Understanding Skye's Future Energy Ambitions

Seminar – 19 January 2021

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Virtual Sessions – Hints and Tips

- Please make sure you are **on mute** during the call 
- Set yourself to **“Busy”** to avoid getting calls 
- You can raise questions via **Slido** or **via Microsoft Teams for clarification** 
- Alert us to technical issues using the chat function on Teams or send Kelly Scott an email kelly.scott@sse.com 

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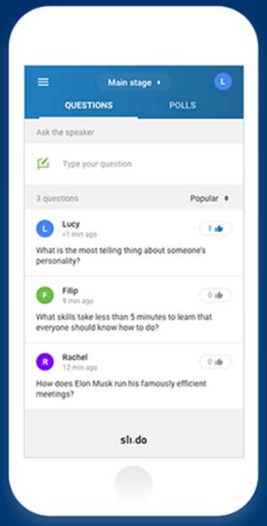
Slido

We are using a question and answer tool in today's session called **SLIDO**

Please use your smartphone, computer or tablet and follow the instructions below:



Go to: www.slido.com

Enter code: #Skye

Join at
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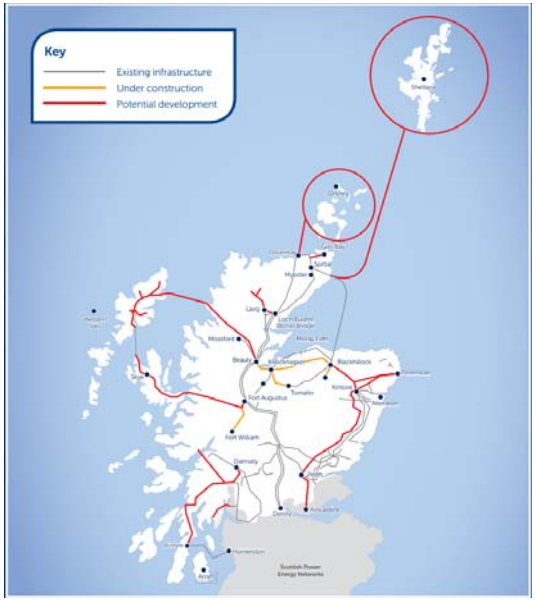
Who we are



£3.5 billion
invested to grow and maintain the north of Scotland transmission network[1]

8.1 GW
of generation connected[1]

99.9999%
transmission system reliability*

£28 million
invested in innovation[1], including construction and operation of the National HVDC Centre

Award winning
for our engineering and capital investment, innovation and sustainability practices

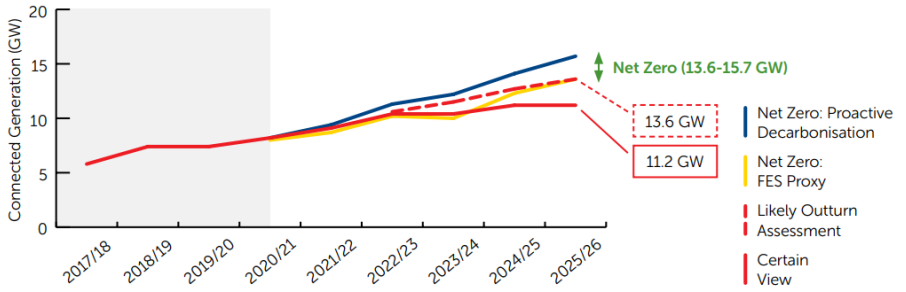
RIIO T2: A Network for Net Zero

Five years. Five clear goals.

