Sheirdrim Wind Farm Connection - Alignment Consultation

September to October 2022

Share your views with us:

We are launching public consultations to seek feedback on the alignment options on Sheirdrim wind farm connection project in Argyll and Bute:

Information on our proposals is available within this consultation booklet and on the project webpage **https://bit.ly/3RjH9hX**

Scottish & Southern Electricity Networks

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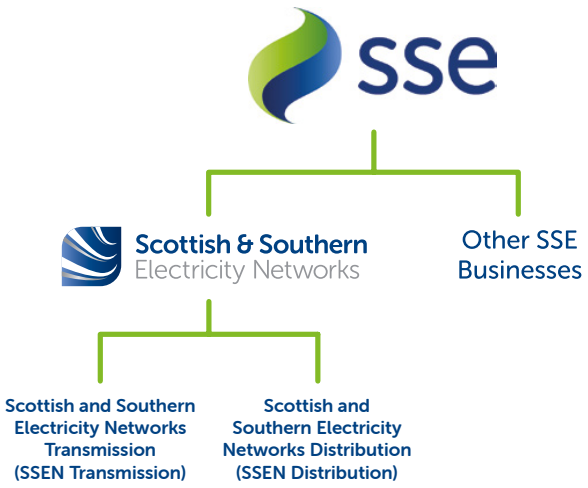
Who we are

We are Scottish and Southern Electricity Networks Transmission (SSEN Transmission), operating under licence as Scottish Hydro Electric Transmission Plc (SHE Transmission) for the transmission of electricity in the north of Scotland.



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.

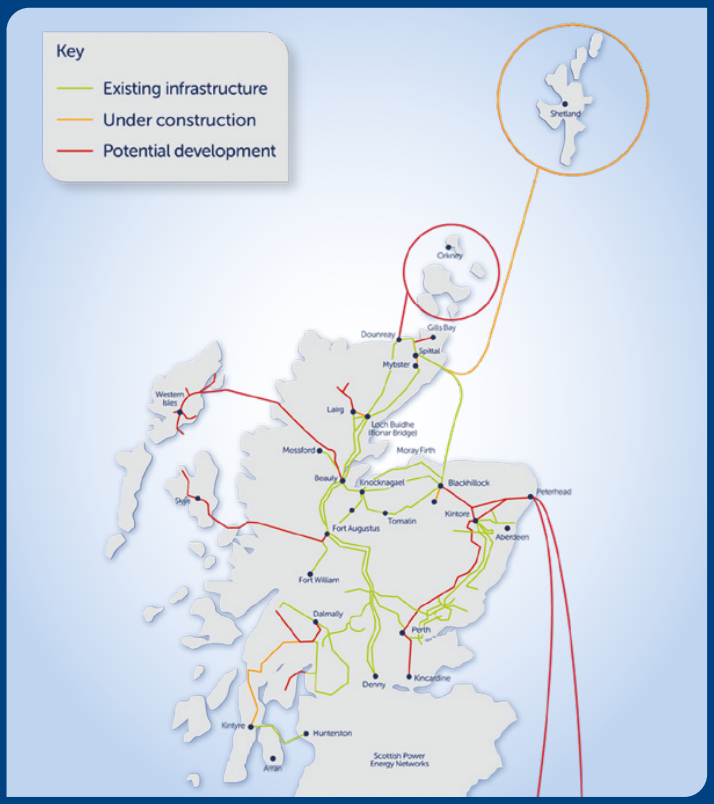
What is the difference between transmission and distribution?

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.

Overview of transmission projects



About the project

Scottish Power (UK) Ltd is the developer for the proposed Sheirdrim Wind Farm located west of Claonaig, in Argyll. The 84MW wind farm requires a single circuit connection from the wind farm substation compound and terminating at the existing Crossiag 132kV substation. The connection will consist of approximately 3km of underground cable (UGC) which will transition to approximately 8.5km of overhead line (OHL) before transitioning back to UGC for approximately 1.0km.

