Blyth Offshore Wind Farm

Decommissioning the UKs First Offshore Wind Farm

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Blyth Decommissioning
Agenda

History of Blyth Offshore Wind Farm

Development and Engineering

Project Execution

Lessons Learned

Renewables Decommissioning – What next?

Q&A

Blyth Decommissioning
History of Blyth

The UK, and E.ONs, first offshore wind farm

Developed in the late 1990s by a JV of E.ON [powergen], Shell, Nuon and Amec Border Wind

Site is located approximately 1km off the coast of Blyth, Northumberland

- Construction in Q4 2000
- First power exported Q1 2001
- Design life of 20 years
- 4MW nameplate capacity

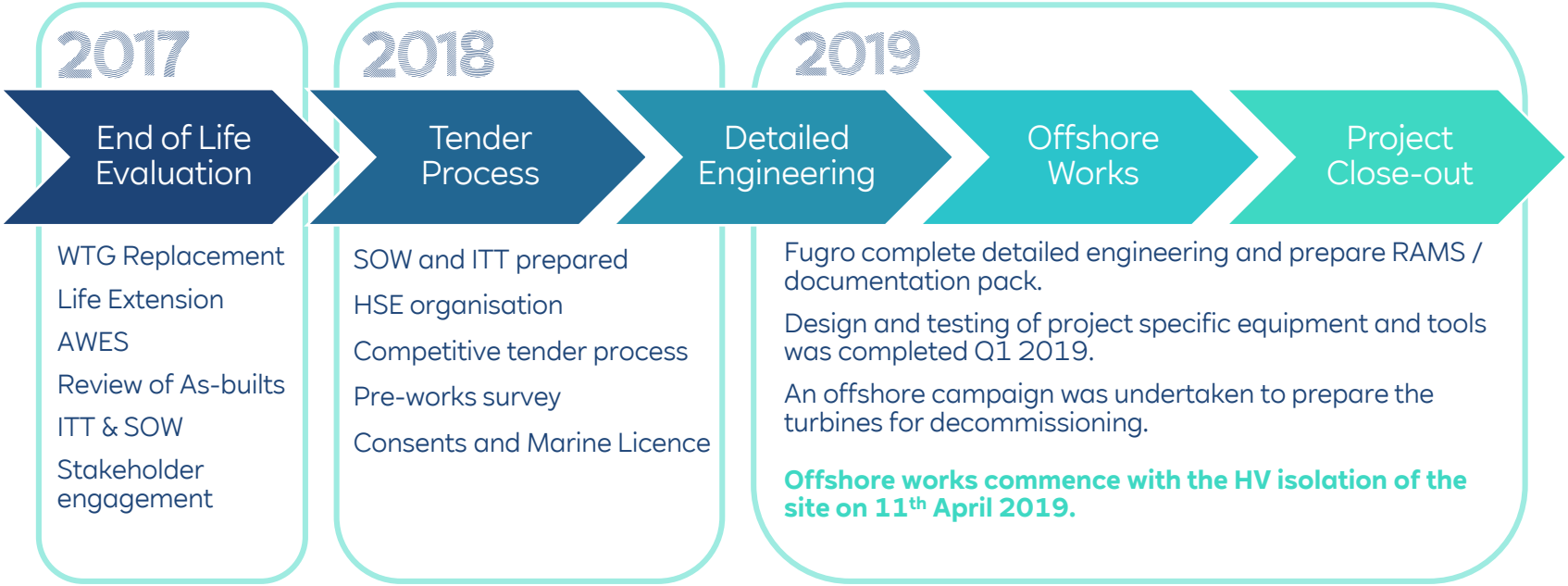
Blyth Decommissioning
Key Figures

2 x Vestas V66 2MW turbines
1 x array cable
1 x export cable
1 x onshore cable
1 x onshore substation

