

Norfolk Vanguard and Norfolk Boreas Offshore Wind Supply Chain: Opportunities and Expectations Workshop Appendices

20th November 2019
Energy Skills Centre, East Coast College,
Lowestoft Campus, Rotterdam Road,
Lowestoft, NR32 2PJ



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Appendices

Appendix A

List of participants

Name & organisation / company

Table 1 (WTG)

Ray Thompson – Siemens
 Anne Gourlay – Bilfinger Salamis UK Ltd
 Wayne Thorp – Padgate Services Ltd
 Glynn White – Sitek Engineering
 Ben Hooker – JFMS
 Lexi Brackpool – Furthermore

Table 2 (WTG)

Iain Entwistle – NKT
 Paul Kelly – Volker Trenchless Solutions
 Tina Nenadovic – Seiche Environmental Ltd
 John Price – EDS HV
 Martin Roberts – Global Wind Service
 Alex Loudon – OREC
 Venkata Chalapathi – Vattenfall

Table 3 (FOU)

Eric Fine – Smulders
 Ben Marshall – Worley
 Emma Harrick – A & P
 Alison Lucas Collier – Next Geosolutions UKCS Ltd
 Elliot Shilling – N-sea Offshore Limited
 Stuart Thornton – OHT
 Stuart Newby – Vattenfall

Table 4 (I&L)

Gordon Nicoll – Global Marine (UK based IAC-I)
 David Blake – Pipeshield
 Katie Cross – MarineSpace
 Stuart Smith – PWE Recruitment Group Ltd
 Ian Clarkson – ABB
 Helen Slade – Orange Heating Supplies
 David Fleet – Vattenfall

Table 5 (I&L)

Ali Lawson – Global Marine (UK based IAC-I)
 Keith Pomfret – Global Marine (UK based IAC-I)
 Ranjit Singh Nagra – Peel Ports
 John Cooper – BAR Technologies
 Steven McCall – ABB
 Kieron Ford – Stowen LTD
 Darryl Hall – Vattenfall

Table 6 (Grid)

Colin McCaffery – ABB
 Sam Parament – Roadbridge
 Mike McCloy – Instalcom
 Scott Stone – Volker Trenchless Solutions
 Garron Lees – ODE
 Steve Cox – Blaze
 Rajat Aggarwal – Vattenfall

Table 7 (O&M)

Paul Deaton – GE
 Mandy Masters – Rix Renewables Ltd
 Graham Hacon – 3sun Group
 Gary Horner – Global Wind Service
 Andrew Stenson – Petrofac Offshore Projects & Operations
 Adam Cross – Spectrum Offshore Limited
 Hernan Vargas – Vattenfall

Table 8 (Grid)

Jeba Gladstone – Siemens
 Glyn Vickers – Schneider
 Paul Thomson – Sembmarine SLP Ltd
 Andy Aston – Turner & Townsend
 Vince Bowler – Instalcom
 Gilmar de Souza – Prisma
 Wouter van Helden – Vattenfall

Table 9 (Cables/Grid)

Dean Sanders – TFK Cable
 Corrine Barry – EDS HV
 Denise Hone – Stowen LTD
 John Best – Petans
 William Traynor – Roadbridge
 Nigel Hargreaves – Synoflo
 David Reid – Vattenfall

Table 10 (O&M)

Michael Martins – Bibby Marine Services
 Warren Boore – Optima Metal Services
 Joy Dean – Cpower Energy Ltd
 Jess Hanham – Sepctrum Offshore Limited
 Simon Grey – EEEGR
 Mark Challinor – MHI Vestas
 Patrick Rickerby – Terra Drone
 Martyn Norton – N-ERGISE
 Richard Brown – Orange Heating Supplies

Several participants moved from table to table, so not all names are included on table group lists. Other participants were:

David Macintosh – DIT head of Renewable
 Allan Taylor – Dept. of Trade & Industry
 Jenna Perry – GEV Offshore
 David Dukes – GYBC
 David Glason – GYBC
 Sophie Wilson – Rhenus Offshore
 Jeremy Holt – Rix Renewables
 Abdul Samad – Siemens
 Tom Pedersen – Siemens
 Mark Easter – Welton

Others supporting discussions were:

Catrin Ellis Jones
 Katherine Wood
 Rob Lilly
 Susan Falch-Lovesey
 Richard Packham
 Celia Anderson – Skills Hub

As we were determining table groups, we were aware that several SME could contribute to more than one work package, and for different work packages the optimal timing for their input would be different – we were interested in exploring these inputs in terms of how they fit into an overarching programme of works. The workshop session would enable an understanding of programme based decision making and requirements from top to bottom.

An alternative way of managing work packages is WTG, WTG Install, Foundation Fabrication, Foundation Install, Export Cable Manufacture, Export Cable Install, Array Cable Manufacture, Array Cable Install, GRID (Substation, electrical equipment onshore & offshore) Site Enabling & Ducting, Installation & Logistic, O & M.

For example, a T1 or T2 fabricator could supply direct or indirect. They could supply into WTG, WTG install (grillages) Foundations & foundation install (grillages), GRID (substation) Civils (multiple metal fabs for civils, metal roof structures etc) they could supply into I & L with vessel mods, repairs, spud can plates, lifting cradles etc etc. They could also be involved in O & M in dozens of ways.

Some participants, also participated in discussions on other tables during the session, or after the main workshop had concluded.



Appendix B

PowerPoint presentation slides

Supply chain film

Click here to view our short film about supply chain opportunities in the UK: https://www.youtube.com/watch?v=zVEcOpdV_xs&t=28s

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The offshore wind sector

– working together to secure supply chain opportunities

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Introductions

Catrin Ellis Jones

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Purpose of meeting today

To gather together potential delivery partners & stakeholders our UK pipeline projects, to explore:

- Increased participation in the projects by local (East of England and UK) SME's, in line with Offshore Wind Sector Deal aspirations and Vattenfall's sustainable procurement requirements
- Achieving enhanced collaboration for optimised construction and operations and LEC- lowering innovation



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Programme

3.00	Welcome & introduction to Vattenfall – Kathy Wood, Head of Offshore Wind Consenting
3.15	UK Government perspective on Supply Chain Opportunities and Expectations – the Offshore Wind Sector Deal, Contracts for Difference and Supply Chain Plans – Rob Lilly
3.30	Vattenfall Wind Farm Design – what is our focus? - Wouter van Helden O&M – innovation for optimised operations – Rob Lilly & Hernan Vargas Project and cluster expectations – cooperation in practise
3.50	Your reflections
4.10	Planning our collaboration – workshop session Working to Vattenfall's pipeline projects' programme: <ul style="list-style-type: none"> Identifying supply chain interests & needs, potential barriers, challenges & solutions Action planning
5.00	Plenary Feedback – interfaces, key requirements, innovative solutions
5.20	Summing-up, Thanks & Close



*Numbers include both onshore and offshore investment.
**Person years

5

Post-workshop Programme

5.30 – 6.00	VF Manager & T1 mini-surgeries 3 x 10 min one : one discussion sessions – participants interested in taking advantage of these sessions to enable specific follow-up discussions and decision-making.
6.00 – 8.00	Energy Skills Centre Launch & Reception Participants are cordially invited to hear a short welcome to the brand new Energy Skills Centre from Ray Shilling, East Coast College Commercial Manager and to join a short tour of the facilities (optional)
6.30 – 7.30	Skills and Apprenticeships Information Point – Celia Anderson Skills Hub & Sue Falch-Lovesey Vattenfall Skills Champion Information exchange on skills and apprenticeships opportunities, and other developments to enable our Net Zero workforce of the future.



