



ESO Networks Stakeholder Group

19th November 2020

Agenda

1. Welcome
2. Review of previous minutes and action log
3. BEIS OTNR update
4. Offshore Coordination
5. Break
6. Offshore Coordination Continued
7. Early Competition Update
8. AOB
9. Close out



Action Log

ID	Description	Owner	Due	Status	Date Raised
1	Send Bio and photo to Alice McCormick	All	28/08/2020	Open	11/08/2020
9	Publish approved version of Terms of Reference on website	Rachel P	09/09/2020	Open	11/08/2020
17	Consider terms of engagement	Alice E	03/11/2020	Open	12/09/2020
18	Work with Hannah to agree timelines, meeting dates and agendas	Alice M	03/11/2020	Open	12/09/2020
20	Review wording of 'refining recommendation from network planning bodies'	Urmi	03/11/2020	Open	12/09/2020
21	Consider the approver role in more detail	Urmi / Sally	03/11/2020	Open	12/09/2020
24	Update the diagram on slide 7 to include advisory committee	Rachel	19/11/2020	Open	03/11/2020
25	Consider how to validate verbal feedback during the workshops	Hannah	19/11/2020	Open	03/11/2020
26	Write Offshore Coordination report - discuss content at next ENSG meeting	Alice M	19/11/2020	Open	03/11/2020

OFFSHORE TRANSMISSION NETWORK REVIEW



Department for
Business, Energy
& Industrial Strategy

Matt Coyne, Head of Offshore Transmission, BEIS

19 November 2020





Objective

Offshore Transmission Network Review:

To ensure that the transmission connections for offshore wind generation are delivered in the most appropriate way, considering the increased ambition for offshore wind to achieve Net Zero. This will look to find the appropriate balance between environmental, social and economic costs.



Department for
Business, Energy
& Industrial Strategy



Ministry of Housing,
Communities &
Local Government



The Scottish
Government
Riaghaltas na h-Alba

ofgem



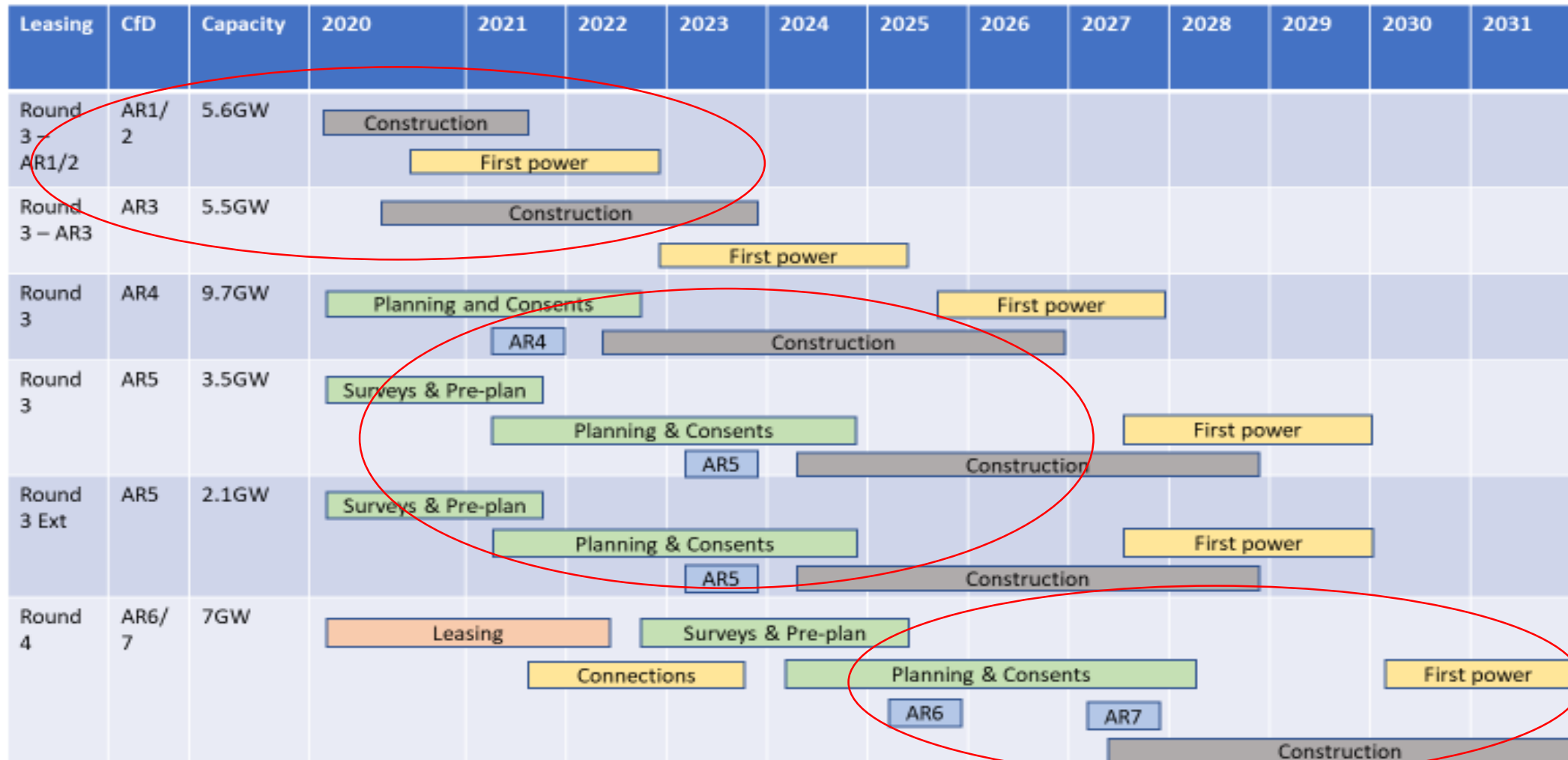
Crown Estate
Scotland
Oighreachd a' Chrùin Alba