- Transport the renewable electricity that powers 10 million homes
- Aim for 100% transmission network reliability for homes and businesses
- Every connection delivered on time
- One third reduction in our greenhouse gas emissions
- £100 million in efficiency savings from innovation

Delivered for around £7 a year

Net zero emissions pathways for generation connected in the north of Scotland (GW)



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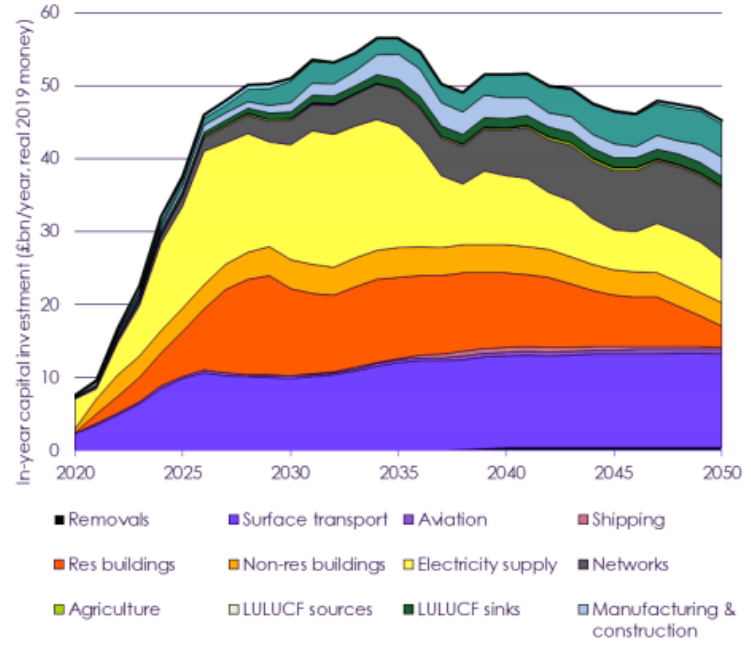
Net Zero Context

- Regulatory scrutiny of investment need
- Detailed Cost Benefit Analysis
- Supplement National View of Generation & demand Growth with local knowledge
- Coordinated stakeholder engagement

Figure 1. Achieving net-zero: estimated additional investment by year



Source: CCC 6CB analysis.
Notes: This figure shows a partial picture of the required investments, without offsetting savings as operational costs. This figure is therefore not indicative of the net costs of decarbonisation. For a full picture of the costs of Net Zero, see figure 2. Electricity supply 2020 data is an average of historical 2018 / 2019 data and modelled 2020 investment. LULUCF is Land-Use, Land-Use Change and Forestry.

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Agenda

- **Skye Reinforcement Project Overview:** Euan Smith, Project Manager, SSEN Transmission and Calum Watt, System Planning and Investment Manager, SSEN Transmission
- **Cost Benefit Analysis Overview:** Lisa Woolhouse, Principal Energy Economist, GHD Consultancy
- **Questionnaire Overview:** Mark McCabe, Commercial Contracts Team, SSEN Transmission
- **Q&A Session using Slido:** System Planning, Whole System, Transmission and Distribution Commercial Contracts, Corporate Affairs, Stakeholder Engagement

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Skye Reinforcement Project Overview

- Calum Watt – System Planning and Development Manager – SSEN Transmission
- Euan Smith – Project Manager – SSEN Transmission

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Skye 132 kV Reinforcement – Background

2013

Project started driven by contracted generation

2013-16

Project development of Skye 132kV wood pole project

2017

Challenge by Statutory stakeholders and community regarding the overhead wood pole alignment

2018

Project review as asset requirement not fully addressed by current project scope

2019

Project restarted, combined drivers Asset, Load and Net Zero; strategy presented to Statutory Authorities Q4

2020

Project consultation on options; Contractor board project progressing through LCP Opportunity phase

2021

Project development phase, alignment and construction design. Public consultation on final design and Ofgem needs case

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Existing Skye Assets – Replacement Need

- Asset condition monitoring on the existing Skye circuit indicated the need for intervention on the 132kV line between Quoich and Ardmore
- Quioch to Broadford OHL (64km) requires anticipated replacement by 2029, the existing asset is not economical to refurbish as equipment would require replacement to satisfy design loadings
- Broadford to Edinbane, Dunvegan and Ardmore OHL (68km), the strength of the wood poles on the line sections between Broadford and Ardmore is deteriorating as the poles age, intervention is estimated to be required by 2026 to secure security of supply.
- Substation replacement at Quioch Tee and the transformer and circuit breaker replacement at Broadford substation is scheduled for replacement in T2