*Numbers include both onshore and offshore investment.
**Person years

6



Vattenfall in the UK

Katherine Wood

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Fossil free living in one generation

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This is Vattenfall

Basic Facts

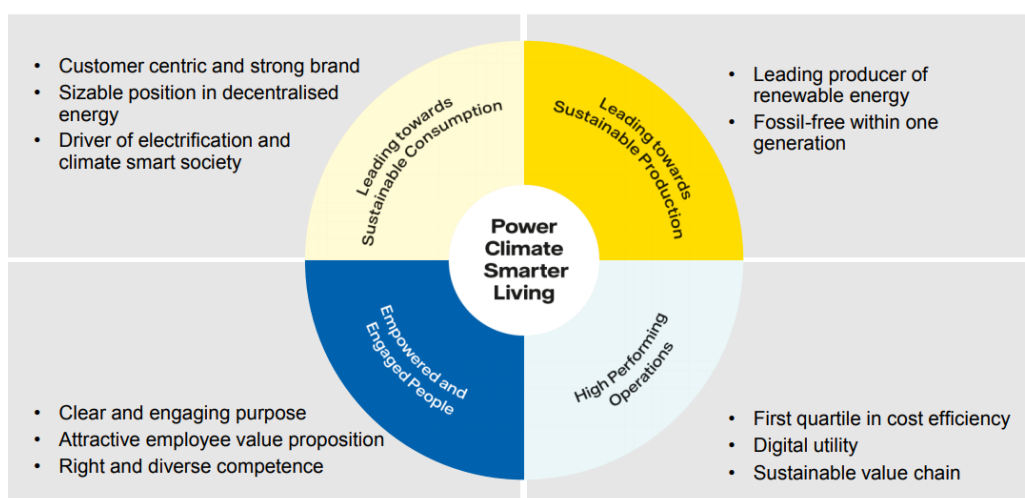
- One of Europe's largest producers of electricity and heat
 - Supply over 130TWh of electricity, 7.8TWh from Wind
- Main markets: Sweden, Germany, Netherlands, UK and Denmark
- Employs approx. 20 000 people
 - Over 500 in UK across all areas
- 32bn SEK growth in 2019/20 investment plan
 - 75% to wind investment



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Vattenfall's strategy



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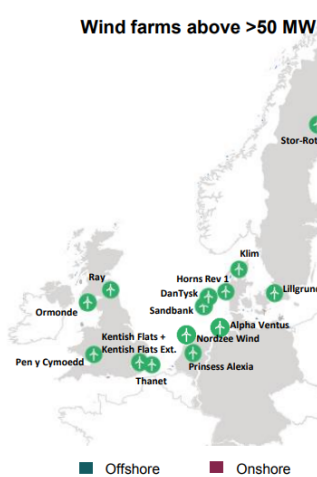
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Operating wind farms, construction and pipeline

In operation

Name	Capacity (MW)	Country
Thanet	300	UK
Ormonde (51%)	150	UK
Kentish Flats	90	UK
Kentish Flats extension	50	UK
Pen y Cymoedd	228	UK
Ray	54	UK
Lillgrund	111	SE
Stor-Rotliden	78	SE
Horns Rev 1 (60%)	158	DK
Klim (98%)	67	DK
DanTysk (51%)	288	DE
Sandbank (51%)	288	DE
Alpha ventus (26%)	60	DE
Nordzee Wind (50%)	108	NL
Prinsess Alexia	122	NL
Other offshore	10	
Other onshore	669	
Total 2,764 MW		

Wind farms above >50 MW



In construction

Name	Capacity (MW)	Commissioning	Country
Aberdeen	92	2018	UK
Horns Rev 3	406	2019	DK
Slufterdam	29	2019	NL
Wieringermeer	180	2020	NL
Total 707 MW			

Pipeline

Name	Capacity (MW)	Commissioning	Country
Wieringermeer ext.	~118	2019	NL
Blakliden + Fäbodberget	~354	2022	SE
South Kyle	~200	2021	UK
NK II	~120	2021	DK
Danish Near Shore	344	2021	DK
Danish Kriegers Flak	602	2021	DK
Hollandse Kust	700-750	2023	NL
Sandbank Plus	<250	2024	DE
Thanet Extension	272	2024	UK
Norfolk Vanguard	1,800	2027	UK
Norfolk Boreas	1,800	2028	UK
Total ~6.5 GW			

UK = ~63% of wind pipeline

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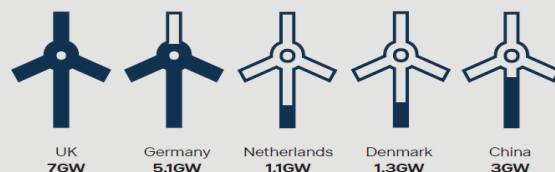
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Why the Offshore Wind Sector Deal?

Offshore wind, as a source of renewable energy, offers the UK a wide range of benefits including:

- ✓ energy security
- ✓ decarbonisation of our energy supply
- ✓ economic growth

The UK is NO.1 in the world for installed offshore wind generation capacity (2018)²



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The Offshore Wind Sector Deal

Built on the five foundations of Industrial Strategy



Ideas – growing an innovative economy – increasing UK competitiveness, reducing costs, and greater UK intellectual property.



People – to generate good jobs and greater earning power. Deploying 30GW could support 27,000 jobs in the UK, including manufacturing. To Achieve this we need more young people to enter the sector and a more diverse workforce. Building skills is key.



Places – more opportunities for investment and growth, including in coastal communities.



Business environment – the Sector Deal encourages growing a more productive, competitive, export-orientated UK supply chain.

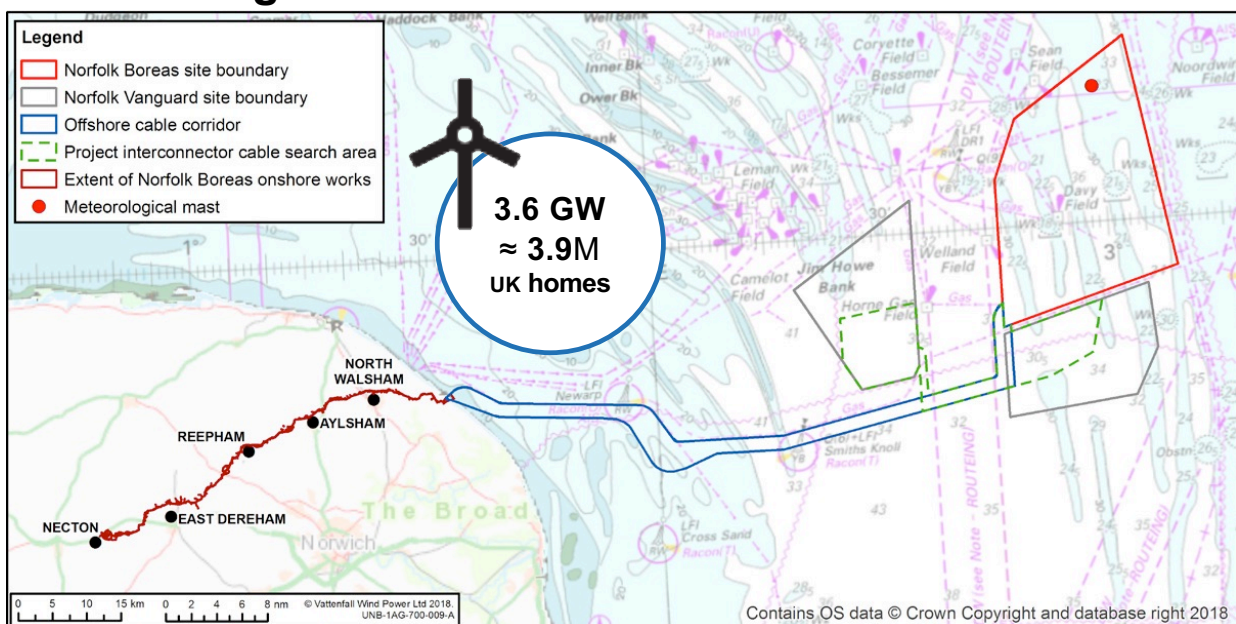


Infrastructure – the Sector Deal represents a commitment to upgrade the UK's energy infrastructure. Investments to 2030 of £40bn plus

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Norfolk Vanguard & Norfolk Boreas



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Supply chain engagement

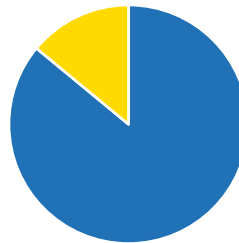
Early engagement & strategic collaboration is the key to gearing up for the opportunities ahead



60+ presentations, workshops and 1:1 meetings involving more than 600 local supply chain companies

"Gearing up to Grow" – a collaboration with Norfolk Chamber of Commerce and Norfolk County Council, supported by NALEP – 216 SME's engaged with / received advice since Spring 2019

Having learned more about Vattenfall's pipeline I can see why long-term planning is important to ensure we are prepared to win offshore wind contracts



