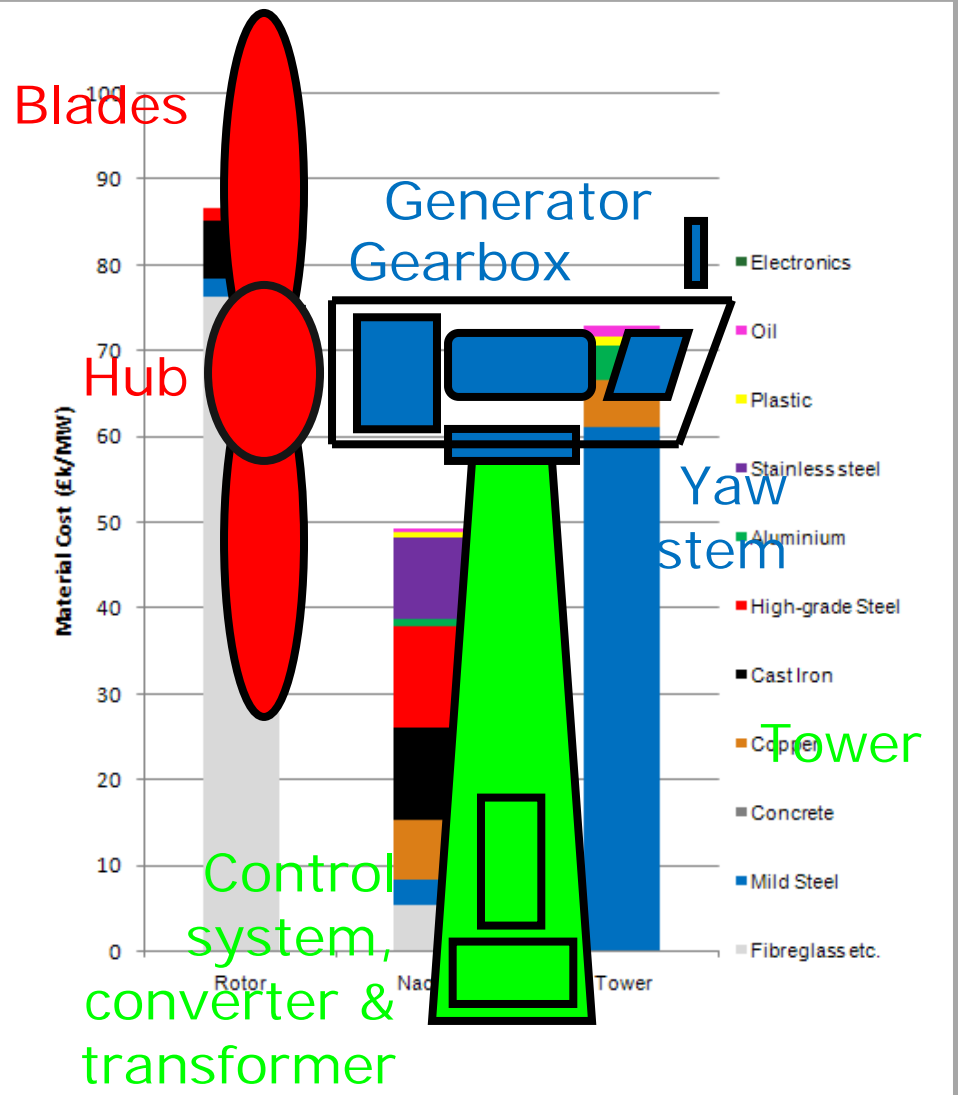
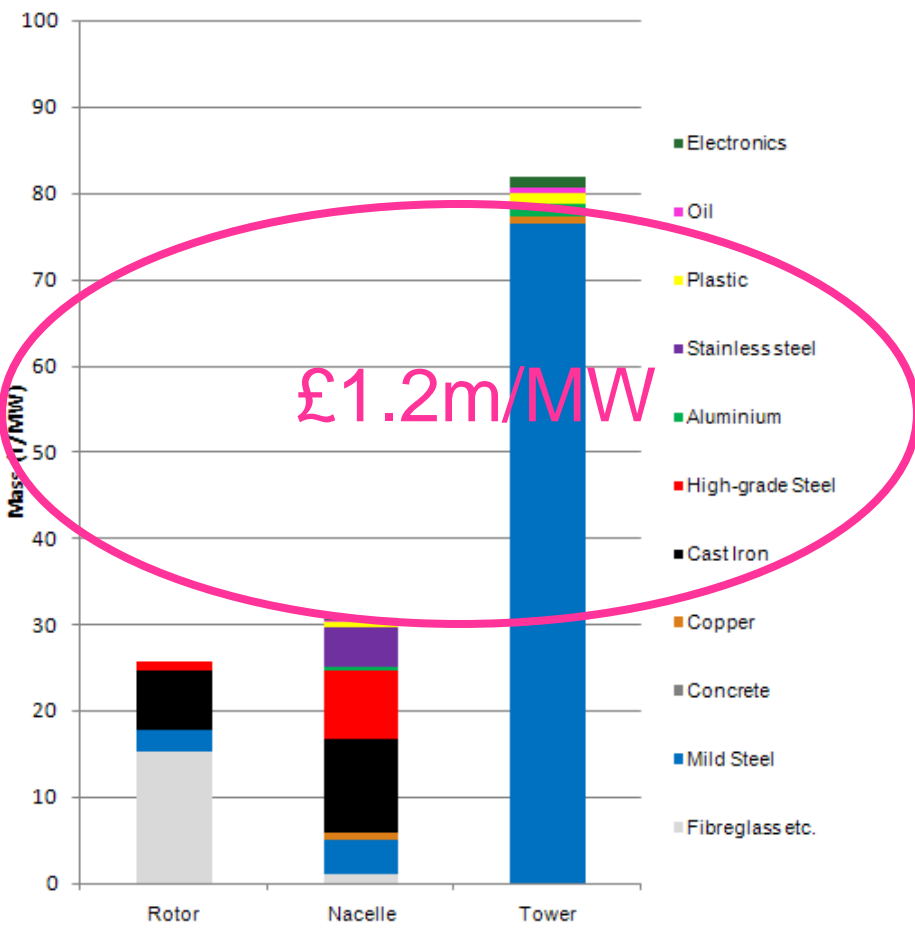
Offshore Wind Market