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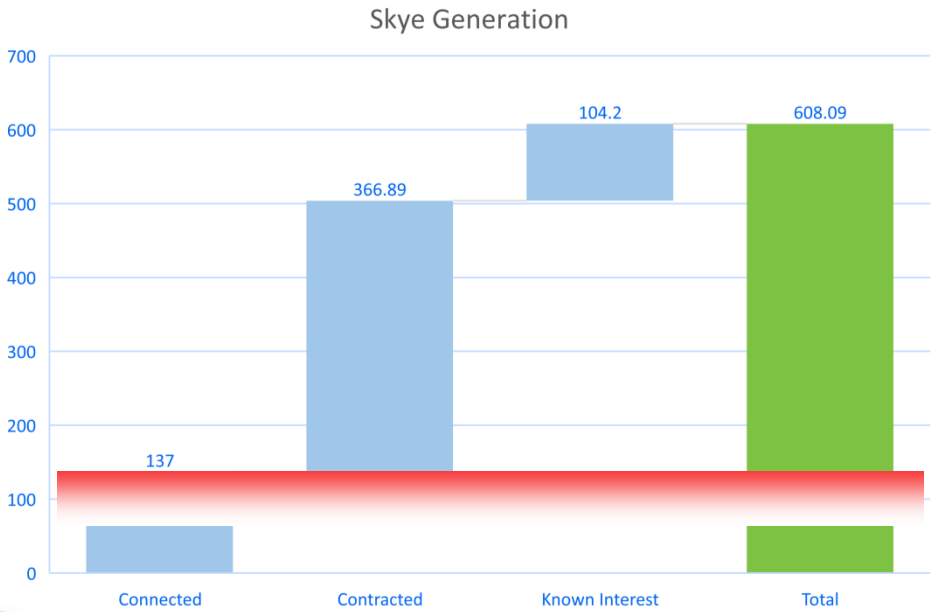
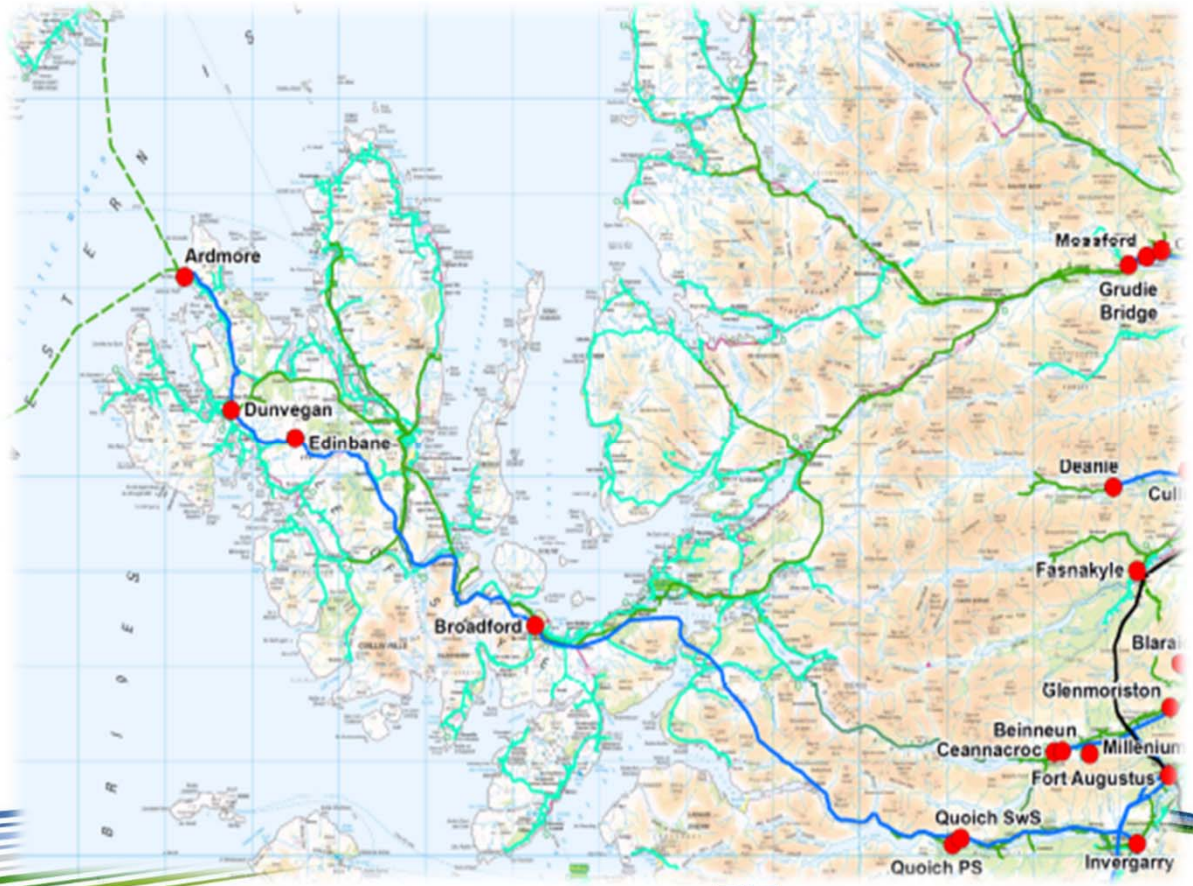
Skye –Generation Driver