■ Yes ■ No

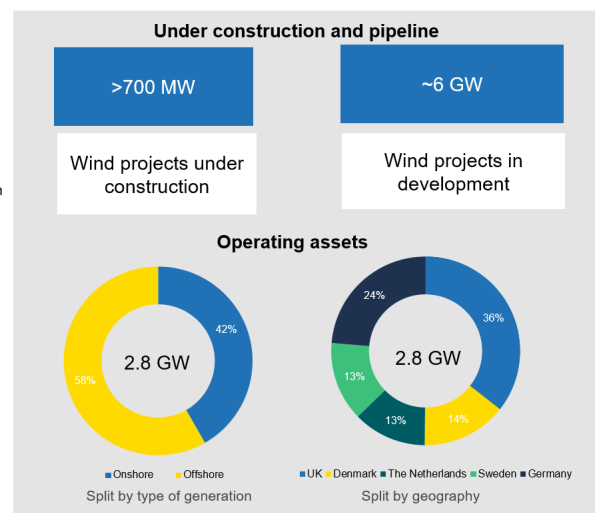
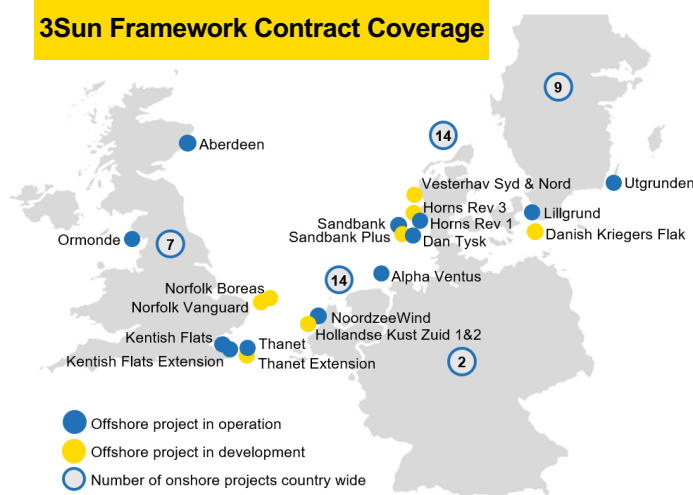
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Developing opportunities with local companies

Companies with the appropriate offering, HSE standards & ethos can work with us in all our markets

3Sun Framework Contract Coverage



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UK Government perspective on Supply Chain Opportunities and Expectations

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Business environment - Exports

Some good news!"

"Export Nation" reveals that **47 UK firms signed 465 contracts worth up to GBP 53 million per company in the past year**, working on hundreds of projects in Europe, Asia, North and South America, Africa, and Australia.

Overall, UK exports of wind energy products and services are worth **GBP 525 million a year**, according to the Office for National Statistics. The new report reveals that current top ten export destinations for UK wind and marine energy companies are, in order of importance, Germany, Taiwan, Denmark, the USA, the Netherlands, France, Belgium, China, Ireland, and South Korea.

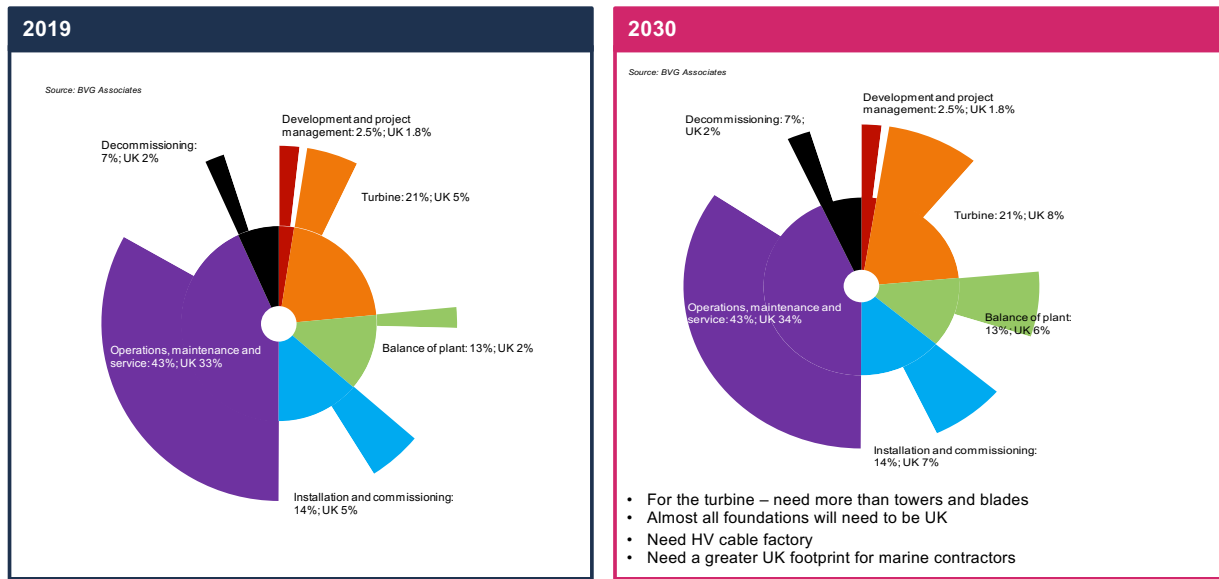
Nearly 70% of the contracts were in the offshore wind sector. The companies featured in the report won offshore wind contracts in 15 countries across four continents. Germany is the most popular destination, followed in order by Taiwan, Denmark, the Netherlands, and the USA.

UK firms are designing, building and maintaining wind farms onshore and offshore, as well as wave and tidal projects, the report said. Exports from the UK supply chain include manufacturing blades, supplying and installing UK-made power cables on land and underwater, fabricating specialist steelwork, providing helicopters and crew transfer vessels, producing software to maximise power generation, conducting geological surveys, monitoring wildlife, and providing legal and financial services.

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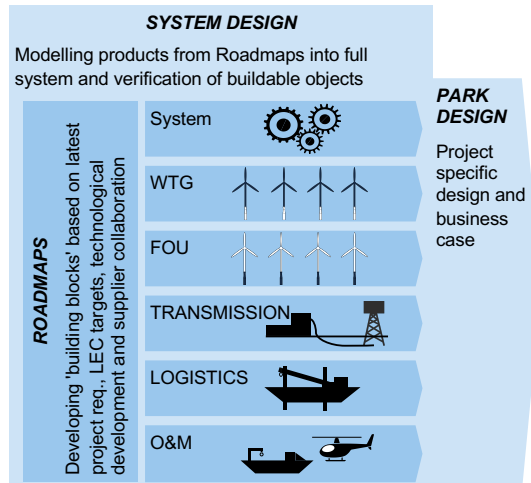
UK content – the route to 60%



Wind Fam Design

Roadmap organization and cooperation

WIND FARM DESIGN WILL DELIVERING PRODUCTS...



... TO OUR PORTFOLIO OF PROJECTS

- **MARKET DEVELOPMENT**
- Scenario assessments
- Concept designs and product dev. program / schedule
- Roadmap strategy incl. procurement / supplier strategy
- CAPEX and OPEX input for BCs and FBD
- Layouting and production estimates

PROJECT DELIVERY

- FEED and detailed design
- Supplier and contract strategy incl. manufacturing readiness
- CAPEX and OPEX input for BCs and FID
- Layouting and production estimates

ASSET MANAGEMENT / O&M DELIVERY

- O&M setup and strategy (joint development)
- Exchange of improvement levers from future to spinning assets and vice versa

06/03/2020

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A NEW WAY OF WORKING

... to provide a more efficient and focused organization – enabling focus and excellence within each area ...

Enabling us to do what we do best and love ...



Project:

- Clear focus on winning and building projects with enhanced product development from Roadmaps

Product (Roadmaps):

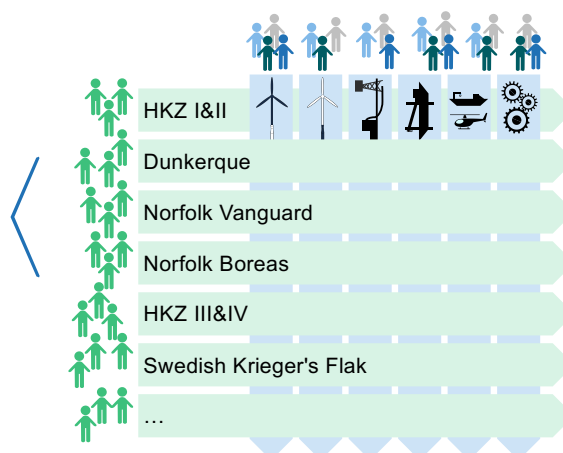
- Long term perspective and focus on developing / innovating world class products to the entire Project portfolio



Line and support:

- Clear focus on developing our specialist competences, quality assurance processes excellence and a strong infrastructure

PORTFOLIO APPROACH



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WIND FARM DESIGN IS THE PROVIDER OF WIND FARMS TO THE PROJECT....