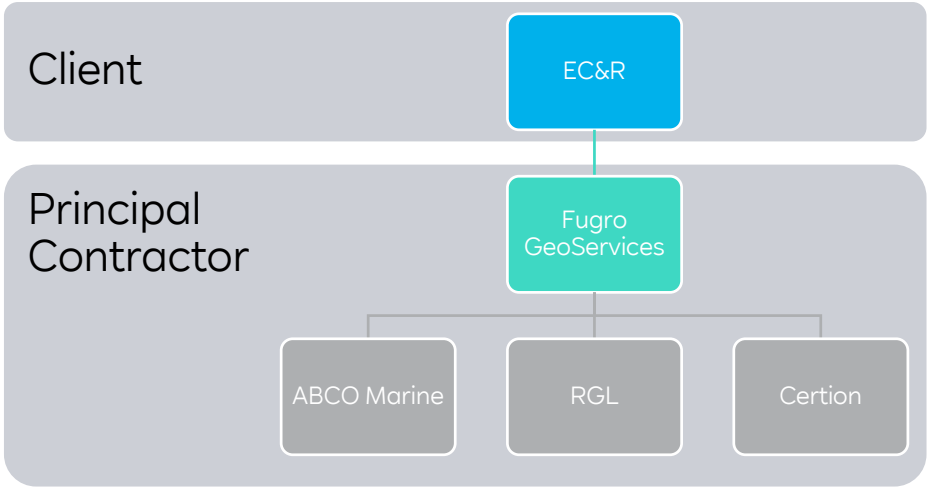
The site was basically constructed out of 'off-the-shelf' onshore turbines

Description	Details
Turbine	Vestas V66 2MW
Hub height	62m
Rotor diameter	66m
RNA	80Te
Foundation [MP]	Length 25m to 27m Diameter 3.5m Mass ≈120Te
Water depth	5.80m [LAT] 11.90m [HAT]

Blyth Decommissioning
Project Timeline



Blyth Decommissioning
Contractual Organisation



Principal Contractor - **Fugro GeoServices Ltd**
WTG support – **Certion**
MP cutting – **RGL**
Cable removal – **ABCO Marine**

The best contractual arrangement for the HSE proposal was going to be a EPCI/turnkey contract

Single point of contact/interface

Functional scope possible

Single longstop date completion milestone

This arrangement simplified the project management and enabled an environment to enable firm cost controls to be installed in the Contract

Blyth Decommissioning
Project Execution

Decommissioning Scope

- WTG removal
- MP foundation removal
- Array cable removal
- Export cable removal
- Foreshore cable removal
- Remedial works

Blyth Decommissioning

Project Execution | WTG Removal

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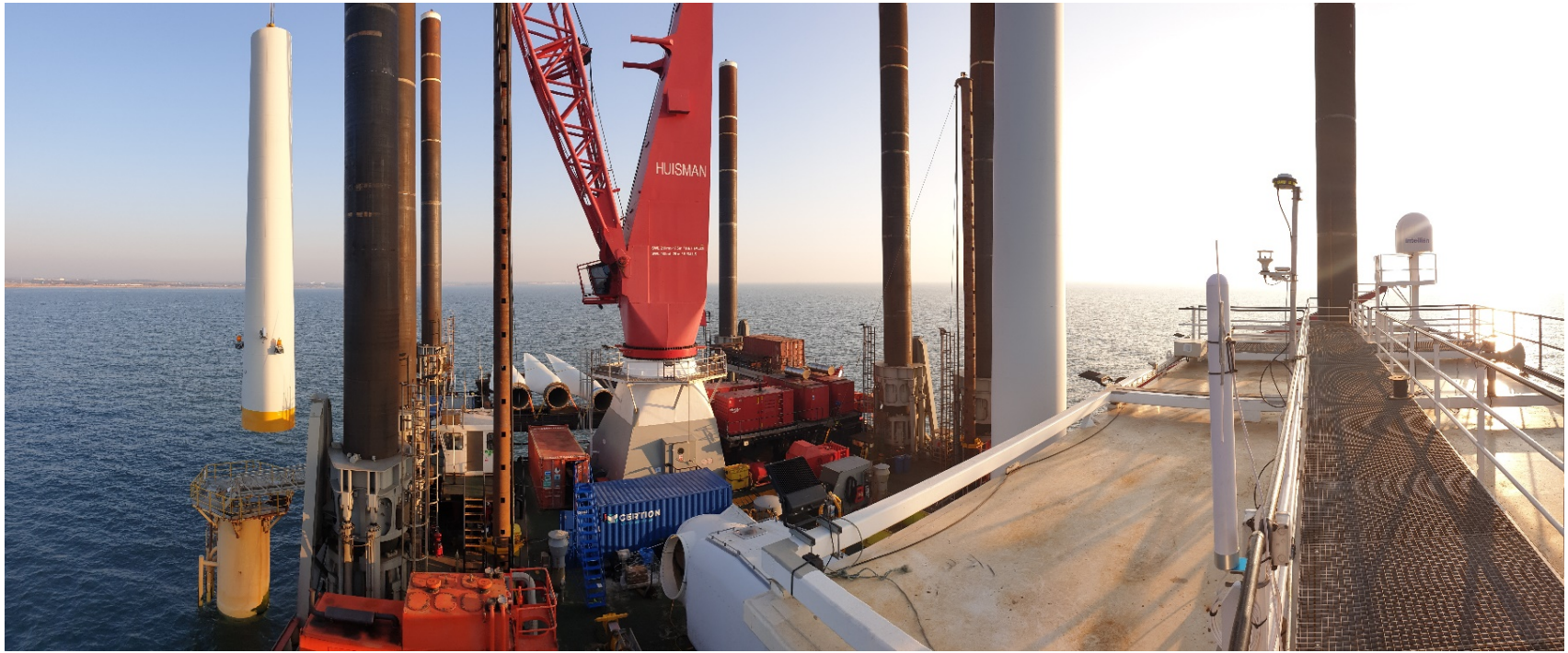
Project Execution | WTG Removal