Two key elements:

(i) renewable generation and connection capacity

(ii) Security of supply for Skye and the Western Isles. (Demand)





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Skye - Potential Options

	Voltage	Solution Capacity				
		Fort Augustus - Quoich	Quoich – Broadford	Broadford - Edinbane	Edinbane - Dunvegan	Dunvegan - Ardmore
Option 0	132kV	176MVA (x2)	176MVA (x2)	176MVA	176MVA	176MVA
Option 1	132kV	176MVA (x2)	176MVA (x2)	348MVA	176MVA	176MVA
Option 2	132kV	348MVA (x2)	348MVA (x2)	348MVA	176MVA	176MVA
Option 3	132kV	348MVA (x2)	348MVA (x2)	348MVA (x2)	348MVA	348MVA
Option 4	275kV	500MVA (x2)	500MVA (x2)	500MVA (x2)	500MVA (x2)	500MVA (x2)

Proposed Solution ?– Subject to needs case approval

The Cost Benefit Analysis will inform the Needs Case

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Approach to Development

- Our chosen approach using earlier contractor engagement attempts to:

- ✓ Enable project team to guide key statutory stakeholders through the design phase with greater clarity of detail during design, to reduce risk of objections/PLI risk
- ✓ Construct an asset that meets SSEN Transmission and customer needs
- ✓ Provide cost certainty for Ofgem Needs Case
- ✓ Enable energisation date to meet Developer connection dates
- ✓ Better inform the EIA process and mitigate delays to S37 consent submission
- ✓ Inform landowner negotiations at an early stage, reducing need for necessary wayleave applications and risk to S37 consent and reputational impact

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Project CBA and Stakeholder Engagement

- Stakeholder views crucial in developing plausible and objective needs case scenarios
- This includes development in the upper and lower ranges
- These feed into the CBA
- The result will ensure SSEN Transmission develops the optimum long term network solution for Skye
- And facilitate the regulator's timely agreement

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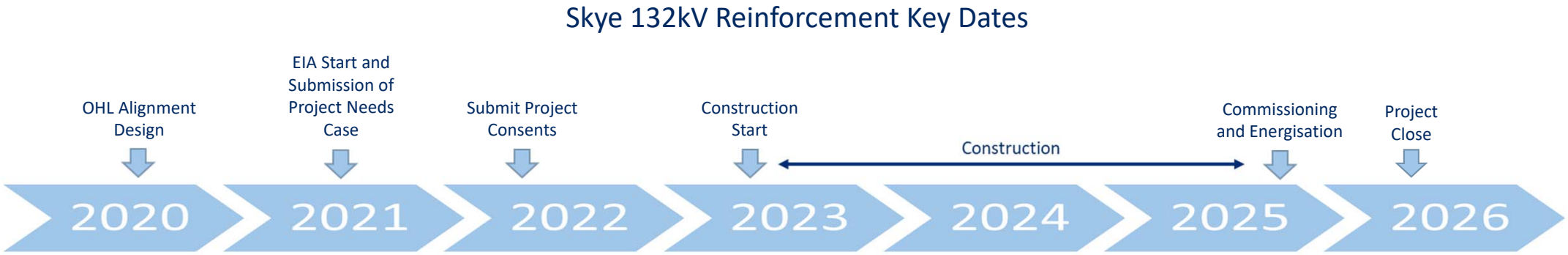
Skye 132kV Reinforcement Key Dates