Interface between Project and Wind Farm Design



BENEFITS

- No reinvention across projects
 - Fewer people for same output
- Longer term perspective
 - Invest in strategic ideas & technologies
 - Closer supplier relations
- 360 degree view on improvement ideas and technologies through cross-functional expert teams (e.g. Engineering & Procurement)
- Automated system optimisation tool
 - All system options tested
 - Zero time from request to result

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Project and cluster expectations – cooperation in practise

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TARGETS FOR TODAY

1. To share Vattenfalls programme & expectations so we have absolute clarity of how we want to **deliver against UK Sector Deal targets.**
2. Listen to a range of companies, across **all categories & sizes** about how we can collaborate better to achieve this.
3. To discuss the **challenges of 60% UK Content**, 40 GW or 52GW by 2030 along with a globally constrained market. **Consent & CfD limitations.**
4. To jointly identify **gaps in terms of skills, staffing levels, scopes & knowledge** so that:
 - ✓ Vattenfall are informed,
 - ✓ the supply chain, with support from local Econ Dev Stakeholders are encouraged to grow, and are equipped to realise opportunities from offshore wind.
 - ✓ **Local suppliers are equipped and ready** for the first scopes to be released after consent.



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Sector Deal Update

Supply Chain

From discussions, it looks like the supply chain plan structure is going to change slightly.

In the future, instead of

- Competition
- innovation
- Skills

We will focus on the 5 strands of sector deal (which are broadly similar) and a large emphasis on how that relates to the Vattenfall UK strategy between now and 2030.

- **Ideas** – Innovation
- **People** – jobs & diverse workforce
- **Infrastructure** – Inward investment in UK companies to meet demand.
- **Business environment** – The UK as a technology hub, exporting knowledge, skills and manufacturing.
- **Places** – Local content and “clusters” working together around ports and wind farm O & M areas



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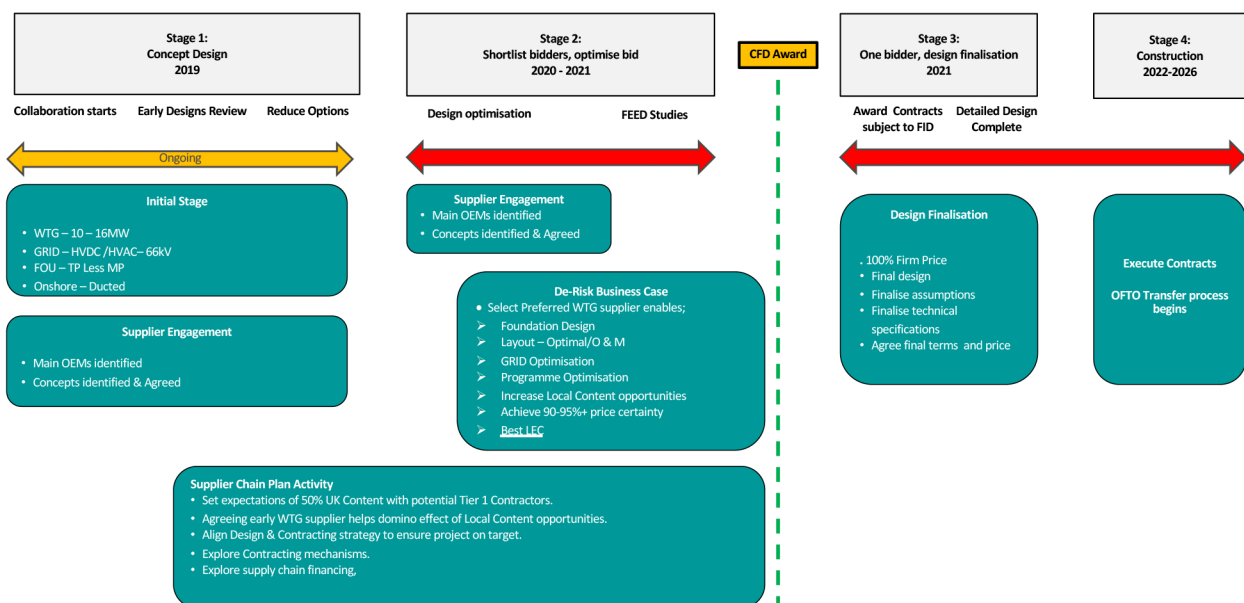
Supply Chain Plans 2.0 - Expectations

- Structures the SCP around the 'foundations' of the Sector Deal, namely Ideas, People, Infrastructure, Business Environment and Places.
 - Places a strong emphasis on **measurable outcomes**, and
 - Has a **transparent and objective** scoring system.
-
- Commitments from Vattenfall**
 - Commitments made by the project**
 - Commitments made by our suppliers**
-
- Commitments are likely to become more important to reflect the **longer term (2030) targets** contained in the Sector Deal.
 - Vattenfall is developing an **overarching supply chain strategy** to which the project SCP refers.
 - By recognising targets beyond the timeframe of the specific project in question, Vattenfall **can show benefits with a pipeline of projects and can therefore give greater support to the supply chain.**
-
- Achieve 60% UK content**
 - Achieve 30% women representation, and**
 - Achieve and undefined BAME representation.**
-
- There is no well-defined target in **Ideas**.
 - We expect that UK **RD&D expenditure** is used as a proxy for UK IP creation.

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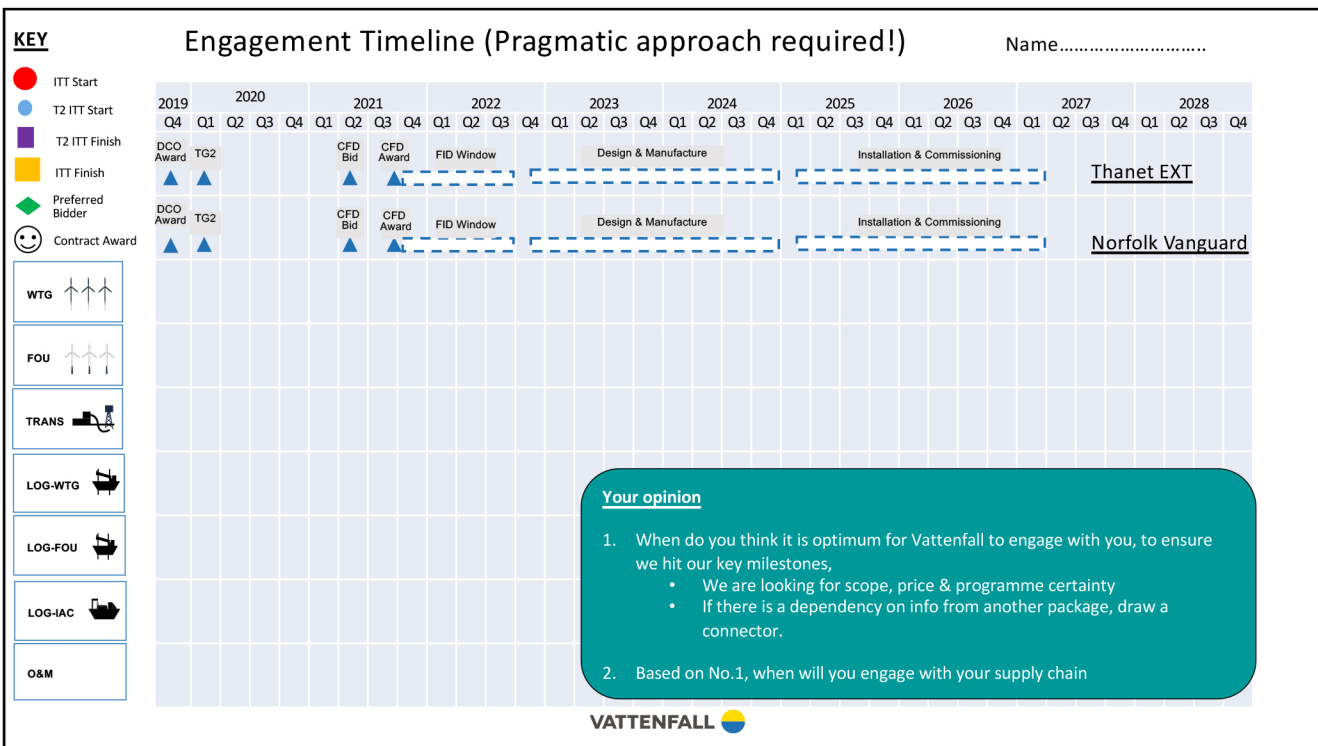
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Overall Procurement Approach