SSEN Transmission seeks to connect Sheirdrim Wind Farm to the wider electricity network. The substation platform would be the responsibility of Scottish Power (UK) Ltd as the wind farm developer.

The proposed project would involve:

- An underground cable (UGC) from the Sheirdrim Wind Farm substation compound, extending approximately 2km to 3km before converting to OHL and converting back to UGC when approaching Crossaig substation. This would require excavation of a trench in which to lay the cable and the construction of joint bays.
- Approximately 8.5km of trident wood poles to carry a single circuit 132kV OHL. Wood poles would require excavation and backfilling. Where shallow bedrock is present, it may be necessary to break or remove rock to accommodate pole foundations.
- Install a 120MVA 132/33kV transformer; a GIS 33kV transformer circuit breaker; and a 33kV switch disconnector on suitable level platforms inside a combined control and transformer building; along with their associated cabling/metering/protection equipment.
- Felling commercial forestry to create an operational corridor to enable the safe operation and maintenance of the OHL.
- Associated works will include creation of temporary laydown areas for materials and welfare facilities, installation of permanent and temporary access tracks and drainage infrastructure.
- Remedial works to reinstate the immediate vicinity of the works and any ground disturbed, to pre-existing use.

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Project history – previous consultation

In December 2021 and January 2022 we consulted on the route options for the proposed development (see Figure 1). Following analysis of the consultation feedback, along with engineering, environmental and cost considerations, and further discussions with landowners and unexploded ordnance (UXO) specialists, it was identified that our preferred route, Route A, was not suitable. Route A passes through an area that poses a high risk from unexploded ordinance (UXO).

SSEN undertook a range of surveys over spring and summer of 2022 to identify UXO risk for the proposed development.

This work has now been completed and allowed the recent publication of the Report on Consultation (RoC). The RoC identified a new preferred route option, Route C. In combination with other consultation feedback, Route C is considered the least constrained from an environmental, engineering, and cost perspective and avoids the area of high UXO risk.

Route C has been taken forward as the proposed route option. The project has then moved into the alignment stage where we determine the proposed alignment of the OHL within the proposed route option.

