

# Understanding Argyll and Bute's Future Energy Ambitions

Developer Seminar – 07 April 2021



**Scottish & Southern**  
Electricity Networks

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# Virtual Sessions – Hints and Tips

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

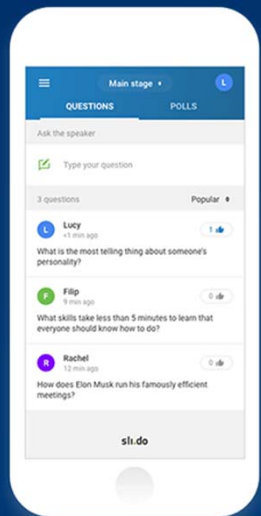
# Slido

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](http://www.slido.com)

Enter code: **#Argyll**



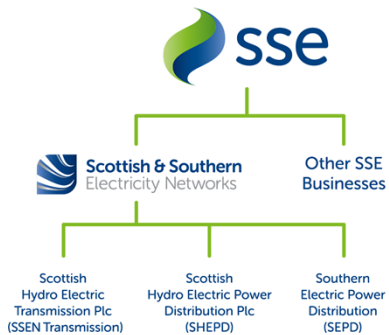
# Agenda

Topic	SSEN Transmission Speaker
Who We Are	Russell Stewart, Lead Project Manager
Argyll and Kintyre 275 kV Strategy Overview	Dougie Hill, System Planning Engineer & Russell Stewart, Lead Project Manager
Cost Benefit Analysis Overview	Cameron Dobbie, Economist
Questionnaire Overview	Saf Akram, Commercial Contracts Manager
Q&A Session	

# Who we are

Russell Stewart, Lead Project Manager

# Who we are



In total we maintain about 5,000km of overhead lines and underground cables – easily enough to stretch across the Atlantic from John O’Groats all the way to Boston in the USA. Our network crosses some of the UK’s most challenging terrain – including circuits that are buried under the seabed, are located over 750m above sea level and up to 250km long.

The landscape and environment that contribute to the challenges we face also give the area a rich resource for renewable energy generation. There is a high demand to connect from new wind, hydro and marine generators which rely on Scottish and Southern Electricity Networks to provide a physical link between the new sources of power and electricity users. Scottish and Southern Electricity Networks is delivering a major programme of investment to ensure that the network is ready to meet the needs of our customers in the future.

## Our responsibilities

We have a licence for the transmission of electricity in the north of Scotland and we are closely regulated by the energy regulator Ofgem. Our licence stipulates that we must develop and maintain an efficient, co-ordinated and economical system of electricity transmission.

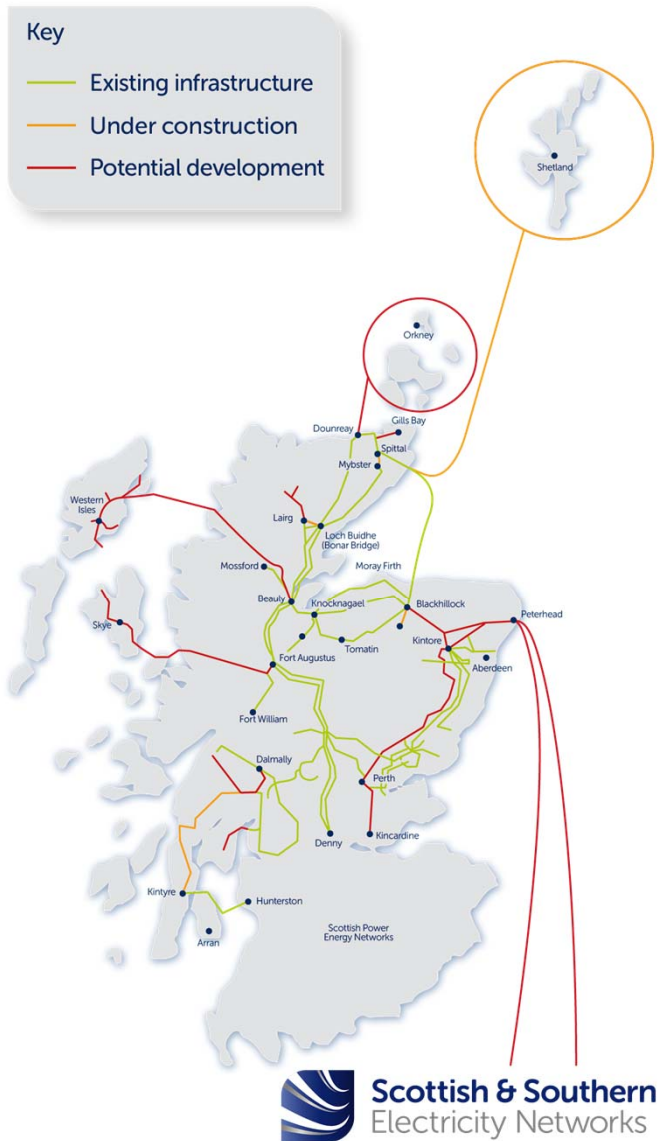
## What is the difference between transmission and distribution?