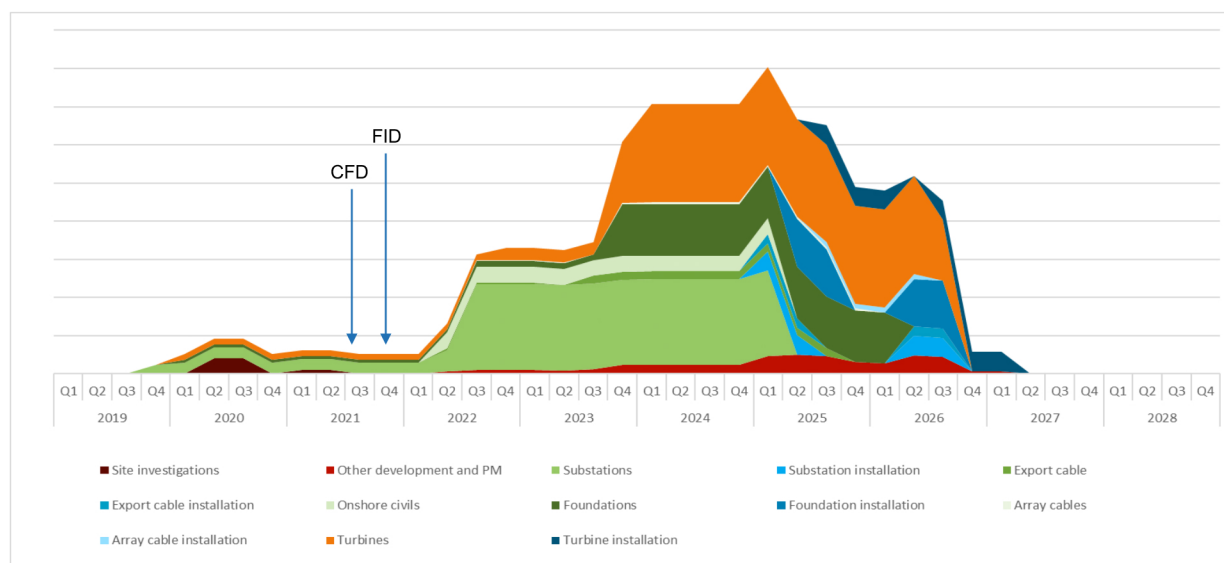
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Spend Profile AR4



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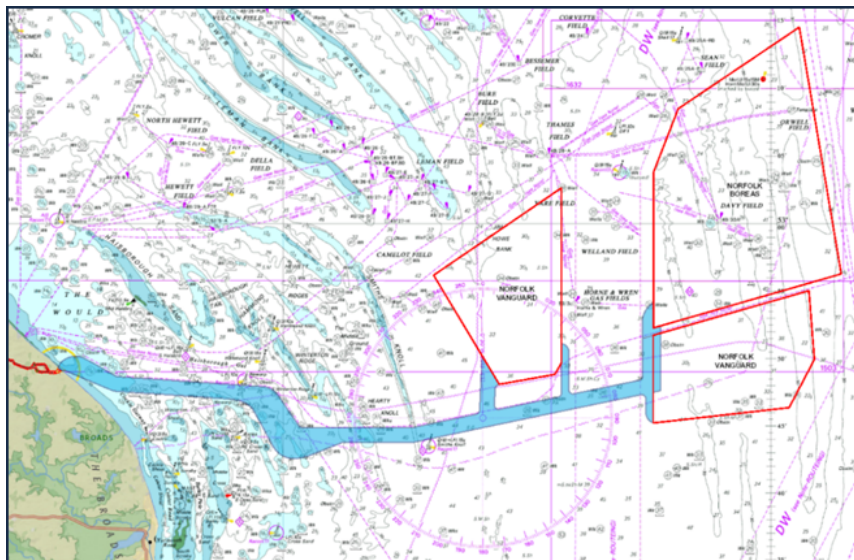
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Vattenfall O&M – innovation for optimised operations

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Norfolk Vanguard and Boreas



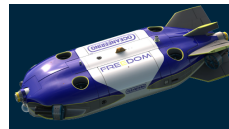
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Current O&M Logistic set-up:

- **Logistic concept:** integration of SOV + large CTVs + helicopter hours into over-all site set up. Also, we are discussing the possibility to offer a logistic solution to the eventual OFTO. The preliminary per site set up includes (subject to modeling and further feedback from WTG OEMs and suppliers) :
 - **Large CTVs:** crew transfer vessels 12-24 PAX 24h/7 charter. Main activities cover WTG trouble shooting and BoP. The utilization is also subject to developments for daughter crafts that can maintain station at boatlanding or improved fall arrest system (UK HSE regulatory regime).
 - **1 SOV:** Accommodation 60 cabins (typical). Onboard storage and warehouse. Current accessibility (motion compensated gangway).
 - **Helicopter:** fast transfers at around 250 km/h, used for urgent maintenance/troubleshooting, special crew transfers to OSS or SOV.

In addition to this, we are also developing ER for SOVs for the whole of Vattenfall integrating BoP activities into its scope. New technologies such as drones for inspections and surveys (aerial, underwater and sea-surface) are also being investigated in order to include them into the SOV scope.



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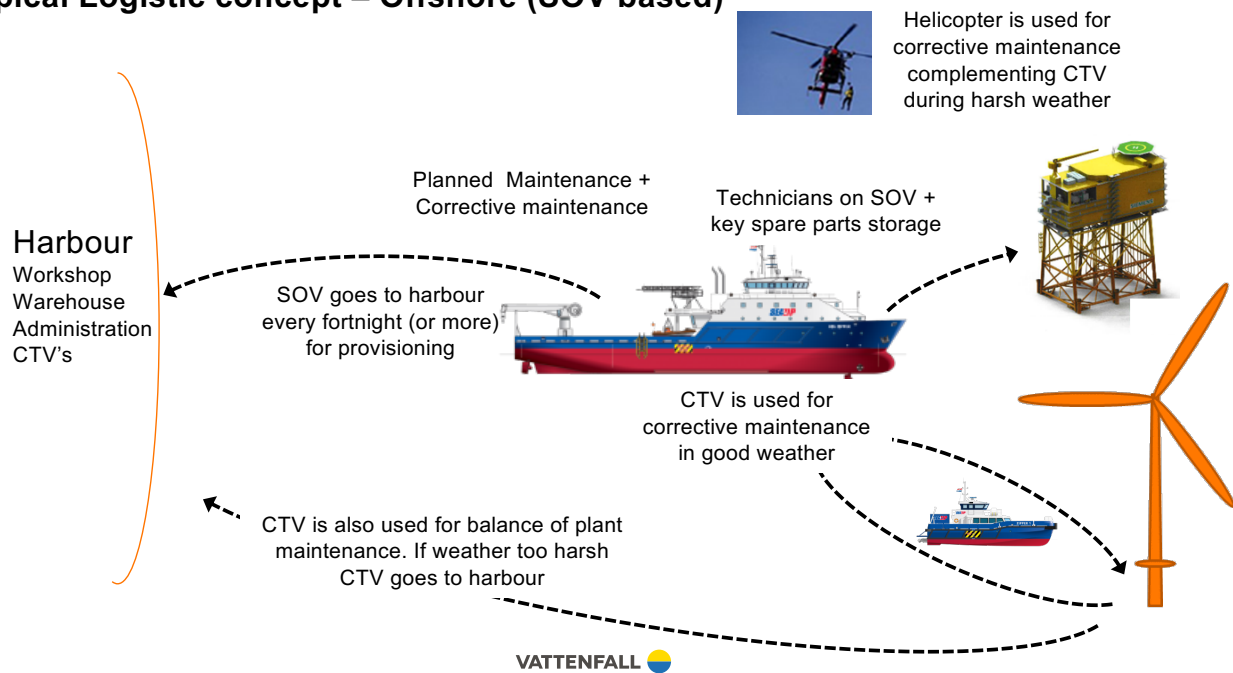
General Logistics and Personnel

- Crew Transfer Vessels: Troubleshooting events, Service, Crew Change
- Service Operation Vessel(s): Offshore accommodation + Service
- Helicopter: Troubleshooting
- Troubleshooting personnel based primarily offshore on the SOV (transferred via sub-station or directly from vessel) but a fraction possible also onshore.