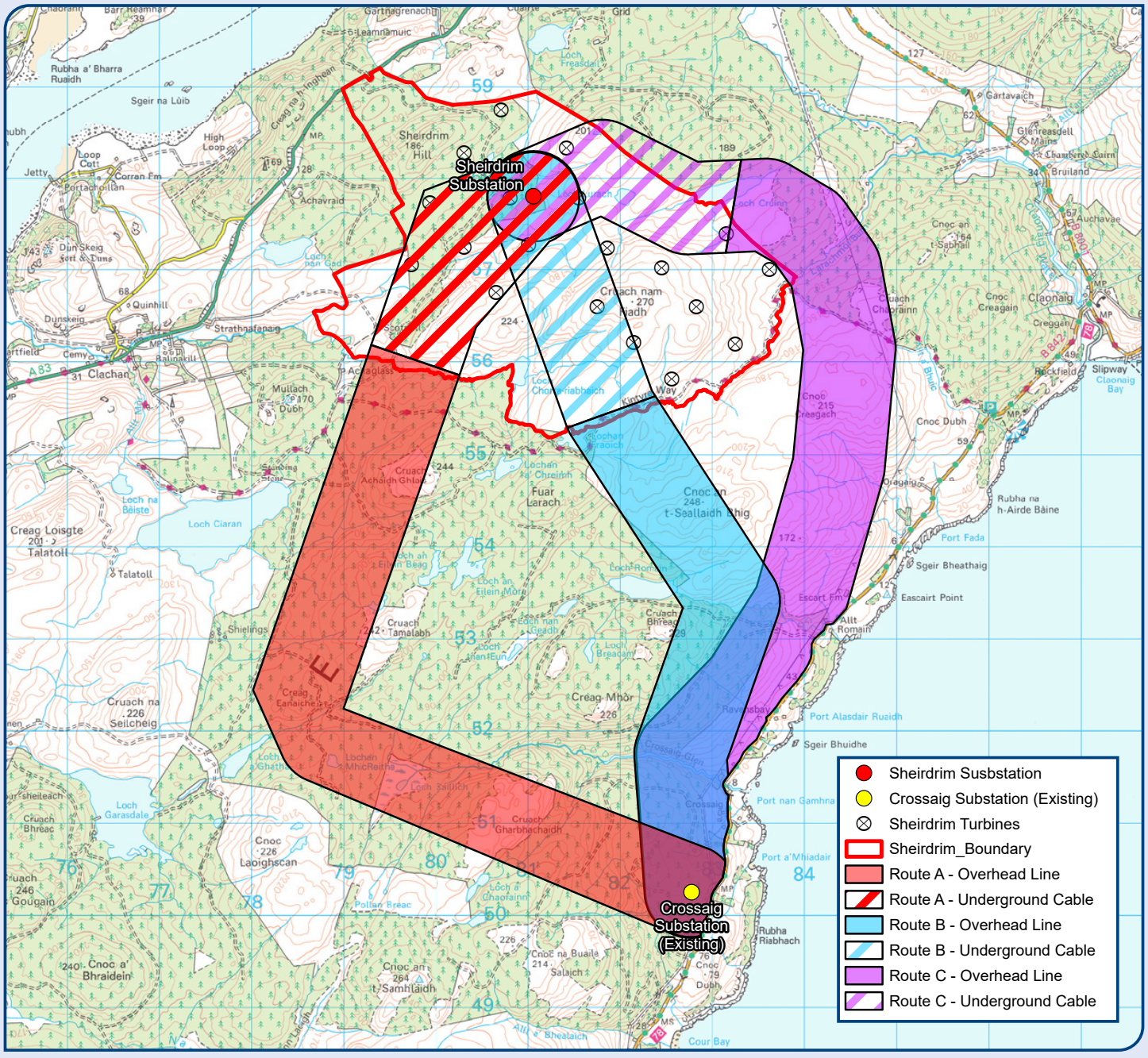

Figure 1: Route options

This consultation

OHL routing is a balance between environmental, engineering and cost considerations, with stakeholder and public consultation comprising a key element of this process.

This project is at the alignment optioneering stage of development, and we are consulting with local stakeholders to provide an update on our proposals and to share considered alignment options and the preferred alignment. We have identified a preferred alignment on which we are keen to hear your views.

After receiving feedback from this consultation and carrying out further survey work and analysis to help us refine our proposals we will confirm the preferred alignment and take this forward to consenting as a Proposed Alignment, undertaking an Environmental Impact Assessment to support our eventual consent application.

Most of the alignment options fall within Route Option C. Please note that we have offered alignment options that fall, in short sections, out with the boundary of Route C.

This is due to the additional investigation work undertaken following the routeing consultation, which resulted in minor changes to where alignments could be accommodated within Route C (see Figure 2).