Electricity Transmission is the transportation of electricity from generating plants to where it is required at centres of demand.

The Electricity Transmission network, or grid, transports electricity at very high voltages through overhead lines, underground cables and subsea cables.

Our transmission network connects large scale generation, primarily renewables, to central and southern Scotland and the rest of Great Britain. It also helps secure supply by providing reliable connection to the wider network of generation plans.

The Electricity Distribution network is connected into the Transmission network but the voltage is lowered by transformers at electricity substations, and the power is then distributed to homes and businesses through overhead lines or underground cables.

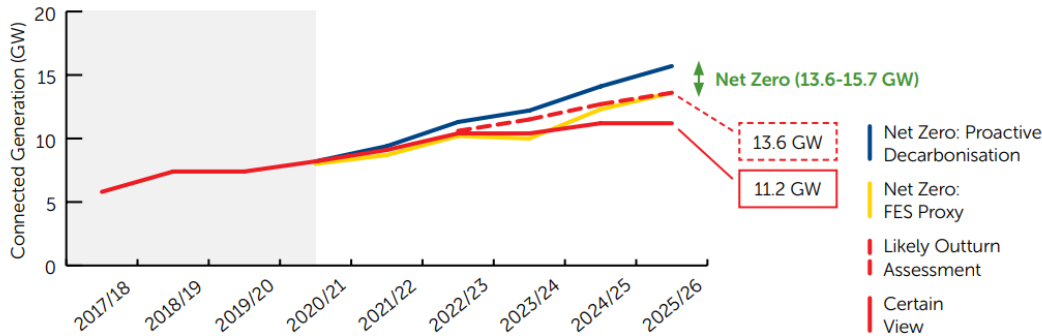


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# RIIO T2: A Network for Net Zero

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





## This RIIO-T2 Business Plan has 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

## In delivering these Goals, we will:

-  Protect consumers from uncertainty
-  Involve our customers and stakeholders
-  Be open and transparent

## We forecast this will cost:

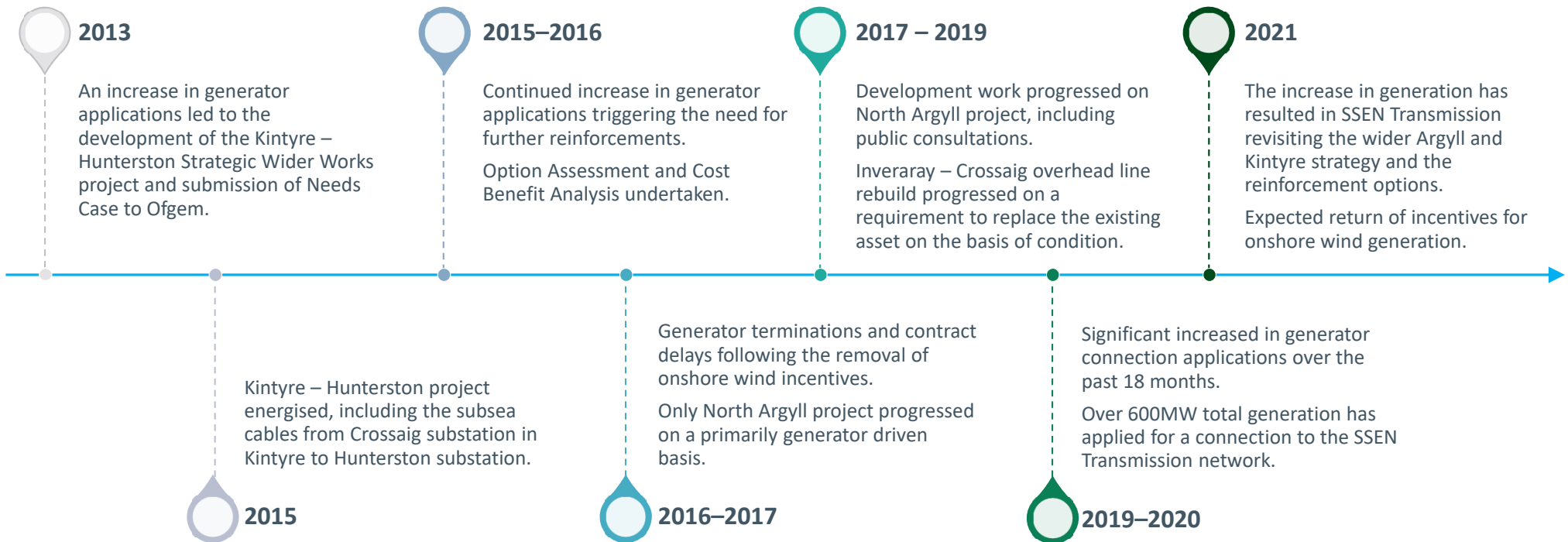
-  Total expenditure of between £470 million and £750 million each year
-  Around £7 for the average GB household each year

