

Cost Reduction efforts in the UK



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Hamburg

Introduction to The Crown Estate

Is a landowner / property company

Is a public body – The Crown Estate Act 1961

Is not part of Government or a regulator – but works closely with Government, statutory bodies *etc.*

The capital value is £9.9bn, surplus paid to Treasury (£267.1m in 2013/14)

Diverse energy interests: offshore wind, onshore wind, solar, biomass, wave and tidal, CCS, gas storage & pipelines.



Urban Portfolio



**Rural & Coastal
Portfolio**



**Energy & Infrastructure
Portfolio**



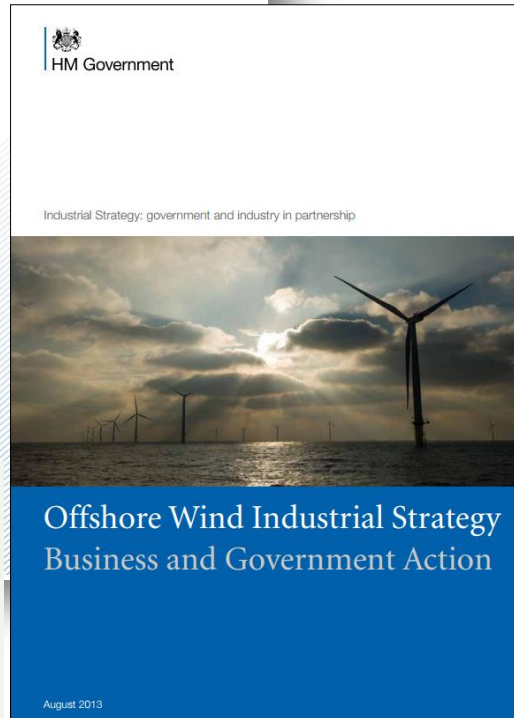
**Windsor
Estate**

Background in 2012

Offshore Wind Cost Reduction Pathways Study



Offshore Wind
Cost Reduction
Task Force Report
June 2012



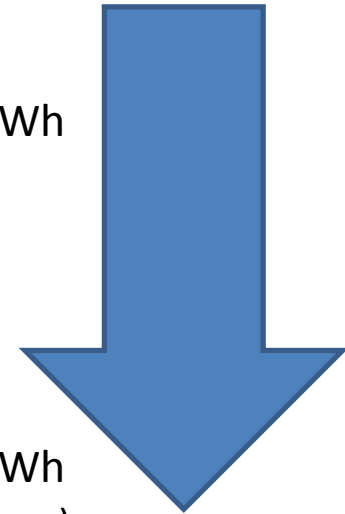
68 recommended actions
Reports into industry council
8 workstreams
80+ workgroup participants

LCOE

£140/MWh

FID

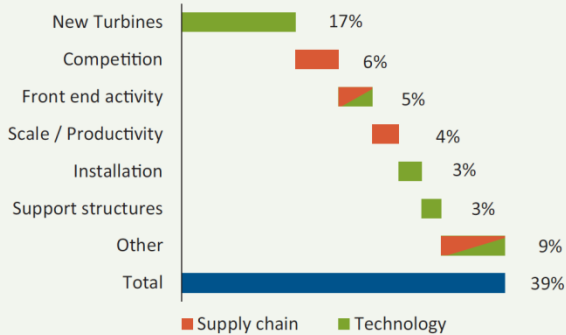
2011



£100/MWh
(2011 money)