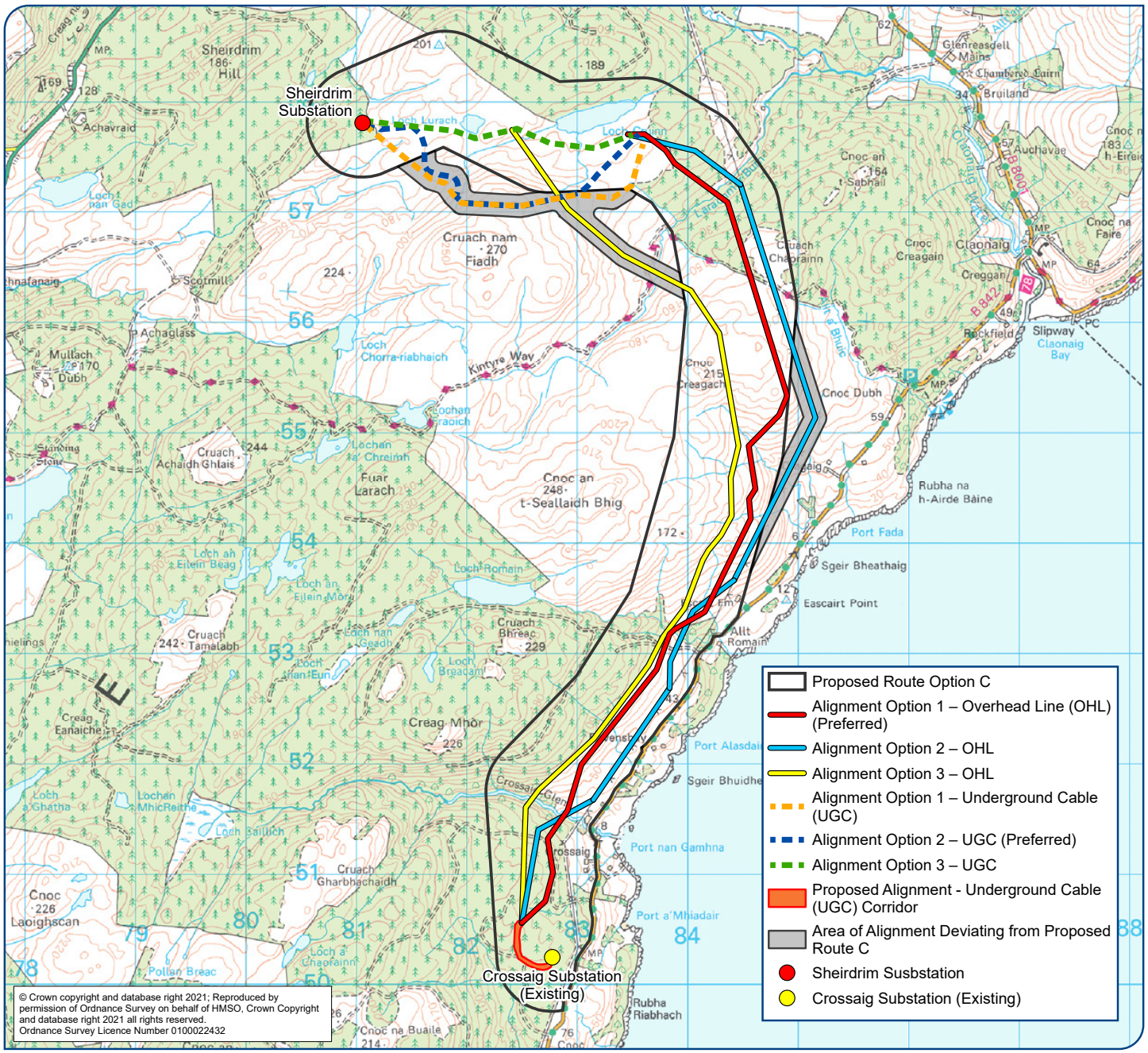

Figure 2: Alignment options - sections out with Route C

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Alignment – selection process

The OHL design contractor was instructed by SSEN Transmission to develop a baseline alignment for a 132kV OHL. The baseline alignment aims to provide the optimal alignment taking account of environment and engineering criteria. Following the identification of the baseline alignment (option 1), alternative alignments are suggested (options 2 and 3). The following options were suggested to address environment and engineering issues and previous consultation (see Figure 3 Alignment Options)

Option 1 (baseline – preferred alignment)

Extends from Sheirdrim wind farm substation comprising UGC for approximately 2.5km.

The OHL section is approximately 8.6km in length and heads south east passing to the south of Loch Cruinn and through a section of commercial forest.

It then runs parallel to the new Inveraray to Crossaig 275kV OHL, which is currently being constructed.

At Cnoc Dhubh, option 1 turns to the southwest to avoid steeper gradients and slopes and runs parallel with the new 275kV OHL and the B842 road. The OHL terminates approx. 1km from the existing Crossaig substation, where it will become UGC to connect into the substation.