# Argyll and Kintyre 275 kV Strategy Overview

Dougie Hill, System Planning Engineer  
Russell Stewart, Lead Project Manager



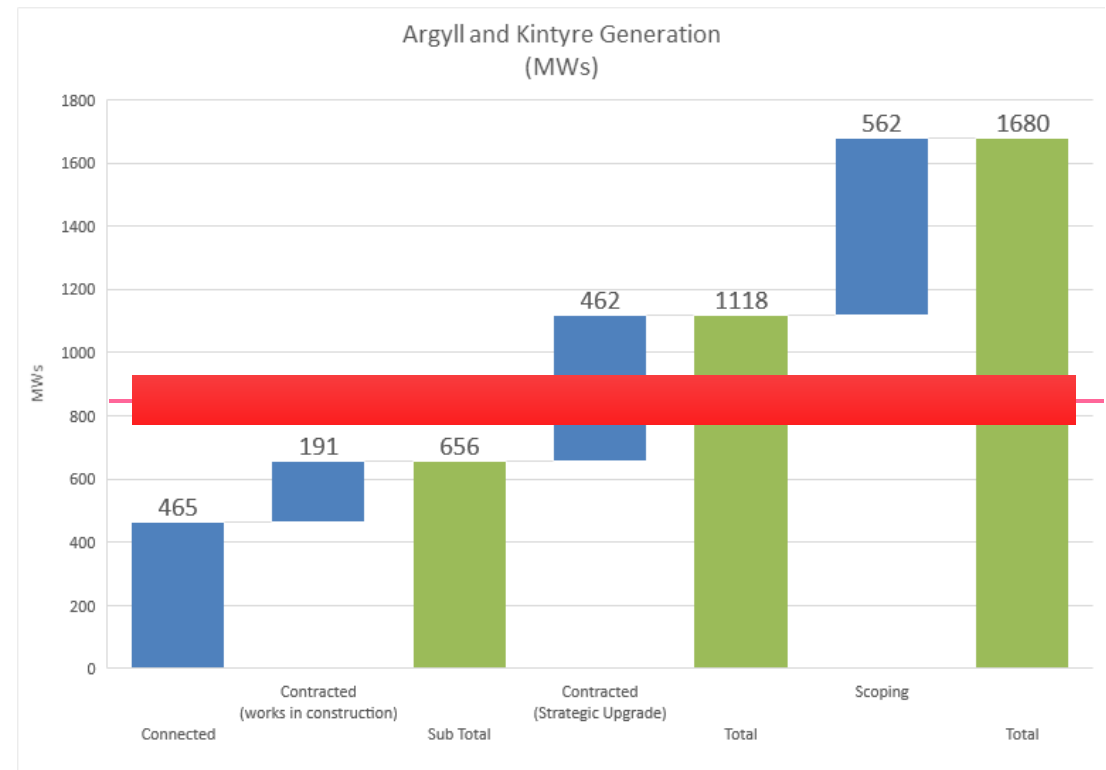
# Argyll and Kintyre – Background



# Argyll and Kintyre – Need for Reinforcement

The need for further reinforcement beyond that already under construction is being driven by new renewable generation, predominantly onshore wind

- Generation in the area has fluctuated since 2015 due the renewable energy subsidies available and then the subsequent removal for new projects in 2017
- The renewed push for renewable energy has seen a significant and sustained increase in applications and scoping generation in the past 12-18 months
- Onshore wind will be eligible to bid into the next CfD auction and offers a route to market for consented and contracted schemes
- Capacity of existing Transmission network is insufficient to accommodate increased generation seeking connection, and reinforcement is required to develop a network for net zero