- Happening **here, now**
- Rest of **EU and world will follow**

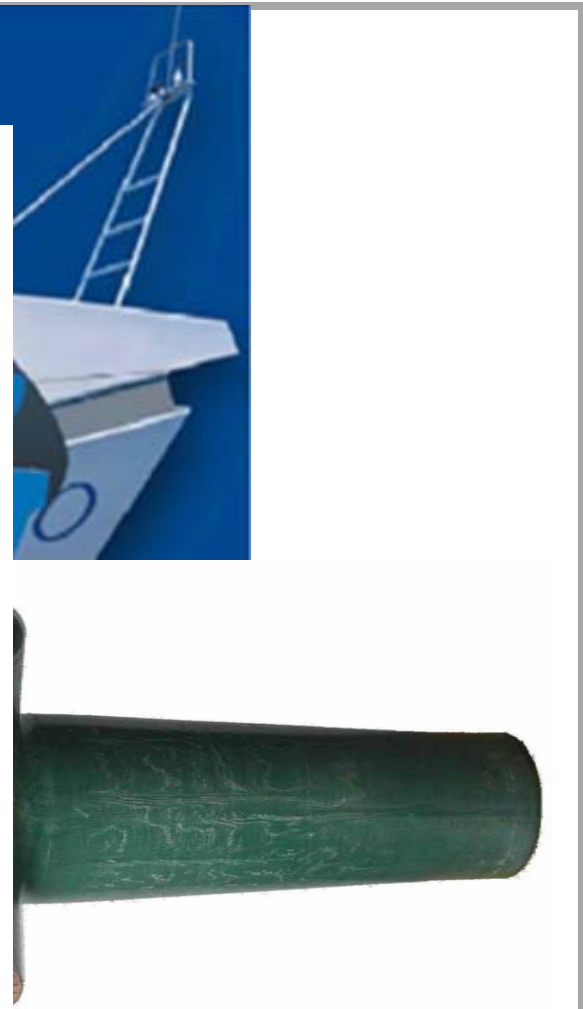
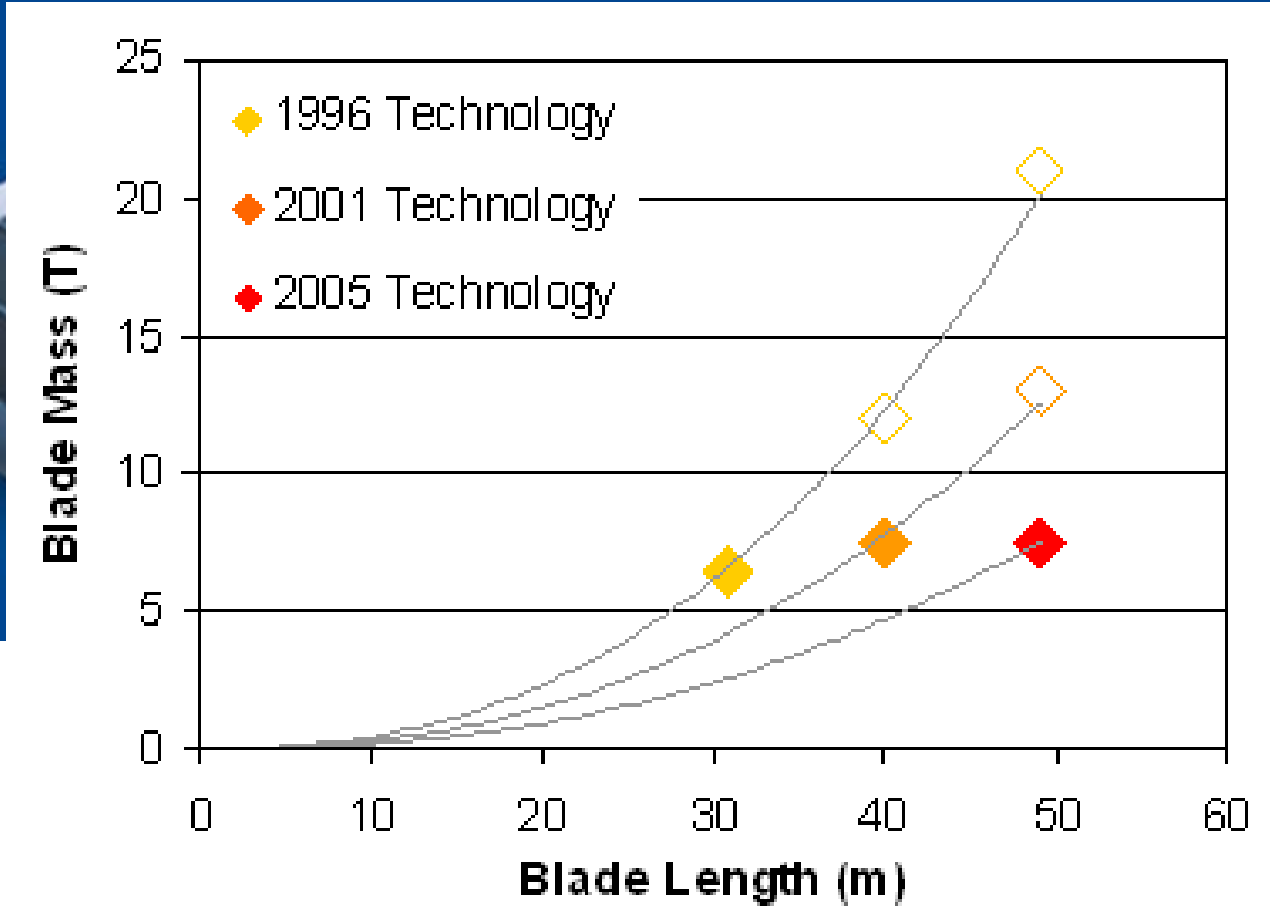