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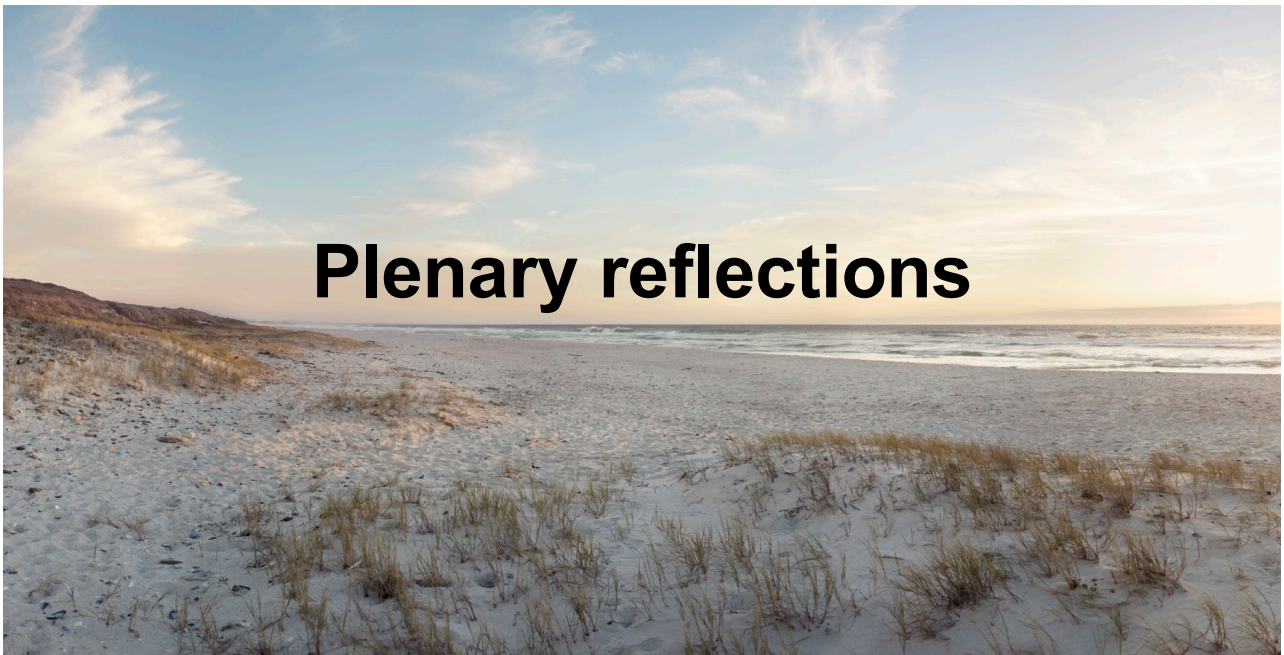
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Typical Logistic concept – Offshore (SOV based)



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Plenary reflections



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Workshop – Planning our collaboration:

- **Identifying supply chain interests & needs, potential barriers, challenges & solutions**
- **Action planning**

Project and cluster expectations – cooperation in practise









Introduction to tasks

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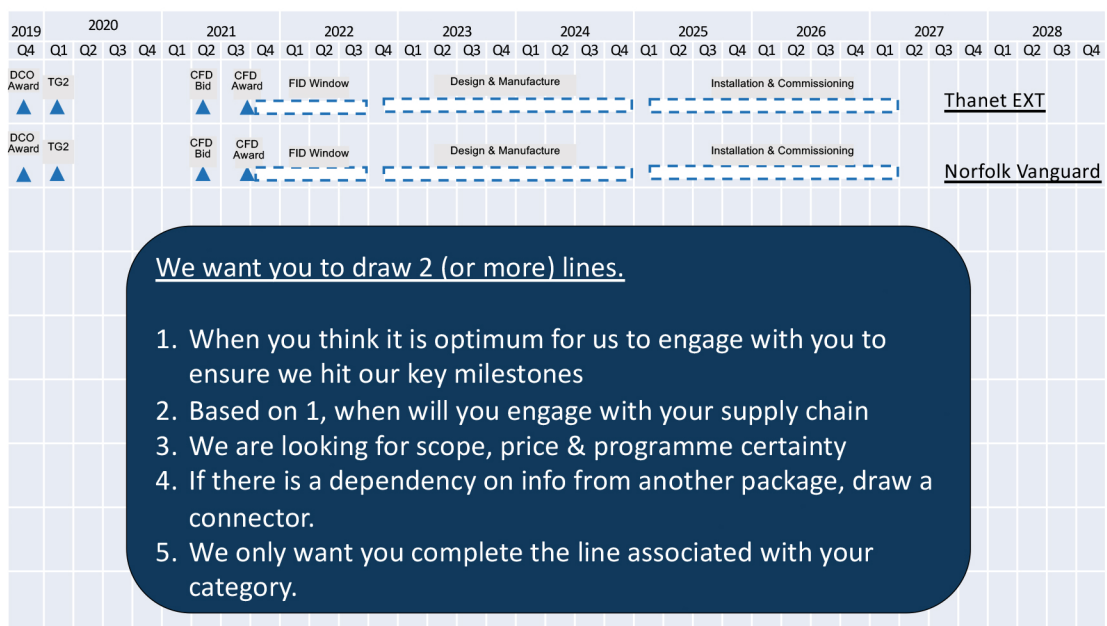
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KEY

- ITT Start
- T2 ITT Start
- T2 ITT Finish
- ITT Finish
- ◆ Preferred Bidder
- 😊 Contract Award

- WTG 
- FOU 
- TRANS 
- LOG-WTG 
- LOG-FOU 
- LOG-IAC 
- O&M 

Engagement Timeline (Pragmatic approach required!)



We want you to draw 2 (or more) lines.

1. When you think it is optimum for us to engage with you to ensure we hit our key milestones
2. Based on 1, when will you engage with your supply chain
3. We are looking for scope, price & programme certainty
4. If there is a dependency on info from another package, draw a connector.
5. We only want you complete the line associated with your category.

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Plenary feedback

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Thanks & Close

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Appendix C

Copy of the worksheets

Name & Company:

In relation to the timeline, please indicate:

- i. When you think it is optimum for us to engage with you to ensure we hit our key milestones?
- ii. Based on 1, when will you engage with your supply chain?
- iii. If there is a dependency on info from another package, draw a connector.

- iv. What assumptions are you making / what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme

Notes:







We are looking for scope, price & programme certainty

We only want you complete the line associated with your category.

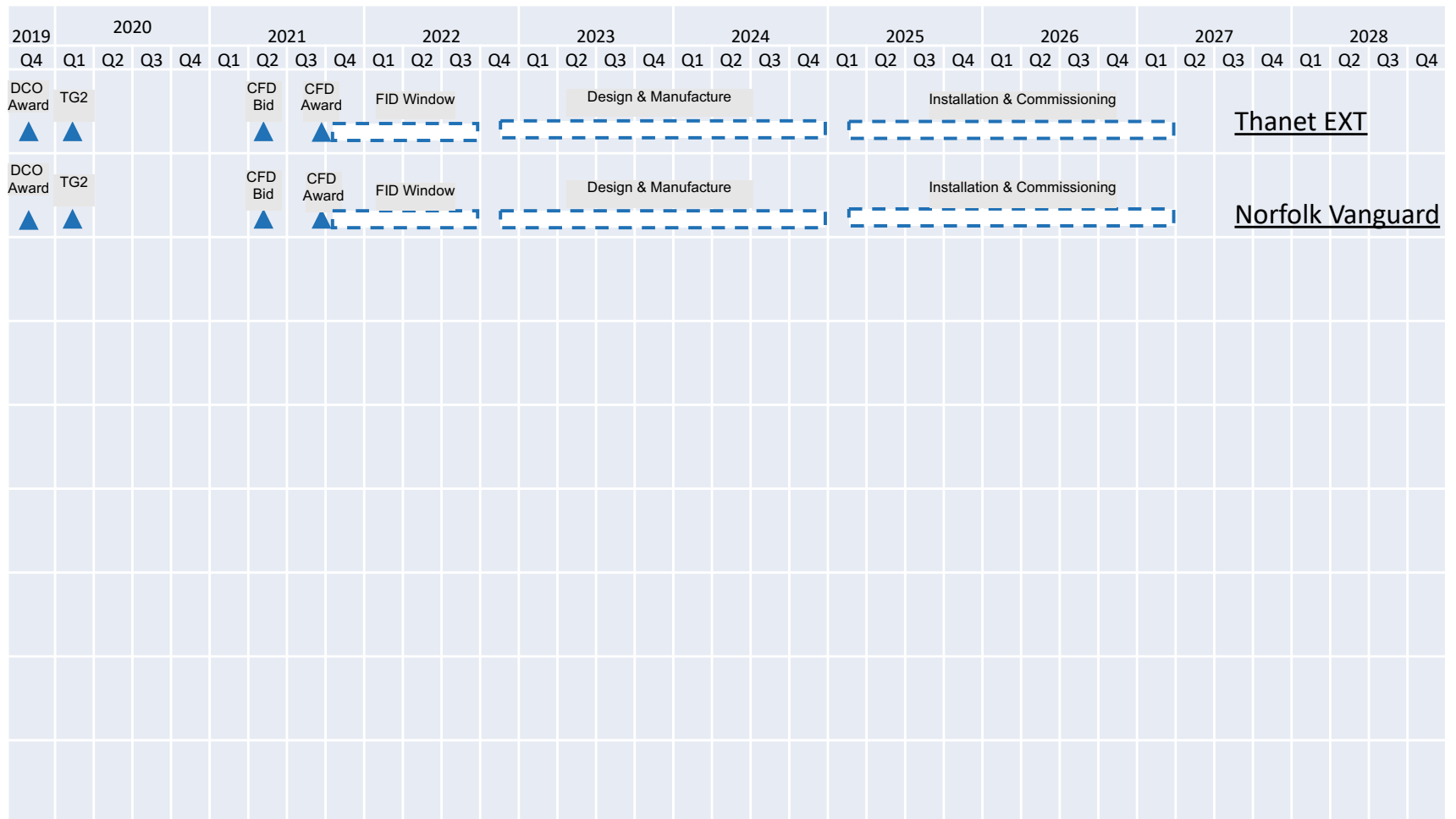
Name & Company:

KEY

- ITT Start
- T2 ITT Start
- T2 ITT Finish
- ITT Finish
- ◆ Preferred Bidder
- ☺ Contract Award

WTG	
FOU	
TRANS	
LOG-WTG	
LOG-FOU	
LOG-IAC	
O&M	

18/11/2019
Confidentiality – High (C3)



Thanet EXT

Norfolk Vanguard

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Name & Company:

2. If you could ask for 1 thing from Gov/Suppliers/T1/Developers (delete as required) what would it be. What 1 thing do you (your company) commit to doing to drive change forward after this meeting.