Contract for Difference (CfD)- current UK government support for delivery of low carbon electricity generation

# Argyll and Kintyre – 275kV Scheme Scope

Options considered to increase the capacity of the line in order to accommodate new wind farm connections

In refreshing the options assessment, various permutations were put forward for review:

- Subsea cable options from Crossaig across the Firth of Clyde into Scottish Power's network area
- A subsea cable option from Carradale with a rebuild of the Overhead Line between Crossaig and Carradale
- Construction of new substations at Inveraray, Clachan and Inverarnan and new Overhead Line via Sloy

These options contain elements of works contained within the current preferred option



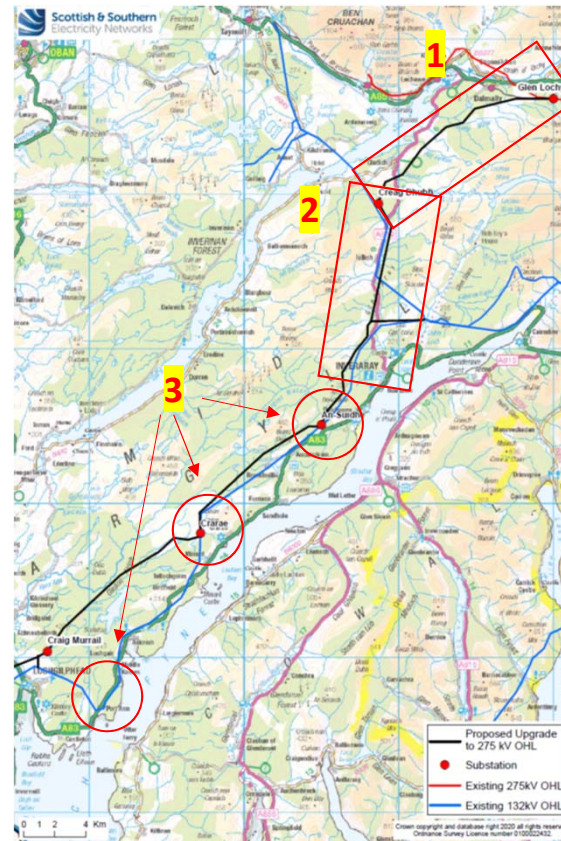
# Argyll and Kintyre – 275kV Scheme Scope

## Preferred Option

1. Establishing a new substation at Creag Dhuhb and new switching station at Glen Lochy, connected by c. 14km of new Overhead Line
2. c.10km of new Overhead Line between Creag Dhuhb and a tee point on the existing Inveraray-Crossaig Circuits
3. Upgrade of An Suidhe, Crarae and Port Ann substations
4. Construction of the Craig Murrail substation
5. Construction of a new substation in the vicinity of the existing Crossaig substation

## Customer Connections

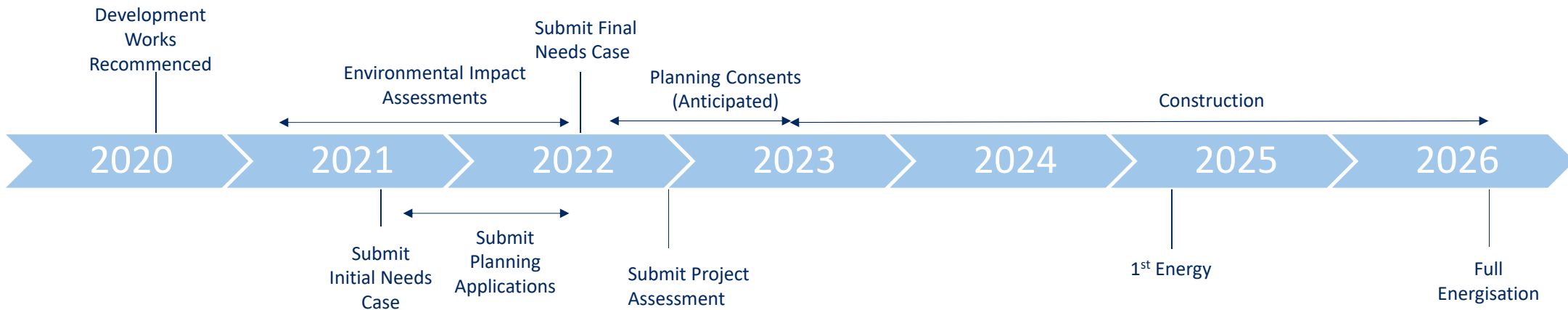
Additional Overhead Line infrastructure and substations are to be constructed to connect wind generation along the route