Option 2 (alternative alignment)

Extends from Sheirdrim wind farm substation comprising UGC for approximately 2.5km.

The OHL section is approximately 8.8km in length and heads in a more easterly direction through a commercial forestry area. Option 2 follows the existing 132kV OHL for approximately 2km.

At Cnoc Dhubh, option 2 turns to the southwest to avoid steeper gradients and slopes and runs along the corridor of the existing 132kV OHL and the B842 road. The OHL terminates approx. 1km from the existing Crossaig substation, where it will become UGC to connect into the substation.

To note: the existing 132kv OHL will be dismantled as part of the Inveraray to Crossaig OHL project currently in construction, leaving an existing cleared corridor in which the proposed development could occupy.

Option 3 (alternative alignment)

Extends from Sheirdrim wind farm substation comprising UGC for approximately 1.5km. Alignment option 3 is approximately 8.5km of OHL and is the shortest alignment of the three options.

This option offers the potential for a shorter UGC section. The alignment heads south between Cnoc Creagach and Capull Cruidah avoiding steep slopes and high ground, then traverses across the slope towards Escart Farm. The alignment then picks up the edge of a large commercial forest boundary and then crosses Crossaig Glen.

The OHL terminates approx. 1km from the existing Crossaig substation, where it will become UGC to connect into the substation.

Cable options

Three cable options are presented that extend from Sheirdrim wind farm to pass through the area of proposed turbines before converting to OHL. All the cable options could connect to each of the proposed OHL alignment options.

What are the potential risks associated with these options?
We have completed a desk-based assessment of the alignment and have identified that they present the following environmental and engineering risks (see overleaf).