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Project Execution | WTG Removal

Blyth Decommissioning

Project Execution | Component Reuse and Recycling

Blyth Decommissioning

Project Execution | Vessel Positioning

A major advantage of the **Excalibur** was her moonpool and ETSU frame.

During the WTG phase this was used for blade storage.

During the MP removal they provided safe access for personnel and additional stability to the structure during the MP cut operation.

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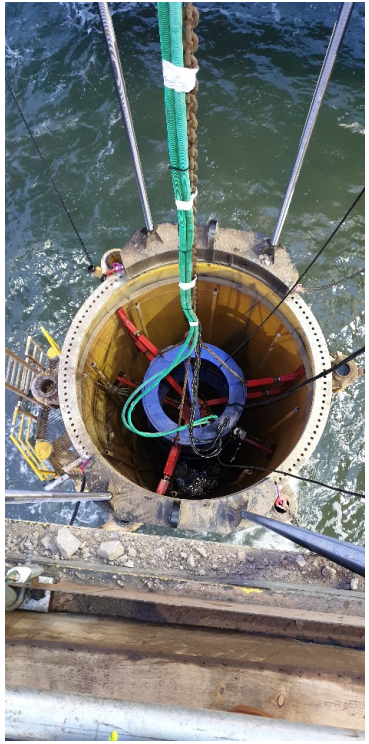
Project Execution | Vessel Positioning

Blyth Decommissioning

Project Execution | MP Removal



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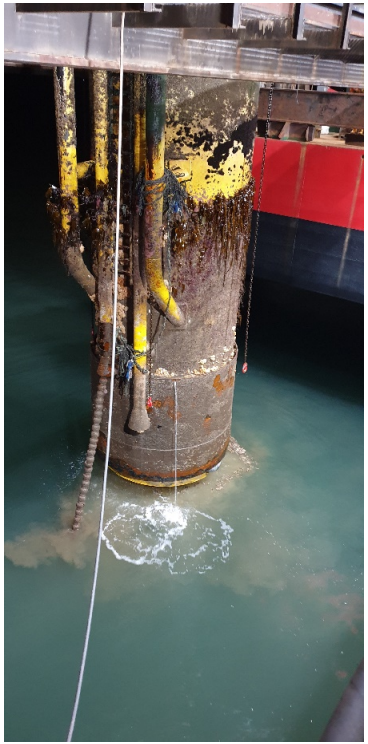
Project Execution | MP Removal

Blyth Decommissioning

Project Execution | MP Removal



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Project Execution | MP Removal

ICT designed to start with vertical cut before starting circumferential cut.

To account for misalignment of the tool within the MP and mitigate cut spiralling and an incomplete cut.

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Project Execution | MP Removal

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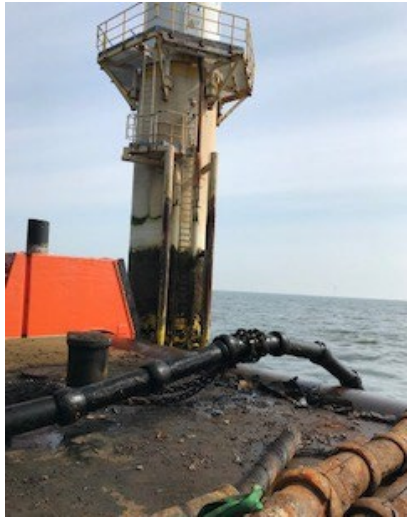
Project Execution | Array & Export Cable Removal



Can be agricultural with the removal operations.