THE CROWN
ESTATE

Scope of review and high-level summary of actions

	Indicative connection date	Stage of development	Actions
Short-term	Before ~2025	Advanced. CfD awarded, well advanced through permitting and planning	<ul style="list-style-type: none"> • Not in scope of review due to delivery risk if required to reconfigure connections at late stage. • Will work with developers to minimise local impacts.
Medium-term	Between ~2025-2030	Less developed. With sea-bed lease, but yet to enter planning or not far through planning.	<ul style="list-style-type: none"> • Identify and implement changes to the existing regime to facilitate coordination in the short-medium term • Assess the feasibility and costs/benefits of centrally delivered, enabling infrastructure to facilitate the connection of increased levels of offshore wind by 2030; • Explore early opportunities for coordination through pathfinder projects, considering regulatory flexibility to allow developers to test innovative approaches.
Long-term	From ~2030	Early stage. Yet to receive sea-bed lease.	<ul style="list-style-type: none"> • Holistic review of the regime and design and implement a new enduring regime that enables and incentivises coordination while minimising environmental, social, and economic costs. • Consider the role of multi-purpose hybrid interconnectors in meeting net zero

Offshore pipeline – where can we have an impact



Workstreams – High-level

Tactical
measures/Pathfinder
projects

Centrally delivered
infrastructure

Enduring regime

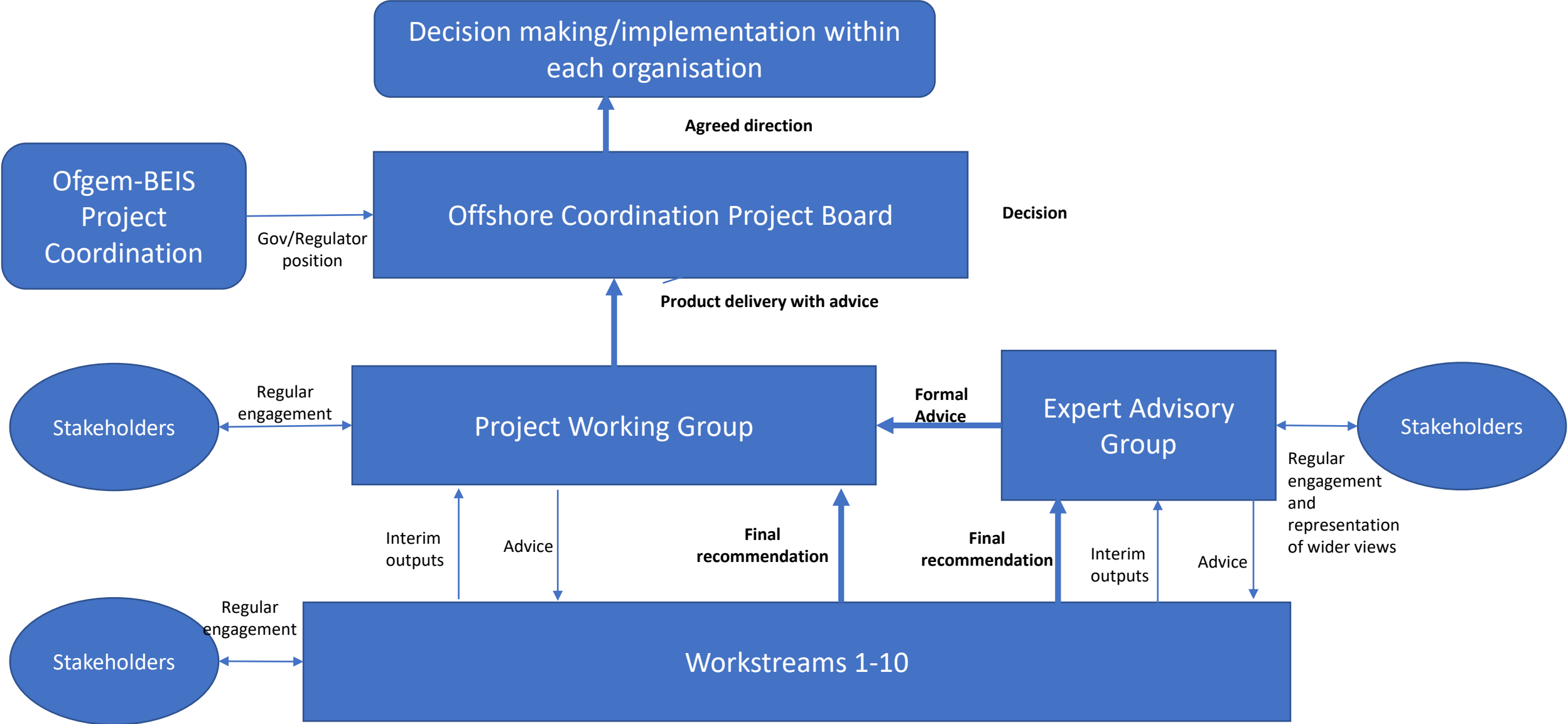
Multi-Purpose
Interconnectors

Medium-term (2025-
2030)

Longer-term (2030-)

Analytical

Project governance



A photograph of an offshore wind farm with several wind turbines in the ocean under a clear blue sky. The text 'NGESO phase 1' is overlaid on the right side of the image.

NGESO phase 1

The key findings from these reports are that an integrated approach could:

- **Save consumers almost £6bn by 2050** – a reduction of 18%.
- **Reduce** the environmental and local impact of offshore transmission by reducing the number of cables and **landing points by 50%**.

These benefits assume that all windfarms connecting after 2025 are connected in an integrated way. Considering the number of projects connecting in the late 2020s, if integration is delayed, the benefits are significantly eroded.