FID

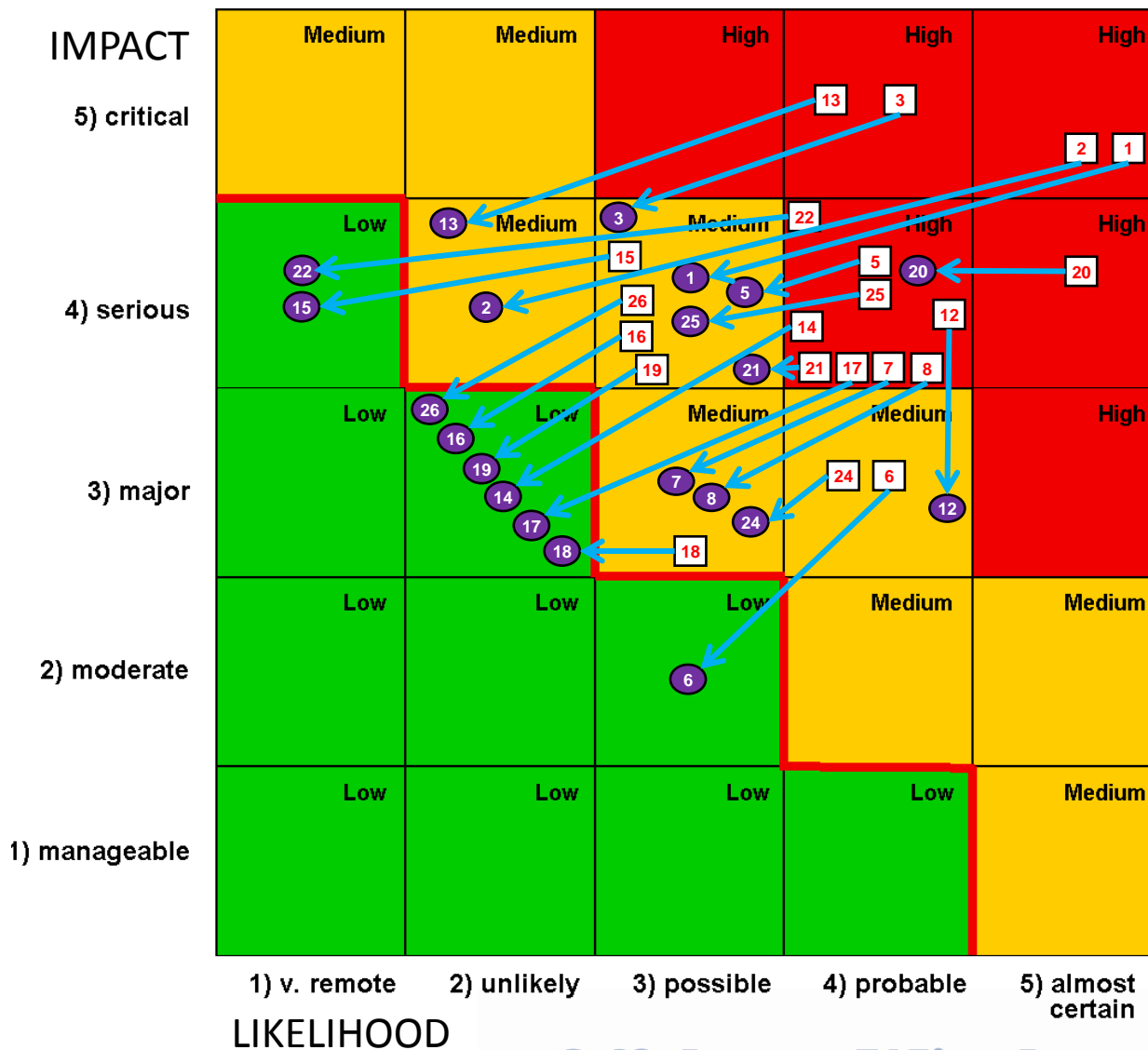
2020



Offshore Wind Programme Board

Offshore Wind Programme Board Risk Register Heatmap – September 2014

No.	Risk title
OWPB20	Insufficient funding/ support mechanisms for offshore wind
OWPB1	Supply Chain Capacity Bottlenecks
OWPB3	Innovation fails to deliver its part in cost reduction
OWPB5	Potential impacts of projects on birds and marine mammals increase difficulties in gaining consent
OWPB21	Route to Market
OWPB25	Lack of appropriate contractual agreements
OWPB12	Test and Demonstration sites fail to address needs of the industry
OWPB7	Sub-optimal asset performance (O&M)
OWPB8	Long lead times for electrical infrastructure
OWPB24	No definition of demand beyond FID 2020
OWPB13	Change in Government Energy & Climate Change Policy/Appetite
OWPB2	Inadequate capacity in statutory and non-statutory Consultees (LPA's, SNCA's, PINS, DECC)
OWPB14	MOD Air Defence successfully challenges projects
OWPB16	Wider European market falters meaning either isolation of UK market, or reduced opportunities for learning, innovation and cost reduction
OWPB17	National Air Traffic Service (NATS) successfully challenges zones
OWPB26	Grid Infrastructure costs adversely impacts on offshore wind LCOE
OWPB19	Grid Technical issues
OWPB18	Grid consenting and regulatory issues
OWPB6	Skills Shortage and Capability
OWPB22	Insufficient Consents Flexibility
OWPB15	Intervention and delay as a result of major or repeated incidents