Alignment options map

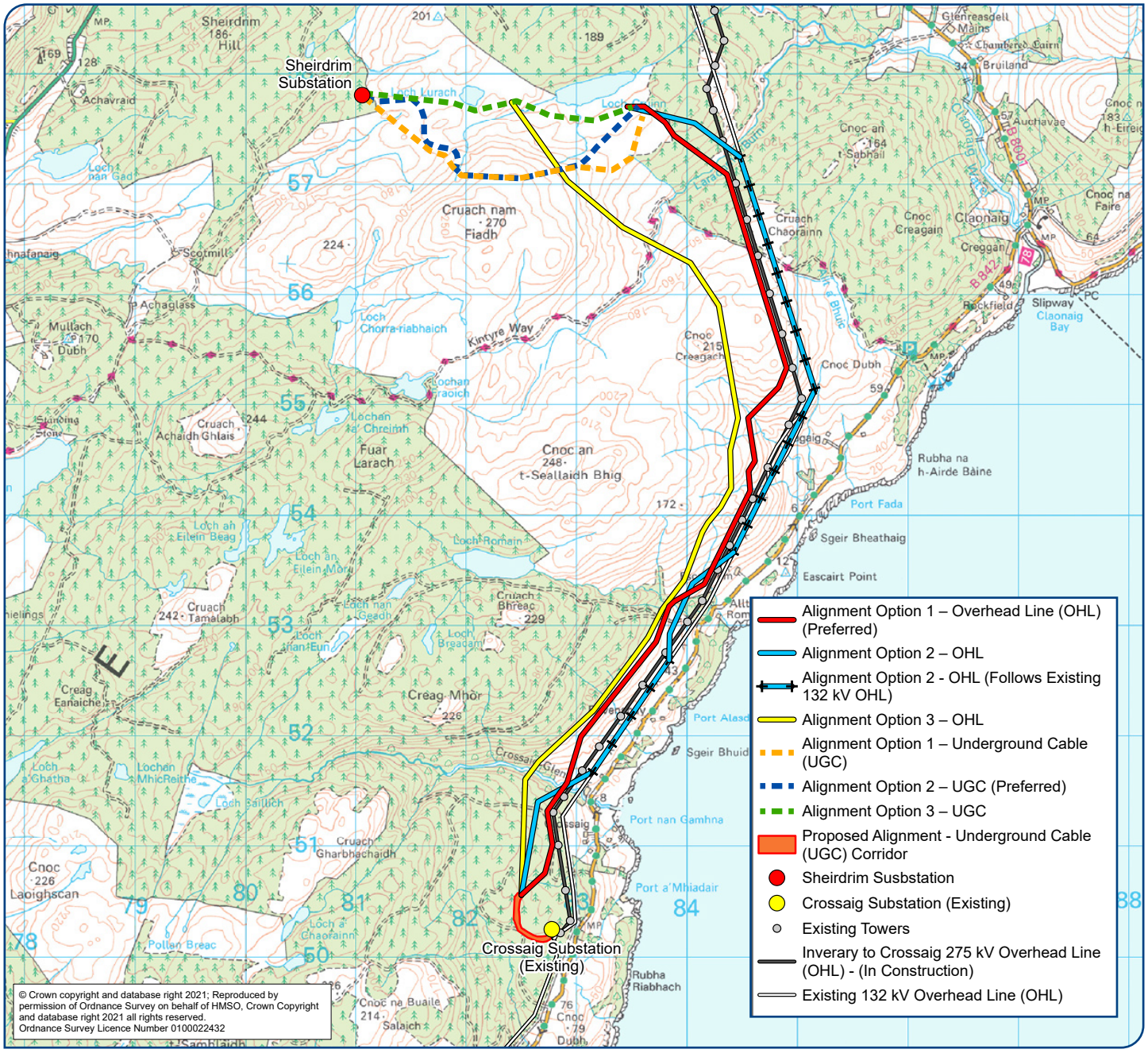

Figure 3: Alignment options

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Environmental information

Analysis of environmental constraints has identified sensitivities in relation to the environmental topics identified in the RAG table (see page 10). The three alignments are all within approximately 1km of each other and share many of the same environmental sensitivities. These include:

- Proximity to Kintyre Goose Roosts special protection area (SPA)) and Sound of Gigha SPA and potential for barrier and collision impacts to schedule 1 species, as they may cross the alignments to access these designated sites.
- Proximity to known golden eagle nest locations and potential for collision impacts.
- Direct impacts on areas of annex 1 habitat including blanket bog and peat.
- Commercial forestry that would need to be felled to create a clear space for operation of the overhead line and access tracks.
- Crossing over the Kintyre Way Long Distance Footpath, with potential for close range visual effects for a short section.
- Potential for direct impacts to semi natural ancien woodland.
- Proximity to known private water supplies.

Differences between the environmental sensitivities of the alignment options are identified below.

- Option 3 passes through a larger extent of class 1 peatland than other options resulting an increased potential for direct impact on annex 1 habitat.
- Options 1 and 2 would pass through existing gaps in the semi natural ancient woodland at Crossaig and Allt Romain, which would minimise direct impacts on this irreplaceable habitat.
- Option 2 uses the existing alignment of the existing 132kV Crossaig to Inveraray OHL which is to be dismantled. Replacing one OHL with a new OHL on the same alignment would result in a lower potential impact on landscape and visual receptors.
- Option 2 uses the existing alignment of the Crossaig to Inveraray overhead line which is to be dismantled. Replacing one OHL with a new OHL would result in a lower potential for impact on ornithological receptors on account of habituation to the existing OHL.
- Option 2 passes within approximately 120 – 160m of three residential properties, this is closer than the other 2 options.
- Option 2 passes closer to known private water supplies with greater potential for impact on water flow /quality.

Engineering information - OHL

Peatland is considered high in the RAG table for all alignments due to the corridor coverage and available data sets. At micrositing stage the risk be fully determined at all wood pole sites. Whilst all options would require tree removal from commercial and ancient woodland sites, Option 1 causes the least impact on both these woodland types. Option 2 would cross the new Inveraray to Crossaig 275 kV OHL four times (see Figure 3), a significant design and health and safety consideration. Option 3 passes within proposed turbine wake zones through the proposed Sheirdrim Wind Farm.