The majority of the technology required for coordination is available, or will be by 2030. Possible benefits from higher capacity HVDC cables and Direct Current Circuit Breakers.



Medium-term

Pathfinders

- For medium-term projects (connecting before 2030) we are looking for opportunities to increase coordination and test innovative approaches
- Published a joint letter with Ofgem asking for developers to contact us to discuss proposals for novel connections or to establish what the barriers are to coordination and how these can be alleviated
- Considering in scope:
 - Hybrid interconnectors
 - Offshore reinforcements to the onshore network
 - Shared offshore wind connections
- Ofgem are considering regulatory flexibility and to reconsider the way anticipatory investment is treated



Longer-
term

New enduring regime

- Developing potential policy approaches
 - Looking at models from other countries
 - Detailed assessment of the process to develop a windfarm, including fundamental and regulatory requirements.
 - Considering how to bundle stages together to allow a more strategic approach to be taken while minimising risks.
- Considering approaches that involve changes to:
 - Sea-bed leasing
 - Transmission design & build
 - Grid connection offers
 - Network charging
 - CfD processes
- Likely to require primary legislation



Timelines

Medium term - we are working with Ofgem to identify potential pathfinder projects and consider any needs for regulatory flexibility.

Long term - we are refining the project plan for 2021 and have committed to give clarity on the enduring regime during 2021 – with implementation to follow.

Stakeholder event on 17 December to provide more detail on the timelines for delivery.



ENSG - Offshore Coordination Update

19th November 2020

Alice Etheridge

Agenda

1. Insights from Consultation

- Stakeholder
- CBA
- Holistic Report
- Connections
- Other insights

2. Phase 2 Scoping

1. Insights from Consultation

Stakeholder - Consultation Feedback Synopsis

Respondents
supportive of
work completed

Questions
around how and
when the
transition will
happen & the
impact

More detailed
and specific
analysis
required to
deliver reality

**40 Written
responses**

Timing – how
quickly can this
be done?



