Wind Decommissioning Joint Industry Initiative Project

27th November 2019

Steve Ross – Digital & Data Business Lead
We are not yet friends
We are not enemies
We are currently strangers, with some memories.....

........and hopefully from today to collaborate and share some great ideas and thinking
The Catapult Network

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Innovate UK

Designed to transform the UK's capability for innovation

Core grant leveraged with industry and other public funding
Our Mission and Vision

Our mission

To accelerate the creation and growth of UK companies in the ORE sector

Our vision

To be the world’s leading offshore renewables technology centre by 2023

• Centres of Excellence

• Academic Research Hubs in partnership with leading universities

• Expanding our assets in Blyth and Levenmouth, the world’s foremost open-access facilities
This is our current business model – BUT by its very nature it is disruptive and open to change
The ultimate potential for offshore renewables is truly enormous.

By next year:

- 10 GW will be installed in the UK
- +10 GW across the rest of Europe
- 5 GW in China

By 2030:

- Up to 40 GW in UK waters
- +20 GW in the US

- Global investment in excess of £250bn

Source: Bloomberg New Energy Finance (BNEF), H2 2016 offshore wind market outlook
So why are we knocking them down!....?
Decommissioning Costs

Levelised Cost Of Energy breakdown £/MWh

- Dev: 4%
- BoP: 18%
- Turb: ...
- Inst: ...
- Conting: ...
- Other: 4%
- Decom: 2%
- Opex: 27%

Lifetime spend breakdown £/kW

- Dev: 3%
- BoP: 13%
- Turbine: 20%
- Install: 10%
- Decom: 7%
- Other... Contingency: ...
- Other: ...
- Life time opex: 41%

Development phase

Decommissioning
Decom Forecast – No. of Turbines and Capacity (MW)
Fundamental Process of Decommissioning JIP

**Remove**
- Disassemble
- Cut
- Extract

**Transport**
- Handling
- Transit
- Storage

**Dispose**
- Process
- Recycle
- Landfill
Offshore Wind Farm Anatomy

Offshore Wind Farm

- RNA
  - Rotor
  - Nacelle

- Tower

- Substructure
  - Jacket / Transition Piece
  - Pile/s

- Cables
  - Inter-array
  - Export
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REMOVE, TRANSPORT, DISPOSE
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REMOVE? PARTIAL REMOVAL? LEAVE?
TRANSPORT, DISPOSE
Decommissioning

- Logistics
- Piles
- Cables
- Recycling

Assessment

- Environment
- Cost
- Supply Chain
General Process

Continual Stakeholder Engagement

Literature Review
• Background information
• Research
• Evidence

Baseline definition
• Current requirements
• Current methods / tech

Impact Assessment
• Cost
• Environmental Impact

Challenge Identification
• Gap analysis
• Innovation challenge setting

Solution/s Identification
• Knowledge Sharing
• Technology innovation
• Cross sector transfer

Road Mapping
• TRL / CRI Development
• Validation and Demonstration
• Commercialisation

Supply Chain
Innovation
Who has already committed to support?

- Wrap
- Zero Waste Scotland
- Oil & Gas UK
- Crown Estate Scotland
- The Crown Estate
- CATAPULT
- EDF Renewables
- Climate & Renewables
• £500k JIP focussed on cables, pilings and recycling and with additional work streams being considered
• Involvement of both asset owners, supply chain and academia
• Technology/innovation and cost reduction driven
• Know how required – especially sub-sea
• Understanding of economic and ecological impacts
• Cross sharing of ideas and thinking – and what to avoid
• Cross-sector support
Thank You

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