# Argyll Strategy - Opportunities and Challenges

Opportunities	Challenges
<p>Contribution to the progress of Net Zero and Renewable Energy Targets through increasing the volume of renewable generation within Scotland through connection of wind farms</p>	<p>Certainty of generation which provides our drivers for the works can be subject to various factors outside the control of SSEN Transmission. This may include generators being at different stages in the connection process, Contract for Difference rounds, etc</p>
<p>Provide significant employment and economic opportunities within the Argyll Region and increase SSEN Transmission's requirement for operatives in this area; supporting a green economic recovery from coronavirus pandemic</p>	<p>Aligning provision of key deliverables and regulatory funding approvals and timelines, including planning submissions, consents and securing land can be complex across a project of this scale and can impact on programme</p>
<p>Develop good relationships with all stakeholders as SSEN Transmission progress the scheme</p>	<p>Balancing the interests of all stakeholders to achieve the correct outcomes during development and construction of the scheme</p>
<p>Provide opportunities for the local supply chain to support the construction and operation of the Transmission Infrastructure</p>	<p>Working across the varied terrain in Argyll and Kintyre and managing the construction of new infrastructure whilst maintaining the integrity of existing assets in the interim</p>

# Argyll 275kV Strategy Key Dates



Key upcoming activities include-

- Public consultation events during Spring/Summer 2021
- Submission of Initial Needs Case to Ofgem in Autumn 2021

# Cost Benefit Analysis Overview

Cameron Dobbie, Economist

# Network Investments & Long Term Goals

- Overriding concept of network investment is to **create value and benefit**
- Value is multifaceted and requires an appreciation of the stakeholders involved
- All moving to the same future; a low carbon energy network based on renewables; how can we do this in a way that creates value for all?
- SSEN Transmission committed to enabling net zero through our network investments





# How do we get there?



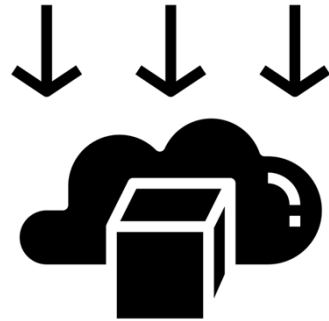
- Analysing the needs of our customers and the needs of the network (load & non-load)
- Plan strategic investments based on the creation of long term benefit
- Using analytical tools to determine the landscape of costs and benefits associated with network investments
- Building stakeholder partnerships to understand network dependencies and opportunities to create shared value

# Cost Benefit Analysis



## 1. Options Profiling

- Investment options gathered and proposed
- Wide range of qualitative and quantitative variables considered



## 2. Data Mapping

- Cost data gathered (CAPEX, OPEX)
- Benefit data gathered (constraint costs avoided, carbon displaced)
- 45 year time horizon



## 3. CBA Calculation

- Data inputted to Ofgem CBA template
- NPVs calculated
- Sensitivity on uncertainty; generation scenarios



## 4. Option Ranking

- CBA calculations used to reveal high performing options
- Analysis documented and presented to Ofgem for discussion to review preferred option

# Stakeholder Views

- Generation landscape a key driver for network investments in Argyll & Bute
- Stakeholder consultation critical to build generation picture
- Partnership building given our co-dependency to build towards net zero
- Share our plans for building our Business Needs Case and hold discussions
- Understand the wider benefits generators are creating in the region



# Summary



- Balance short term certain generation against longer term 'what-ifs'
- Demonstrate strategies at regional and network level by working with the ESO
- SSEN Transmission work with Ofgem to demonstrate most valuable option for investment
- Building accurate generation scenarios strengthens the validity of CBA results
- Investing in a network for net zero

# Questionnaire Overview

Saf Akram, Commercial Contracts Manager

# Questionnaire Overview

- A link to the questionnaire will be sent to all attendees following today's session
- We kindly request that all questionnaires are submitted by: **Friday 9<sup>th</sup> April**
- For any questions regarding the questionnaire, please email: [transmission.commercial@sse.com](mailto:transmission.commercial@sse.com)

PROJECT DETAILS

1. Full Name \*

2. Organisation and Job Title \*

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)

# 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:

**Go to: [www.slido.com](http://www.slido.com)**

**Enter code: #Argyll**



# Thank you

If you have further questions please contact:  
[transmission.stakeholder.engagement@sse.com](mailto:transmission.stakeholder.engagement@sse.com)



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