CBA - Consultation Feedback Synopsis

- Delivery and regulatory/framework questions were prominent (*SSEN, SPR, NGET*), centring around how we proceed from here and the many and varied regulatory (*TNUOS, SQSS, who does what*) and delivery challenges ("can we do this?") that the industry faces.
- 2025 achievability/risks as opposed to a 2030 date, how would this work, what will happen to live connection agreements (*Orsted/SPR etc*)
- Request for more work on the local supply chain and local benefit calculation (something we are considering for Phase 2)
- Request for increased granularity of the commercial information (including but not limited to offshore/onshore split) - We have this planned
- Landing site queries about the size that will come with large integrated HVDC links (we are working on this)
- Request to caveat our work more and be clearer exactly what we are covering scope wise.

Holistic Report - Consultation Feedback Synopsis

- Large number of responses are related to Phase 2 including suggestions/statements on what we need to take into consideration in the next stage (e.g. onshore and in particular marine environment constraints to be considered in detail)
 - Around 70% of responses are on this topic
- Number of responses are on topics that are not directly NG ESO's role or responsibility, they are more feedback for BEIS and Ofgem
 - 10% responses
- Number of questions are direct challenge on technology assumptions and comments from TO's on network investment assumptions
 - 10% responses
- The rest are positive statements on the report, approach and methodology with very few not for the report as such
 - 10% responses

Connections - Consultation Feedback Synopsis

- We have had feedback that the CION (or its replacement) must consider environmental factors at the time of connection agreement being signed
- Strong support was fed back on combining connections at one point and having the seabed lease and connections at the same point
- There was general support to all the changes outside of the shadow TO suggestion where the feedback was more mixed (it is recognised as the most controversial option)
- There was some concern raised about the disruption to live connections and how that will be managed practically
- Other practical considerations were also raised about how quickly changes to the liabilities approach could be undertaken
- There were no significant changes suggested to the document itself or major alterations required

Other - Consultation Feedback Synopsis

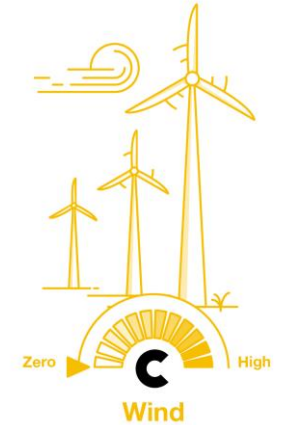
Call for 'rapid and radical' regulatory reform, ideally with a Bill in the next Queen's Speech in written response from MPs

What can actually be achieved – ask to see a 'real' picture and not raise expectations

Risks to be managed effectively for shared connections to deliver end result

If we don't move quickly, we could be 'left behind'

UK wide strategy required and not piecemeal approach



2. Phase 2 Scoping

High level scope for Phase 2

Phase 1 of the offshore coordination project has delivered a vision for a more integrated offshore network.

Phase 2 intends to deliver work to help achieve that vision, through **five workstreams**:

1) ESO offshore coordination strategy

- To provide the strategic direction for offshore coordination, engagement and project management

2) More detailed technical analysis

- To inform technical code changes and further understand the operational impact of a coordinated offshore transmission network

3) Extension to the cost benefit analysis from Phase 1

- To assure assumptions from Phase 1

4) Tactical coordination opportunities

- Involving opt-in approach for inflight connections, to support the transition between current state and an enduring integrated offshore regime

5) Roadmap of code modifications

- Establishing a detailed and industry-agreed roll-out plan for the necessary changes to codes and frameworks to facilitate the vision for offshore integration set out in Phase 1

Workstream 1: ESO offshore coordination strategy

Outputs: stakeholder engagement plans, delivery and transition plans for project and transition to BAU

An overarching workstream that uses the strategic direction from BEIS and ensures workstreams 2-5 continue to align this with. Includes working with BEIS and Ofgem to agree the role that would be valuable for the ESO to play in the enduring solution. Encompasses stakeholder engagement and project management activities within the project and transition to business as usual.

Workstream 2: More detailed technical analysis

January (1 month)

- 1) Planning analysis **Output: reports to inform industry, the CBA (WS3) and the roadmap (WS5)**
 - A review of the SQSS infeed loss for offshore assets, including CBA for increasing to 1800 MW
 - Carrying out the following activities and preparation for these to become BAU processes:
 - Review of the impact of technology developments (incl. cost) on conceptual network designs
 - Review of the impact of sea bed lease and environmental constraints on conceptual network designs (cost and design) and agree an approach for how this will be taken into consideration
 - Network design for each 5 years, working backwards from 2050.