OHL alignment Option 1 is preferred from a technical perspective, on account of:

- **No major infrastructure crossings, the ability to utilise the proposed new permanent accesses and accommodation works associated with the in construction Inveraray to Crossaig 275 kV OHL.**
- **It remains outside any existing or proposed turbine wake zones.**
- **It involves the least woodland removal of all alignments.**

Engineering information - UGC
Unknown ground conditions are currently a factor for all cable options including steep topography and water crossings. The aim of the alignment options is to mitigate the issues where possible by utilising planned access tracks which will be installed as part of the wind farm works or alternatively routeing the cable through more even terrain sections, where possible.

UGC Options 1 and 2 score similarly in the Engineering RAG assessment. Option 2 is considered marginally preferable to Option 1, as it adheres more closely to the proposed access tracks associated with the Sheirdrim Wind Farm allowing better and marginally less constrained access.

Crossaig Substation UGC Connection
An indicative alignment is shown for this section of UGC (Figure 3). This alignment interfaces with the proposed Crossaig North Substation and the existing Crossaig Substation and its technical development is dependent on the design of the proposed new Crossaig North Substation, which is underway.

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Environment RAG impact rating of all alignment options

Comparative analysis of alignment options

To demonstrate the full extent of comparative analysis undertaken for each alignment option, we created Red/Amber/ Green (RAG) tables which illustrate the level of associated impact for each criterion under environment, engineering and cost. A high impact is shown as red, a medium impact is shown as amber, and a low impact is shown as green. For further information on the alignment options analysis, please refer to the Consultation Document available from the project **https://bit.ly/3RjH9hX** or on request.

RAG impact rating - environment - OHL

OHL Alignment	Natural heritage					Cultural heritage		People	Landscape			Land use			Planning	
	Designations	Protected species	Habitats	Hydrology/ geology	Ornithology	Designations	Assets	Proximity to dwellings	Designations	Character	Visual	Agriculture	Forestry	Recreation	Proposals	Policy
1	H	L	H	L	M	M	M	L	M	M	M	L	M	M	L	M
2	H	L	H	L	M	M	M	L	M	M	M	L	M	M	L	M
3	H	L	H	L	M	M	M	L	M	M	M	L	M	M	L	M

RAG impact rating - environment - UGC

UGC Alignment	Natural heritage					Cultural heritage		People	Landscape			Land use			Planning	
	Designations	Protected species	Habitats	Ornithology	Hydrology/ geology	Designations	Assets	Proximity to dwellings	Designations	Character	Visual	Agriculture	Forestry	Recreation	Proposals	Policy
1	L	L	M	L	L	N	L	L	L	L	L	L	N	L	L	L
2	L	L	M	L	L	N	L	L	L	L	L	L	N	L	L	L
3	L	L	M	L	L	N	L	L	L	L	L	L	N	L	L	L
Crossaig Substation Connection	L	L	L	L	L	N	L	L	L	L	L	N	M	L	L	L

Engineering RAG impact rating of all alignment options

RAG impact rating - engineering - OHL

Option	1	2	3
Infrastructure Crossing			
Major Crossings	L	H	L
Minor Roads	I	H	L
Environmental Design			
Elevation	L	L	L
Atmospheric Pollution	L	L	L
Contaminated Land	L	L	L
Flooding	L	L	L
Ground Condition			
Terrain	I	I	I
Peatland	H	H	H
Construction and Maintenance			
Access	L	L	I
Angle Towers	H	L	H
Proximity			
Clearance Distance	I	H	L
Windfarms	H	H	H
Communication Masts	L	L	L
Urban Developments	L	L	L
Metallic Pipes	L	L	L

RAG impact rating - engineering - UGC

Route	A	B	C
Infrastructure Crossing			
Major Crossings	L	L	L
Minor Roads	L	L	L
Environmental Design			
Elevation	H	H	L
Contaminated Land	L	L	L
Ground Condition			
Terrain	L	L	L
Peatland	H	H	H
Construction and Maintenance			
Access	L	L	H
Cable Haul Road	I	I	H
Proximity			
Clearance Distance	L	L	L
Windfarms	H	H	H
Communication Masts	L	L	L
Design			
Joint bays & Link Boxes	L	L	L
Additional Considerations			
Route Length	L	L	L

Cost RAG impact rating of all alignment options

There is no preferred OHL alignment from a cost perspective as all costs are comparable with no alignment cost varying significantly to indicate an overall preference. Overall, preferred UGC alignment from a cost perspective is alignment option 3 because it is the lowest cost option. However this will be assessed in line with Engineering and Environmental aspects.