Offshore Wind Programme Board

Project Directors, Community of Practice

Cost reductions – lessons learnt

- Industry standard terms & conditions as starting point.
- Employers to be prepared to take more weather risk.
- Export and array cables designed to work without CPS.
- Agreement from MCA/MMO to allow array cables to self bury in SPA/MPA areas.
- Agree scope and weather limits with MWS before starting installation.
- Recognise problems early, have a Plan B and be prepared to reserve additional installation vessels in good time.
- Optimise crew transfers and offshore accommodation to maximise productive time offshore
- Plan for simultaneous installation and commissioning, with general schedule contingency

EVERY LITTLE HELPS

- Site selection.
- Reduce time to construct: early generation = reduced LCoE.
- Generator build of OFTO assets for earliest completion.
- Maximise onshore work/preparation – reduce expensive offshore working and potential for weather downtime.
- Improve ability to work offshore in rougher weather during construction and operations.
- Change NGET security standards to allow optimisation of export cable capacity.
- Encourage competition – particularly for WTGs – and develop a mature cable installation industry.
- Ensure safe working.

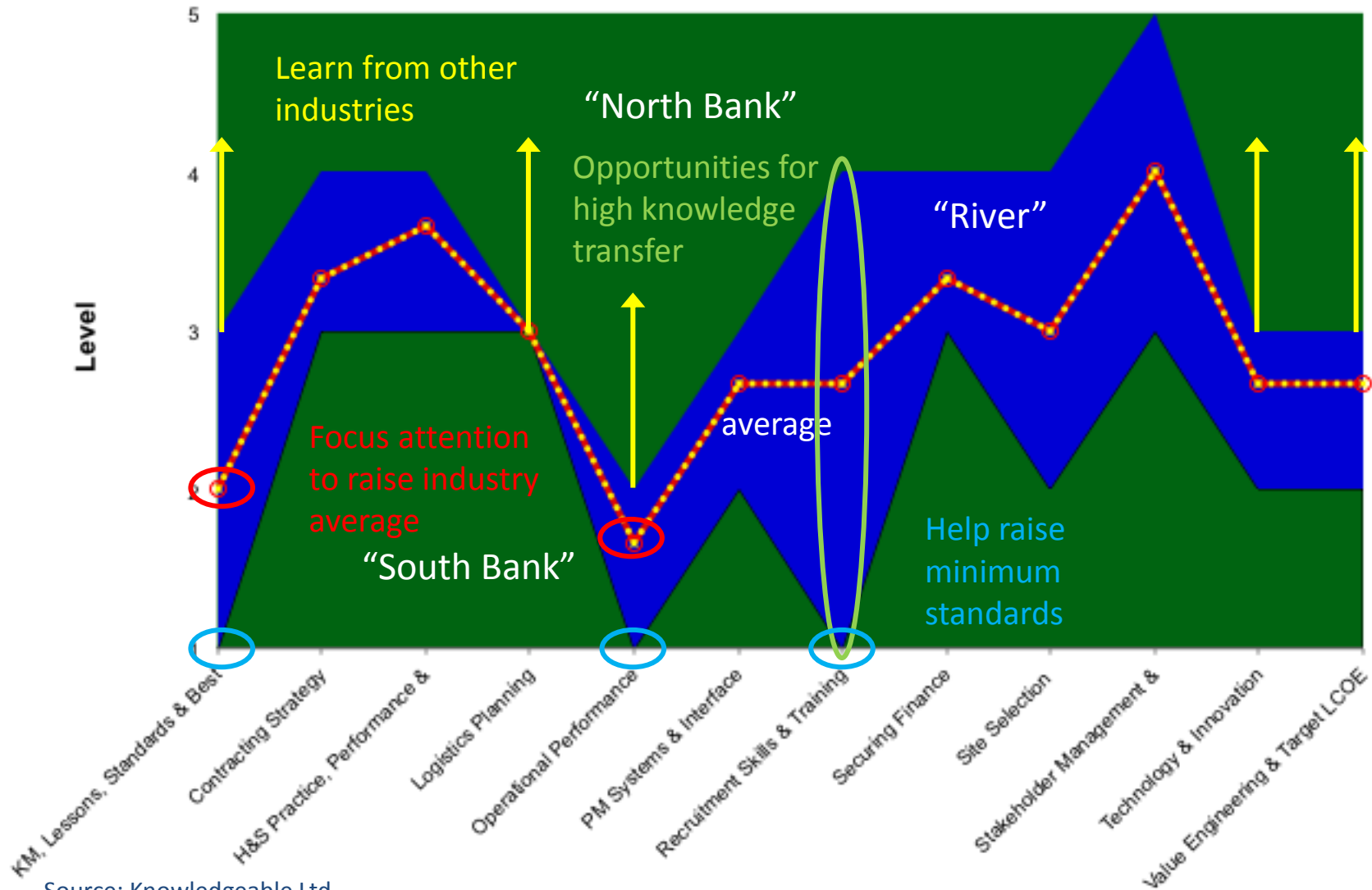
BIGGER TICKET ITEMS

With careful site selection and flexible working, it should be possible to install a 600MW wind farm in 12-15 months.

Project Directors, Community of Practice

Knowledge Management Self Assessment

Example River Diagram (based on three projects, slightly modified for clarity)



Cost Reduction Monitoring Framework

Lagging Indicator (quantitative)

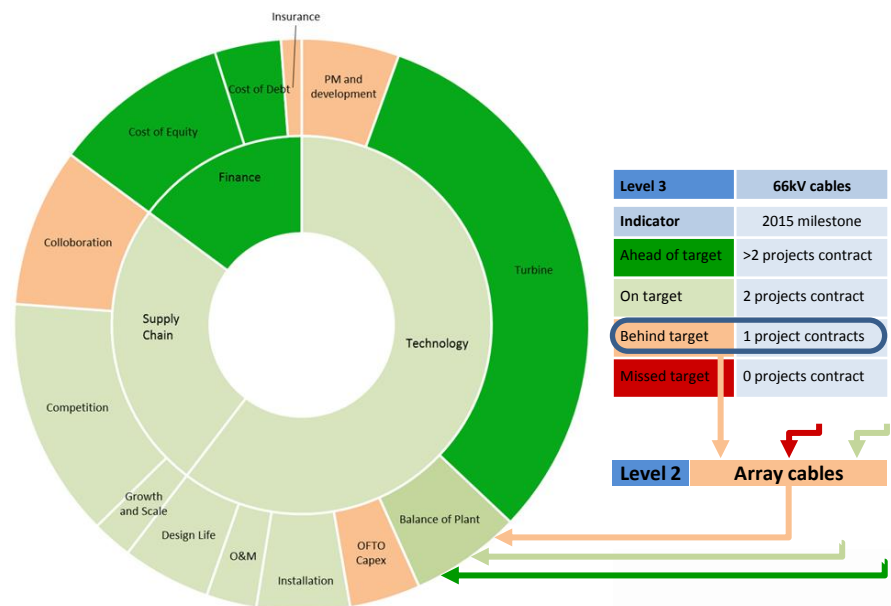
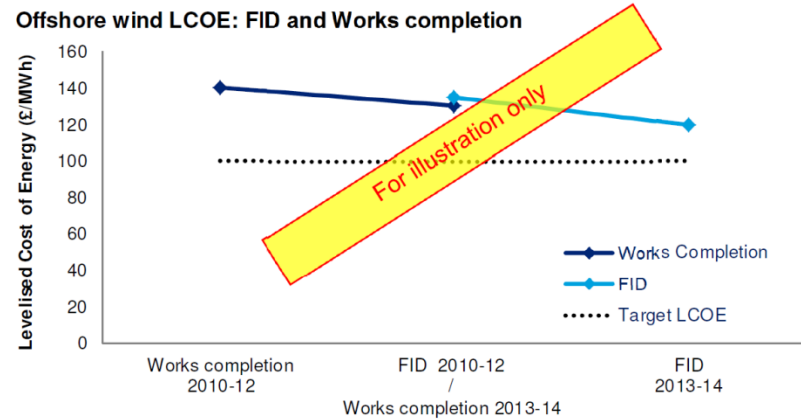
- Actual costs of projects
- At FID and works completion
- Sensitive data, so a “top 4” auditor working under an NDA
- Data aggregated and anonymised
- Likely to report every two years
- Single data point with advice commentary
- Recommendations for focused action

Leading Indicator (qualitative)

- Pathway from £140/£MWh to £100/MWh has been mapped forward
- Milestones specified for each year 2014-2019 to level 3 detail
- Annual review of progress with colour-coded dashboard
- Recommendations for focused action

First report due Dec 2014

Source: ORE Catapult



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