[Month TBC]

- 2) Coordination activities: Assessing the impact of 'onshore-offshore' and offshore coordination on conceptual network designs, including optimal offshore designs and the impact of technology on designs

[Month TBC]

- 3) Operational impact studies
 - Analyse impact on operational risk across: stability (inertia); frequency management; voltage regulation; flow management/thermal constraints on the onshore and offshore system; restoration capabilities
 - Investigate how offshore integration translates through into control room

Workstream 3: Extension to cost benefit analysis

January (1 month) **Output: addendum report to Phase 1 CBA report**

- 1) Analyse the potential benefit to local communities and supply chains (e.g. permanent employment) in addition to the costs investigated in Phase 1. To include case studies from other countries.
- 2) Anticipatory investment risk impact – investigate the possible range of loss of benefit if assets don't connect as anticipated (including a view of what other countries have done).
- 3) Analyse the impact of other direct costs associated with capex on the overall cost-benefit case (e.g. additional consenting costs and remediation costs – base costs that need to be factored in regardless of length and size of cable).

June onwards (1-2 months) *(timing driven by input required from WS2)* **Output: addendum report**

- 4) Run the CBA with a sensitivity around generation mixes, to test the benefits of an integrated approach under scenarios other than just Leading the Way.
- 5) Analysis on the impact of an integrated approach on the onshore network, beyond the first substation to determine any wider impact.

June onwards (duration TBC) **Output: addendum report**

- 6) Least regret analysis to investigate the probability of different scenarios for deployment of wind on 5 year granularity

Workstream 4: Tactical coordination opportunities

January-July 2021 Output: recommendation paper on how opportunities are progressed

- 1) Analysis of the regulatory and commercial barriers to interim coordination of inflight connections, and delivery of changes required to enable interim coordination, including optioneering with TOs, engagement with connectees and identifying/agree support required from Ofgem e.g. derogations

July onwards (TBC dependent on projects identified and Ofgem's plans) Output: delivery of projects

- 2) Deliver tactical coordination opportunities, in alignment with Ofgem's plans for pathfinders

Workstream 5: Roadmap of code modifications

January - May 2020 (using input from WS2 analysis and strategic direction from BEIS on the enduring offshore regime) **Output: roadmap publication**

- 1) Create and publish a detailed, industry-agreed roadmap (roll-out plan) of changes for industry codes and standards including timelines for when change can/should be implemented:
 - Code and standards:
 - Grid Code
 - SQSS
 - STC
 - CUSC
 - Charging regime
 - Connections regime (including Crown Estate seabed leasing round 4 and beyond)

(TBC dependent on approach – prioritisation required) **Output: modified codes; connections and charging regimes that enable coordination**

- 2) Initiate and drive the changes set out in the roadmap, using an innovative and agile approach to code modification, work with industry and Ofgem to progress the changes to codes and standards.

[Month TBC] (1-2 months) **Output: international review report**

- 3) Review of international developments, good practice (how other countries are considering a systemwide approach to integrating offshore wind) and the EU direction of travel and what this means for GB's involvement.