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What's in a wind turbine?

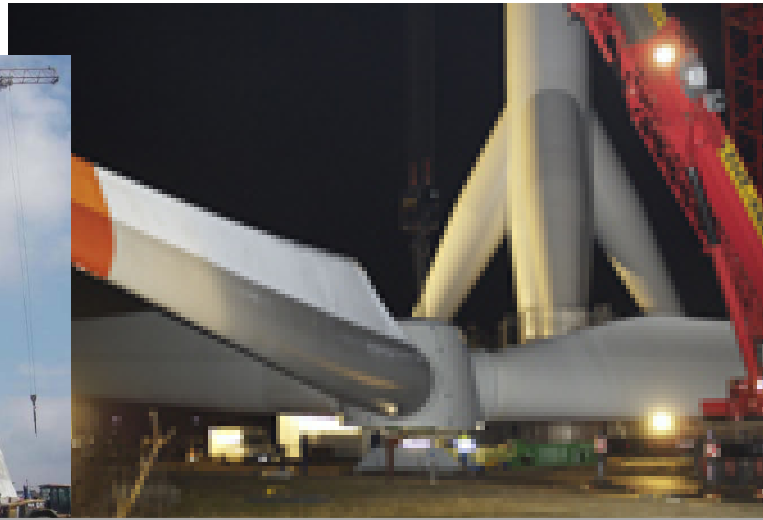


Materials development: Composites



Steel and Concrete

1. Fatigue / extreme allowables
2. Welding techniques
3. Sandwich and 'composite' materials



Hi-tec to big industrial to sustainable

1. Ceramic hybrid 4-pt contact ball bearings
2. Ceramic sealing solutions
3. Sensing materials – control and condition feedback
4. Heat treatments
5. Castings technology
6. Permanent Magnet technology
7. Sustainable materials – bamboo, hemp, flax & reusing /recycling composites



Prospects

1. Got UK RD&D expertise
2. Big UK players involved; wind industry keen to engage
3. Clear route to (home) market
4. Global export potential
5. Good synergies exist between wind and the needs of other sectors – not “wind research”
6. Materials RD&D funding will make a difference

Wind – leaving others in its wake