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Skye reinforcement CBA

Lisa Woolhouse
Principal Energy Economist

Why we conduct a CBA

- The energy regulator, Ofgem, requires SSEN Transmission to show that any network investment provides **VFM** for the GB electricity consumer
- We must demonstrate to Ofgem that there is a '**Need**' for SSEN Transmission to invest in Skye
- For Skye the need for network investment is driven primarily by the growth of **renewable** generation – especially wind
- The focus of the Skye CBA for Ofgem is to determine if the benefit of network investment outweighs the cost of the investment

Costs

- Costs are relatively simple – the costs of the network assets SSEN Transmission will build

  Capital costs and operating costs

  Over the 45 year regulatory life of the network asset

  Much shorter than technical life

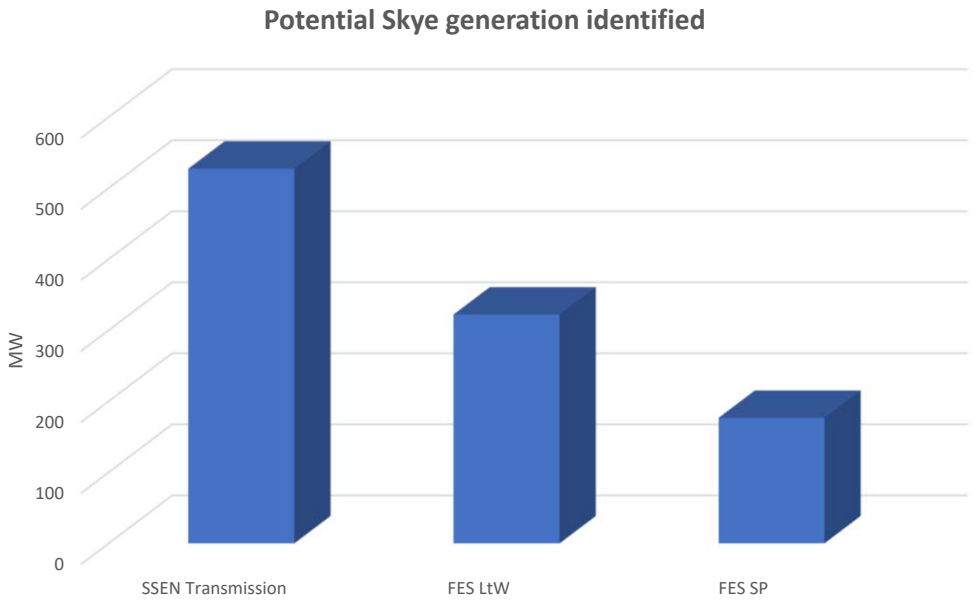
Benefits

- More tricky to quantify
- WFs want to **connect and export** their power
- Helping meet Scottish and UK **net zero targets**
- But WFs cannot fully connect and export onto the existing network
- If they did the **consumer would pay** WFs not to generate – so called ‘constraint costs’
- The ‘benefit’ of SSEN Transmission’s network upgrade is to **avoid these constraint costs** by allowing WFs to connect and export
- But how many WFs will connect?
- **Uncertain**
- So we develop **plausible** long term **scenarios** of future renewable growth and electricity demand

Skye scenarios

- Develop long term local Skye scenarios of generation and demand
- National Grid develops GB Future Energy Scenarios (FES) each year
- GB scenarios broader brush
- Local scenarios more current and granular

- Identified a range of **potential** WFs
- Beyond the 2020 FES envelope
- Need to turn into generation and demand scenarios for Skye
- Scenarios must be **objective** and **justifiable** to the regulator
- Great focus on next 10 years
- Limited ‘what if’



Stakeholder views

- We want our scenarios to be driven by local knowledge
- **Questionnaire** intended to form the basis of an objective developer view
- Helping us understand project development:
  - Total MW of projects that may emerge – the **envelope**
  - The timescales of these projects – the **when**
  - The location of these projects – the **where**
  - Potential twinkle in eye projects – the **if**
- **All** technologies – hydro, wind, battery……
- Full tapestry

It's not just MW

- Cost of constraining generation important factor in the CBA
- CfD or other potential routes to market?
- Community involvement – scale of
- Use of system charges – issue?
- Capacity factors – windier on Skye!