Early Competition Plan

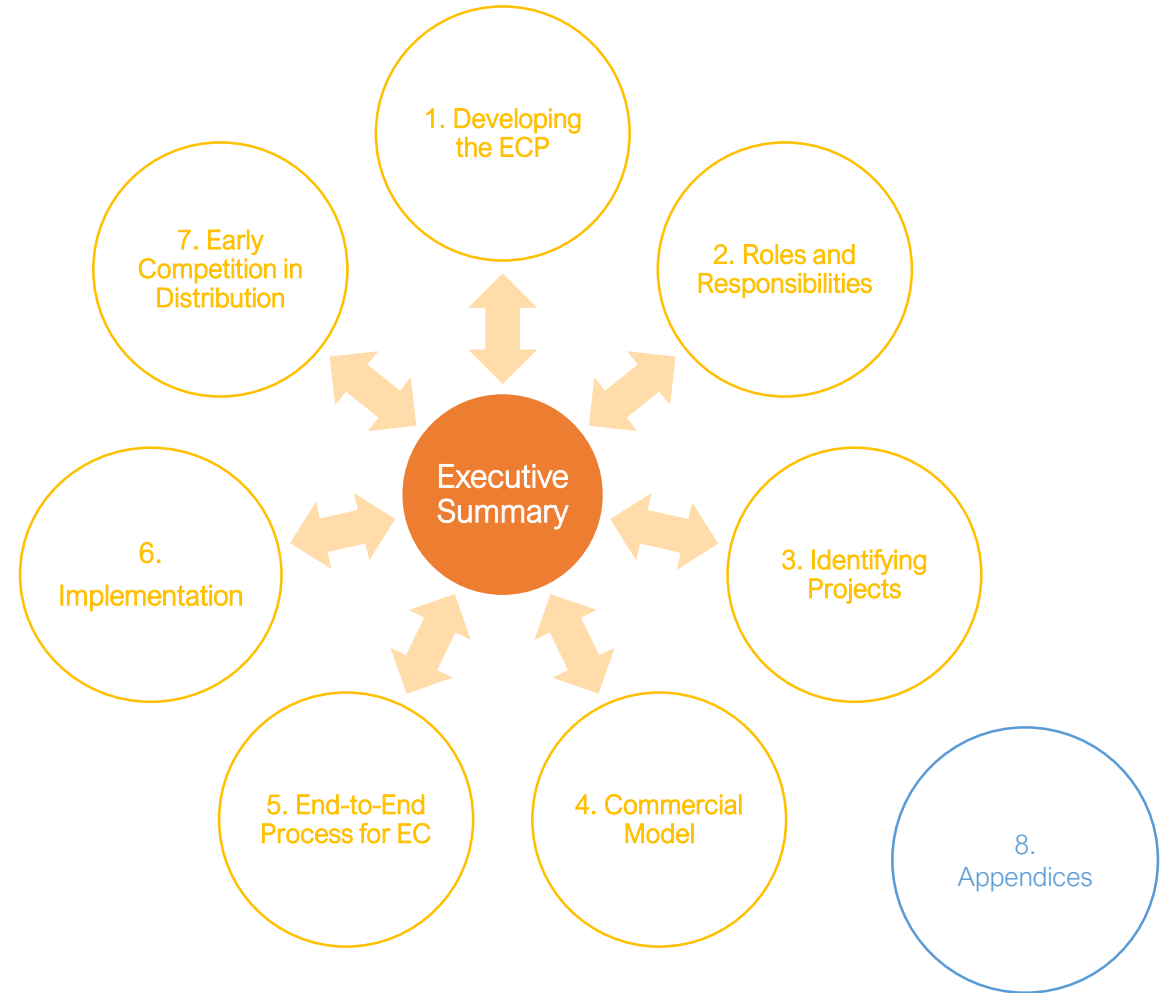
ESO Networks Stakeholder Group

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Early Competition Consultation

This presentation gives a high level overview of positions stated in our Early Competition Consultation to be published 7 December

The team will be hosting a launch webinar 15 December to take stakeholders through the consultation

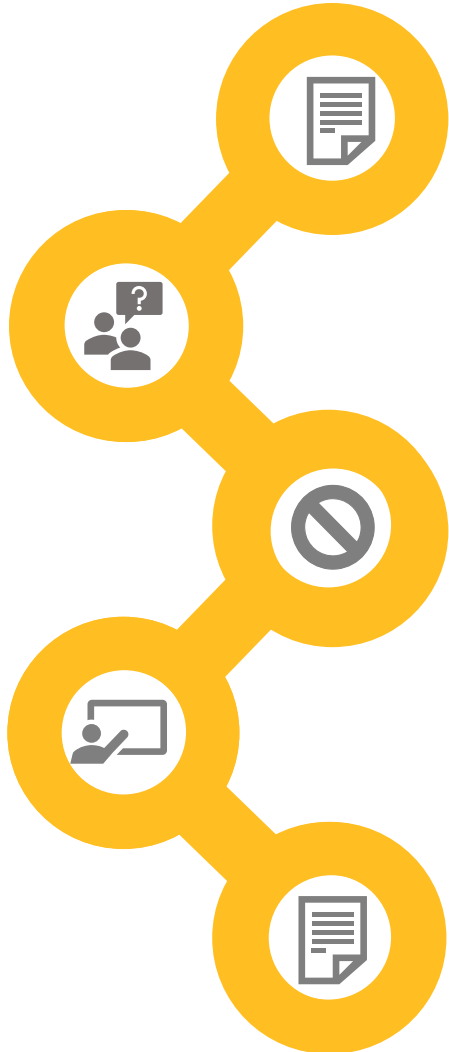


Stakeholder Interactions

Face to Face	What we have done to date	Who we have reached out to
Face to Face and Virtual Engagement	<ul style="list-style-type: none"> 55 Workshops 2 Webinars 10 Industry Events Circa 45 bilateral meetings 	75 individuals from over 40 organisations
ESO Networks Stakeholder Group	5 Meetings	15 representatives from impacted stakeholder groups
Published Communications	<ul style="list-style-type: none"> 4 Podcasts 13 Newsletters Roles Thought Paper Phase 1 Update Phase 2 Consultation 	250 stakeholders signed up for updates to our distribution list

What's next

1. Developing
the ECP



Dec 20 – Consultation Launch

- Publish Phase 3 Consultation
- Phase 3 Consultation Launch Webinar

Jan/Feb 21 – Stakeholder Engagement Q&A Sessions

- Commercial Model & Model Implementation (2)
- Roles and Responsibilities & Distribution (2)
- Project Identification & End to End Tender Process (2)

Feb 21 – Consultation Close

- 15 February Close Phase 3 Consultation

Mar 21 – Stakeholder Feedback

- Stakeholder webinar for consultation feedback
- Publish stakeholder consultation feedback

Apr 21 – Final Report

- Publish and send final proposals to Ofgem

We are looking for your views

- Are you happy with our stakeholder approach?
- Is there anything else you would expect to see?