Our key ask of : (and why / what difference would it make?)	Government	
	Developers	
	T1	
	Suppliers	

Name & Company:

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Appendix D

Verbatim type up of the feedback

Table 1 (WTG)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

Timeline: The earlier the better, (SGRE) with low Contract for Difference (CfD) results the traditional linear development path is broken (e.g. developers could be without CfD).

1 ii. Based on i, when will you engage with your supply chain?

The threshold for SMEs to enter business is colossally high as the timeline doesn't leave enough time to invest, set up production footprint and produce in time.

James Fisher suggests the investment decision for installation vessels might be the earliest milestone to enable offshore growth.

SGRE: We don't worry about installation vessel that much. We see planning consenting a main bottleneck. CfD becoming less important could make a difference.

Padgate (small engineering business): We need six to twelve months from first discussions to delivery of small steel construction contracts. Staff resourcing is a big issue.

James Fisher: Vattenfall is penalising SMEs in tenders if they are questioning the risk profile in the tender and want to reduce risk for themselves, as otherwise work might not be feasible.

DIT: We need to avoid EPCs to take a contract and then go back to 'Dutch mates'.

1 iii. If there is a dependency on info from another package, draw a connector

Foundations are procured last but installed first, which is a big problem for tower supplier.

The shortage in availability of ports and installation vessels is driving prices.

Foundation size, requirements for installation vessel and requirements for base ports.

Supply chain collaboration

Local content

Optimise - [18000] ton Singapore

60% UK content

O&M

Siemens as lead

STEM Ambassador

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

Table 1 (WTG) cont...

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?

Our key ask of Government:

Clear framework

Collaborate on consenting barriers (radar)

Accept higher cost for more local content

Our key ask of Developers:

Early procurement decision

Get preferred suppliers together to develop solution (HKZ approach).

Our key ask of T1:

Our key ask of Suppliers:

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Training up people for jobs takes time and early notification is therefore important.

Table 2 (WTG)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

1 ii. Based on i, when will you engage with your supply chain?

1 iii. If there is a dependency on info from another package, draw a connector

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

To spend less time tendering, there is currently almost 'too much commitment'.

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?

Our key ask of Government:

Better clarity on pipeline of interconnectors.

For developers – more regular CfDs.

Better clarity on pipeline of interconnectors.

Our key ask of Developers:

Who holds relevant contracts? I.e. environmental services, would it be Vattenfall or T1/2 or similar?

Our key ask of T1:

Understanding of freedom of T1 to engage with suppliers and T&Cs they are able to give out.

Our key ask of Suppliers:

Understanding of 'limiting resources' for cable availability.

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Table 3 (FOU)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?
1 ii. Based on i, when will you engage with your supply chain?
1 iii. If there is a dependency on info from another package, draw a connector
1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.
2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?
Our key ask of Government:
For developers – more regular CfDs.
Our key ask of Developers:
Framework agreements so we can project approximately 1,000 foundations and build a UK facility.
Our key ask of T1:
Our key ask of Suppliers:
Engage with basis 1,000 foundations pipeline; invest, learn, improve and existing continental supplying chain.
3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?
4GW means approximately 350 to 400 foundations (assuming 12-10 MW WTG's).
350-400 foundations is 2 year' work (180-200 foundations per annum) but require an investment of £100 - £160m in the UK. Two years' work is not enough to justify such an investment. Minimum five year work is necessary (approximately 100 foundations).

Table 4 (I&L)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

December 2019, after the DCO Award.

Subject to scope Q2/Q3 2023 (assuming schedule is as slide).

You need to engage with everyone now, with more detail of the work packages. This will allow the main contract holders of the packages to assess where they need more support. Signpost who we need to talk to. Attendee list of today, to help with networking. Definition of local content – UK or East Anglia?

1 ii. Based on i, when will you engage with your supply chain?

January 2020.

Fast turnaround.

1 iii. If there is a dependency on info from another package, draw a connector

We hope to engage with each package and each tier.

Ventilation contractor – cable, crossings, foundations (scour protection, cable and foundation stabilisation).
Lifting and installation aids – vessel optimisation.

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

Investment in technology, personnel and supply chain engagement as well as investment in infrastructure (officer). Scope in supply of personnel (staff) to Vattenfall and each project, prices have been submitted and we are committed to programme certainty.

Port of mobilisation and road infrastructure (including bridges).

Table 4 (I&L) cont...

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?

Our key ask of Government:

Clearer guide to IR35 and flexibility for project based employees/consultants.

How are the government going to resolve the road network issues in Norfolk? Are they going to improve it? How are they going to manage these projects and the impact on project delivery?

Our key ask of Developers:

Engage/commit early/ASAP, this will encourage investment, planning and innovation.

Our key ask of T1:

Successful T1 companies need to hold similar events like this where T2 and SMEs etc. are invited and there has to be a contractual obligation for T1's to use local content but local content needs to be defined (East Anglia or UK)?

Our key ask of Suppliers:

Is there a desire for suppliers to collaborate?

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Invest in new staff, new technology and training.

Table 5 (I&L)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

1 ii. Based on i, when will you engage with your supply chain?

1 iii. If there is a dependency on info from another package, draw a connector

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?

Our key ask of Government:

How do you prove and measure UK content? Long term plan – encourage manufacturing companies to UK.

Our key ask of Developers:

Filtration of engagement through supply chain.
Continuous improvement – where have you had issues/weak points on certain projects.

Our key ask of T1:

Indication of potential T1 suppliers.

Our key ask of Suppliers:

Do not tick all boxes in tenders - must be able to provide/prove!

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

The commitment on policing UK content.

Table 6 (Grid)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?
ABB already engaged with Vattenfall – prior to the DCO Award.
1 ii. Based on i, when will you engage with your supply chain?
During tender phase – TG2.
1 iii. If there is a dependency on info from another package, draw a connector
Local resource requirements, to assist with 60% UK content project requirements
1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.
The interface between depths of installation and cable spec is very important. An incorrect cable results equals reduced depth and trenchless installation equals more depth.
Float in programme, pre survey, archaeology window – execute at early stage to prevent programme slippage. Nearshore survey for deeper drilling depth (should be a consideration).
2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?
Our key ask of Government:
Co-ordination cluster project in UK/specialisms required in delivering the projects.
More support for UK companies when working/selling overseas.
Our key ask of Developers:
Clarify work packages and potential T1 suppliers.
Early engagement with local supply chain – local knowledge/logistics for delivering package of works.
Early engagement in design – bringing best practice/lessons learnt from previous HVDC projects.
More early info on who will get the (being considered for) large packages (i.e. offshore platforms) so we can approach them/work with them prior to enquiries being issued.
Our key ask of T1:
How are they going to structure the enquiry package? (I.e. design/supply etc.)
Our key ask of Suppliers:
3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?
1. Corridor – environmental, ecological, contracts/site surveys.
2. Principal contractor role (multiple interfaces)
3. Grid connection approvals in place
4. HDD – trenches installation design complete, i.e.: cable ratings/spec (including input from cable supplier).
5. Availability of resources (global)

Table 7 (O&M)
1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

2022 – End of Q2.

1 ii. Based on i, when will you engage with your supply chain?

2022 – End of Q4. To place contracts with our supply chain, we would require around three – six months to do the following:

- Develop a strategy
- Develop the ITT with a project specific scope
- Develop the terms and conditions to align with the specific contract/deliverables

Obtain all relevant approvals pertaining to the above:

- Build tender scoring criteria by which we'll measure suitability to the project.

Skills – two years for installation and O&M plan. Turbine topsides.

Vessels – two years train and build/survey platforms potentially longer for multi-use vessel platform.