Remote hydraulic cutter to minimise HSE risks.

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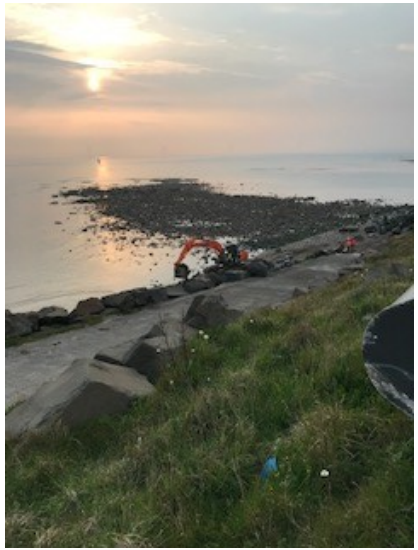
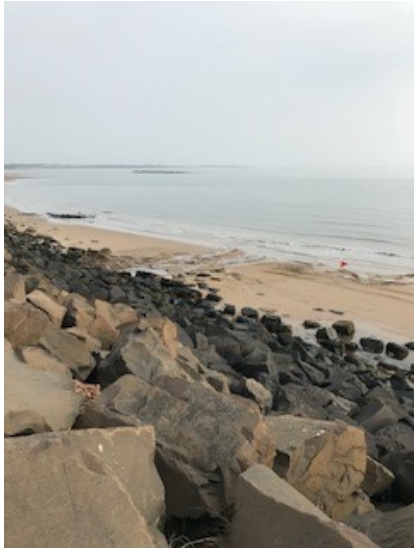
Project Execution | Foreshore Export Cable Removal





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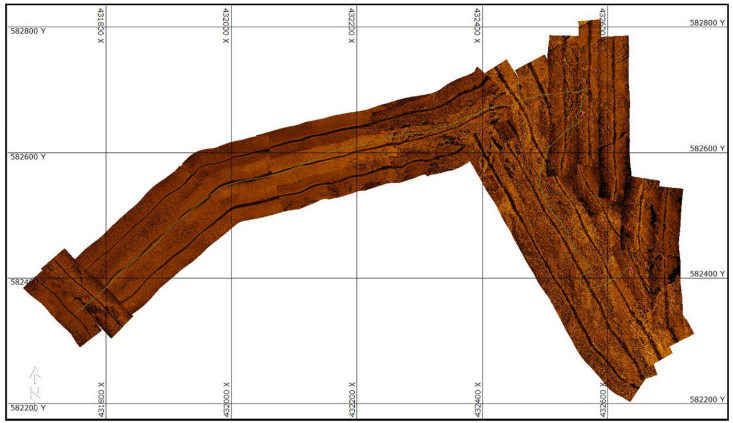
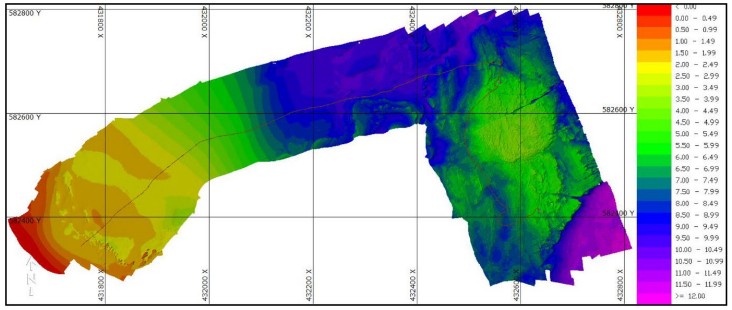
Project Execution | Post Works Survey





Side Scan Sonar [SSS] and Multi-Beam Echo Sounder [MEBS] surveys completed after completion of decommissioning activities.

Results shared with MMO and TCE to provide assurance of compliance with marine licence and lease conditions respectively.

Blyth Decommissioning
Project Execution

Some lessons learned: five for the future

Data is King

detailed knowledge and understanding of your site is key to developing and deploying safe and efficient decommissioning solutions

Planning

is key to maximising the potential of scale and minimising HSE, weather and programme risk

Policy

what will you need to remove at the end of the life of your wind farm?

The 3 R’s

reduce reuse recycle

what do you do with the waste?

Technology

innovation is the *[only]* way to improve decommissioning efficiency, safety and reduce costs

What's next?

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Thank you for you time!

Any questions?

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