Approver & Procurement Body

Approver

- **Ofgem** is the most appropriate party to carry out this role
- Stage Gate approach with some oversight activities
- Other activities that occur over more than one stage of early competition
 - Check whether a project continues to be in the interests of consumers
 - Checks on whether the implementation of the tender exercise is fair and transparent
 - Checks to ensure that consumers are protected from any significant changes



STAGE GATE 1

Approval of projects subject to early competition



STAGE GATE 2

Final Approval to launch the tender



STAGE GATE 3

Approves preferred bidder



STAGE GATE 4

Approval to proceed to solution delivery



STAGE GATE 5

Approves end of life options

Procurement Body

- Providing a map to help lay out all of the activities under this role and how they link to other roles
- Consider regulatory changes at a high level for who ever was to take on this role
- Considered what resource could be needed to deliver this role
- Consider the involvement of multiple parties in the procurement process
 - Independent Assurance activity

We are looking for feedback on:

- The Approver role and its activities.
- The most appropriate party to own the Procurement Body role
- Whether the independent assurance activity is needed.

Other roles

Licence Counterparty

- As per current legislation this role can only be owned by Ofgem

Contract Counterparty

- ESO is minded to propose that we take on this role, subject to the appropriate remuneration risk and liability framework

Payment Counterparty

- ESO is minded to propose that we take on this role, subject to the appropriate remuneration risk and liability framework

Case Studies



Thames Tideway



Contracts for Difference

We are seeking feedback on whether stakeholders agree with our positions. We are also seeking feedback these case studies versus early competition proposals.

Network planning bodies

- **TOs should be able to participate. This should be through the same competitive process as other bidders.**
- **TO involvement in network planning should be retained, but conflict mitigation measures should be put in place.**
- **Conflict mitigation measures should be in line with late model proposed arrangements:**
 - Managerial separation of the bidding team from the TO
 - Strict rules around IT access to prevent TO bidding teams accessing information related to planning functions
 - Bidding unit must not comprise any employees of the TO who are involved in the planning works.
 - Some physical restrictions to shared TO facilities
 - Bidding teams not allowed to recover their costs from regulated revenues
 - Information relating to tender support undertaken by the TO must not be shared with the bidding team
 - The TO must confirm its intention to bid and begin to implement conflict mitigation arrangements within eight weeks of the initial tender decision

Project Identification

No significant change from Phase 2 Consultation

- **What criteria should be used to determine suitability to compete:**
 - No value threshold
 - Individual projects subject to a CBA
 - Certainty – now propose to determine this through number of FES scenarios
 - New and separable as per late model definition
- **Should projects not driven by NOA be in scope for competition:** yes, but few suitable projects expected
 - **Customer connections:** in scope, but sufficient lead in time required so as not to delay connection. Also, only projects driven by more than one customer connection should be competed to provide sufficient certainty
 - **Asset replacement:** in scope, but very few projects anticipated to be new and separable
 - **Compliance:** in scope, but sufficient lead in time required to avoid non-compliance (or derogation if appropriate)
 - **Voltage and stability:** in scope. Already competed through pathfinders. Pathfinders and early competition to be merged/aligned as appropriate
- **Initial solution development process:**
 - Enhance the Interested Persons Options process so that stakeholders can input potential solutions in to NOA. In turn, this could help shape the scope of the project to be tendered

Commercial Model

- Revenue:**

- We continue to propose an indexed Tender Revenue Stream (TRS)
- We have newly proposed achieving a natural hedge by only partially indexing the TRS and with CPI-H being the index
- We continue to propose a need dependent revenue period for up to a maximum period of 45 years
- We have set out further views on end of revenue period options i.e. Expire, Extend, Re-Tender or Decommission
- We have set out further views on a fixed milestone based payment for preliminary works

- Cost Risk:**

- Our views on the Post-Preliminary Works Cost Assessment (PPWCA) process and risk allocation have been updated
- We propose that the PPWCA includes an upward adjustment cap and a performance bond is required throughout Preliminary Works
- A Solution Delivery / Construction performance bond is also proposed
- Our views on cost of debt, cost of equity and overheads/margins all remain mostly unchanged and we have provided further information
- For example, we have proposed the Procurement Body will provide assumptions on cost of debt and gearing in the tender process and we have proposed that there will be controls in relation to equity sales