Issues

- No specific project details shared
- Questionnaires confidential to SSEN Transmission
- Broad themes shared with Ofgem
- Scenarios developed published (total MW)
- Not specific projects in the scenarios

Summary

- Balancing ‘what if’ long term scenario development with regulator’s desire to protect customers through shorter term ‘certainty’ of scenarios
- Stakeholder views crucial in developing plausible and objective scenarios
- Scenarios cannot cover every outcome
- But develop upper and lower ranges
- These feed into the CBA
- The result will ensure SSEN Transmission develops the optimum long term network solution for Skye
- And facilitate the regulator’s timely agreement

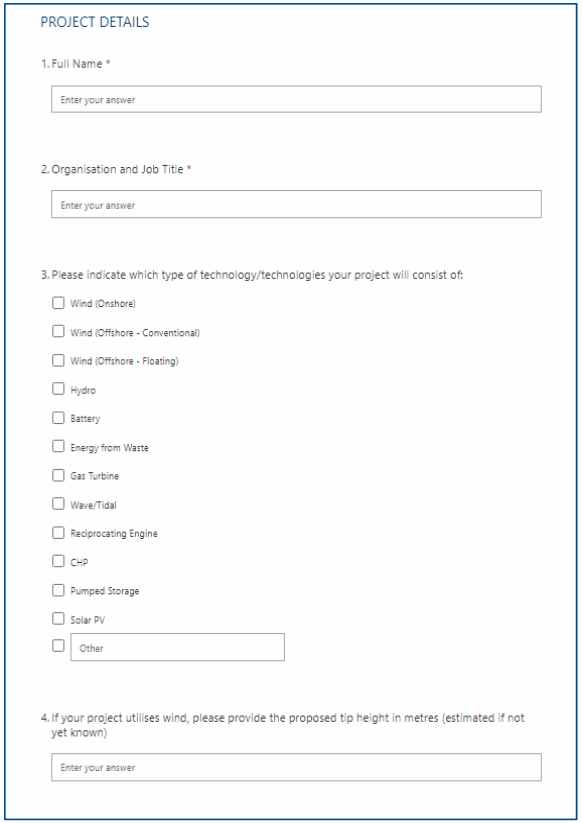
Questionnaire Overview

Mark McCabe – Commercial Contracts Manager

A link to the questionnaire will be re-sent to all attendees following today's session

We kindly request that all questionnaires are submitted by **Friday 22nd January**

For any questions regarding the questionnaire please email: transmission.commercial@sse.com



PROJECT DETAILS

1. Full Name *

Enter your answer

2. Organisation and Job Title *

Enter your answer

3. Please indicate which type of technology/technologies your project will consist of:

- [ ] Wind (Onshore)
- [ ] Wind (Offshore - Conventional)
- [ ] Wind (Offshore - Floating)
- [ ] Hydro
- [ ] Battery
- [ ] Energy from Waste
- [ ] Gas Turbine
- [ ] Wave/Tidal
- [ ] Reciprocating Engine
- [ ] CHP
- [ ] Pumped Storage
- [ ] Solar PV
- [ ] Other

4. If your project utilises wind, please provide the proposed tip height in metres (estimated if not yet known)

Enter your answer

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Q&A Session

We will now return to **SLIDO** to conduct our Q&A session

Questions can be submitted anonymously, and we will endeavour to get through as many of your questions as possible

To submit a question, please use your smartphone, computer or tablet and follow the instructions below:

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Thank you

If you have further questions please contact:

transmission.stakeholder.engagement@sse.com

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