1 iii. If there is a dependency on info from another package, draw a connector

Prior to engagement of new vendors/sub-contractors we would:

- Review existing suite or supply chain support with reference to T1 scope to see if support is already in place with an existing subcontract.

It would be key to ensure that the existing subcontract scope content is sufficient to enable/facilitate deliverables under T1 scope.

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

Skills, as loss of personnel numbers keep people quiet.

Vessels – loss overseas.

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?
Our key ask of Government:

How will you measure UK content?

Why do you no longer support design and tech courses?

How are you getting more women into engineering?

As projects are cyclical, people or persons about speculative investment – what can you do to help with this?

Local Authorities – how do you achieve transparency on criteria?

Skill investment – capitalisation investment (tax relief)

UK content

Table 7 (O&M) cont...

Our key ask of Developers:

How will you secure and demonstrate UK content?

Keep up the level of collaboration positive in relation to skills.

Keep skill and retain seasonable work for companies/individuals. To recognise local content/supply not price driven. Length of contract to allow investment pot 4-5 years.

Standard codes of practice O&M and GWO etc. as well as explanation – within wind as well. Across all.

Our key ask of T1:

Within the contract you share your skills plans for local labour with councils and training providers as well as local companies.

Training up people for jobs take time, early notification is important.

Skills – loss of personnel numbers keep people quiet season

Vessels – loss overseas.

Our key ask of Suppliers:

What is the trigger point at which you will feel confident to invest? E.g. in skills and training/new workforce. How will you engage with education/are you partnering with local companies, providing mentors, work experience, graduate schemes etc.

How will you develop a training package to transfer oil and gas personnel to wind industry? Much of the supply chain not yet done this.

Invest innovation and skill need the above and commitment.

Can you combine works e.g. CTV and Survey and launch from drones, ROV. Build Plan 2 into vessel.

Involvement in design stage.

1. Look for security of award.
2. Engagement with client/suppliers to build consensus.
3. Client committee to build training/asset supply.

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Government to support teacher training to encourage people from the industry to retrain as further education teachers.

To also encourage more teachers for STEM.

Higher or increased funding for colleges to develop new and innovative courses related to offshore wind careers.

Local security teams using ex-armed forces personnel need to be involved early in the planning phase, but can gear up fast.

1. Look for security award.
2. Engagement with client/suppliers to build consensus.
3. Client committed to build training/asset supply.

Table 8 (Grid)

1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?
1 ii. Based on i, when will you engage with your supply chain?
AC platform – contract three year before load-out. Schneider – during design. Bop – during manufacturing.
1 iii. If there is a dependency on info from another package, draw a connector
Tier 1 is organising local events after CfD/FID/contract award. The earlier we can announce Tier 1 the earlier they can engage.
1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.
2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?
Our key ask of Government:
Cost pressure, pushes manufacturing industry out of UK/EU. CfD – if a company misses a CfD window/annual CfD round, then 2 years out of work. Support to build a factory.
Our key ask of Developers:
Put more to CAPEX – decreased OPEX/losses. Share scope of supply, announce the preferred suppliers early – like Doggerbank, inform which development partners we have.
Our key ask of T1:
Indication of suppliers
Our key ask of Suppliers:
If employer prescribes nominated suppliers/products (O&M/reasons) then local content. A2
3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?
European engineers need to be clear and know the UK-safety rules as the UK-Safety rule may increase the price. Consenting makes it possible to invest in people and factory/assembly in the UK.

Table 9 (Cables/Grid)
1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

To be able to plan any CAPEX investment we need high level specs and design by end of Q2/2020. We can then programme and cost any CAPEX.

Provide CfD prices at budgetary level.

1 ii. Based on i, when will you engage with your supply chain?

Q2/2020, throughout the design and development phases.

2021 – Q1 to be engaged at CfD stage

2024 – Q3 ??? For hook up (commissioning)

1 iii. If there is a dependency on info from another package, draw a connector

Civil contractors. What are their capabilities? If we innovate, will the benefit be realised or lost down the supply chain?

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

Assumptions:

- Cable design freeze
- Route
- Technology being used

Risks:

- Developer reverting to old methods – not providing the time to engage and develop

Perspective:

Installation and commissioning

Termination and testing sits on the critical path

Should it be considered in isolation?

Presently it sits in either the WTG package or the cable installation.

Should it be:

WTG new termination testing and cables clean interface

To gain an aggregated overview of the project requirement and timeline, keep it local. To help ensure that sufficient trained people are available. Supply and demand.

Consider and promote the carbon footprint benefit.

All unique design of vendor's procurement decision and made in FEED/early EPC – detail engineering phase. Supplier needs to be visible with regard to functionality – companies' w/standards – quality and commercially competition.

We always do what we have always done. Why build roads when we could strategically place equipment and materials by air. This is cheaper, quicker and has less social and environmental impact. Also saving time. Greater flexibility in the road map. Innovative, different, inspirational (less aggregates). Clean sheet approach.

Table 9 (Cables/Grid) cont...

**2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be?
What one thing do you (your company) commit to doing to drive change forward after this meeting?**

Our key ask of Government:

More fluid financial commitment process – set parameters and commit.

Climate change a core element of the curriculum. Not just to be green but to promote future career paths. Follow the science. Lead don't follow.

Do what you say you are going to do. Paris Accord. Net zero by 2050

Be accountable to all those who don't want to become extinct!

Do not implement incoherent policies that counter the set decarbonisation target. Be resolute in achieving targets. Everyone will benefit, including the supply chain.

Our key ask of Developers:

Consistent approach to design and supply chain interaction.

Early supply chain engagement with a commitment to recover cost. This will open up the supply chain sharing rather than hiding innovation but with security of award.

A consistent long term approach. *code of practice*. An industry approach;

Be competitive on a collaborative framework;

Value and support cluster organisations e.g. EEEGR;

Direct OWGP to recognise 'soft values' as well as product improvement.

Demonstrate long term value vs lower cost (they should equate!).

Be more consultative and open to all stakeholders. Be different support onshore enterprise as well as offshore – for example around Necton.

Our key ask of T1:

Partner' approach not a desire to drive down price by margin degradation.

Cost out not margin removal of supply chain.

Becomes unsustainable.

More flexible with suppliers. Contractual terms to be fair and reasonable. Aim for win/win, not win/lose.

An understanding of the 'hidden cost' of tendering. Frequently risk pushed to the party least able to bear it. Too aggressive.

Why depend so much on T1's. They are not too big to fail. Expensive and beaurocratic.

Our key ask of Suppliers:

Sell what you can do, not what you would like to do (but don't stop learning and innovating). Collaborate with others.

For the want of a nail a battle was lost.

Table 9 (Cables/Grid) cont...

3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Create a list of 'jobs', then simply list the typical training requirements for the role. This could help us, but also colleges and other training suppliers.

Stand back and use a fresh 'pair of eyes' to look at the project design and roadmaps to see if there are any assumptions and recycling of previous practice 'habits' that could be identified and possibly improved upon. This all includes invention, innovation and doing things differently (invent-design-roadmap-build).

Apply systems thinking and design.

Identify synergies between and within packages.

Think outside the box and be ambitious in terms of social/environmental footprint – to set our standards.

Leverage headroom in terms of lead time in some workstrands within packages, into other stands that have 'pinched' lead time.

Nail down the project management.

Table 10 (O&M)
1 i. When do you think it is optimum for us to engage with you to ensure we hit our key milestones?

Depends on required pre-qualifications. For an SME we need six months as a sub-contractor to T2 contractor.

1 ii. Based on i, when will you engage with your supply chain?

SME – two months prior to contract start.

1 iii. If there is a dependency on info from another package, draw a connector

One procurement portal for all developers. Best case would be one procurement portal per developer.

1 iv. What assumptions are you making/what risks do you perceive when determining these milestones? Please note here any other important information in relation to programme.

No fabrication facilities in the region on a scale to be able to compete. Steel prices are rapidly increasing and fluctuating with massively varying quality.

Could offshore wind benefit from the volumes of steel in the UKCS that needs decommissioning?

Will future developments actually require a CfD and if not will that mean that UK content targets disappear?

2. If you could ask for one thing from Government / suppliers / T1 / developers, what would it be? What one thing do you (your company) commit to doing to drive change forward after this meeting?
Our key ask of Government:
Our key ask of Developers:

One procurement portal for all developers – best case – one procurement portal per developer.

Our key ask of T1:
Our key ask of Suppliers:
3. Imagine a new scenario where we have certainty on our 4GW of projects, that consent & CFD is secured today (2 years earlier), what opportunities do you see to invest in the UK? What would you do now?

Probably more in O&M than in construction.

Buy survey vessels/autonomous vessels and recruit and train staff.

Train graduates to work offshore.