Final bid	Post preliminary work	Post construction completion
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Post-prelims cost assessment with debt competition			
1. Underlying costs	I	X	
2. Overheads/margins	X		
3. Equity cost	X		
4. Debt cost	A	X (FC)	

Key:
 I stage at which bidder provides indicative cost
 A stage at which procuring authority provides an assumption
 X stage at which bidder is committed to a cost item
 (FC) financial close for any third party debt

Commercial Model (Continued)

- **Other Considerations:**
 - We have set our more detailed views on material need change or disappearance
 - We have considered options and set out our initial views on a provider of last resort
 - For network solutions we foresee the 'OFTO of Last Resort' mechanism being updated and extended
 - For non-network solutions we see 'enhanced contract measures' and in very limited cases an inability to participate
- **Licences/Contracts and Industry Codes:**
 - We have provided more detailed views on these topics including annexes which provide a high-level overview of potential Heads of Terms and impacts on Industry Codes

Tender Process

General

- Further detail on evaluation criteria for pre-qualification, ITT Stage 1 and ITT Stage 2

Pre Tender



Pre Qualification Stage



ITT Stage 1



ITT Stage 2



Preferred Bidder Stage

ITT Stage 1

- Technology readiness of 8/9 required
- Stage 1 assessment based on pass/fail against technical and policy requirements. Costings not assessed.
- Procurement body requests network impact studies for proposals from relevant network owners.
- Propose not to offer pre-submission review to bidders

ITT Stage 2

- Scored assessment for technical and project delivery. TRS adjusted based on scores. Final bidder ranking based on the adjusted TRS

Tender Disputes

- Proposed process set out

Post-Tender Award

- **Preliminary Works / Solution Delivery Incentives:**
 - We have proposed a new reputational stakeholder engagement incentive for the preliminary works stage
- **Late Delivery:**
 - We have confirmed our view that the TRS should commence upon commissioning (via standard processes) and that there will be a penal element for late delivery unless for an acceptable reason
- **New Investment:**
 - We have confirmed our view that CATOs will be responsible for facilitating new connections and relevant new investment and we have set out that we no longer think this will be as applicable to non-network solutions
- **Operational Incentives:**
 - We have reconfirmed our views and provided further information in relation to there being a financial availability incentive, a financial timely new connections incentive and a reputational (and potentially financial) environmental incentive
 - We have newly proposed that end of revenue period security would be required in respect of the availability incentive
- **Decommissioning:**
 - We have updated our views and whilst we continue to think that a decommissioning plan is required and the bidder should consider decommissioning costs in respect of their TRS, we have now narrowed our views on decommissioning securities

Implementation

This is a new section which was not featured in our Phase 2 Consultation

- **Implementation Activities:**

- We have provided a high-level overview of the expected implementation activities
- We have provided a high-level overview of the timing and sequencing of those implementation activities
- We have stated that our assumption is that the first tender could commence 2023-2025 and the first outcome would be 2025-2027 - this is based upon an 18-24 month implementation period from a decision being taken by Ofgem
- We have stated that it could be minimum regret to commence certain activities in advance of a decision being taken e.g. further development of the network need identification process and associated cost-benefit analysis
- We have stated a more detailed implementation plan will need to be developed at the appropriate point in time

Potential ESO role(s) in ED2 early competition

This will be the first time this topic has been included in our consultation process, as our thinking builds on the transmission focussed work. We have conducted stakeholder engagement via the Energy Network Association and through the September webinars

Included in the Phase 3 Consultation chapter:

- The ask from Ofgem to develop a thought piece
 - Our approach to investigate this topic, which focusses on whether there is a need for a 3rd party
 - Our assumptions about the ED2 landscape and in particular the prospect of integrated Distribution Network Owners/Distribution System Operators
 - High-level End to End process
 - Key roles + party options + key advantages/disadvantages
 - Additional roles + party options + key advantages/disadvantages
- } Summary of stakeholder feedback so far

Proposals:

- **The core process and activities are transferable to distribution, but will require modification to reflect distribution e.g. no NOA**
- **The key roles identified for early competition are the same at distribution level**

Specifically seeking views on:

- *The application of the proposed process and roles to distribution needs*
- *Views on which parties may be best placed to perform required roles*
- *Views on value of potential additional roles and which parties may be best placed to perform them*

From what you have heard today

- Do you feel we have listened to stakeholder feedback and acted on it?
- Do you think have unfairly favoured potentially affected parties?