RAG Impact Rating - Cost - OHL

Alignment	1	2	3
Capital	103%	105%	G
Diversions	G	G	G
Public road improvement	G	G	G
Tree falling	H	H	H
Land assembly	G	G	G
Consent mitigations	A	A	A
inspections	A	G	G
Maintenance	A	G	G
Total cost	103%	105%	G

RAG Impact Rating - Cost - UGC

Alignment	1	2	3
Capital	126%	129%	G
Diversions	G	G	G
Public road improvement	G	G	G
Tree falling	G	G	G
Land assembly	G	G	G
Consent mitigations	G	G	G
inspections	A	A	A
Maintenance	A	A	A
Total cost	126%	129%	G

Preferred alignment

The aim of our routing process is to provide a balanced assessment of environment, engineering and cost factors in order to select the Preferred alignment for the new OHL.

The Preferred OHL alignment is Option 1. This would not cross under the new Inveraray to Crossaig OHL and is outside of wind turbine wake zones. This option can use existing access tracks, for a large part of the route and runs along the edge of an existing wayleave, meaning removal of Ancient Woodland can be avoided and minimised. All options will affect Annex 1 peatland and Blanket Bog habitat.

Commitment will be made to avoid and reduce peat impacts through a detailed Peat Management Plan (PMP) with measures including micro siting and use of temporary, floating access tracks to avoid excavating peat.

The preferred UGC alignment is Option 2 as this option offers the greatest opportunity to reduce permanent impacts to peat through using wind farm access tracks and UGC installation in peat already disturbed through track creation.

For the OHL there are no significant differences in the overall costs such that it would influence the rationales provided for the preferred alignments. Option 2 UGC is the more expensive option, however, environmental and engineering benefits are considered to outweigh the cost.

What else is happening in Argyll?

Development projects

Creag Dhubh to Inveraray 275kV overhead line

This project involves constructing nearly 9km of new 275kV overhead line (OHL), supported by steel lattice towers, between the proposed new substation at Creag Dhubh and a connection point at tower 18 on the recently constructed Inveraray to Crossaig overhead line. The new line will be operated at 275kV once the associated transmission network in the Argyll and Kintyre region has been upgraded to 275kV capability. This will be done one circuit at a time over the summer of 2026 into spring 2027.

Creag Dhubh to Dalmally 275kV connection

We continue to engage with the community in Dalmally regarding the alignment which has been taken forward in our Section 37 Application for the Creag Dhubh to Dalmally 275kV Connection.

We anticipate a decision on the application in summer 2023. If consented, we foresee construction commencing early 2024.

Argyll and Kintyre 275kV substations – An Suidhe, Crarae, Craig Murrail and Crossaig North

We sought feedback from the public in our pre-application consultation events for the Argyll and Kintyre substations in December 2021 - January 2022.

SSEN Transmission intends to submit the planning and Section 37 applications for these four substations in Autumn 2022 with construction anticipated to commence in summer 2024 if the planning applications are successful.

Other projects in the area

Sloy Power Station substation rebuild

Transmission assets at Sloy Power Station substation are reaching the end of their operational capabilities and need to be replaced. This project includes construction of a new substation near the existing site, tower and gantry works for connection to the existing overhead line, 11kV cables to be installed to connect back to the power station from the new substation location and removal of existing equipment at the existing substation. The project team are currently identifying potential locations and further information will be shared at future consultation events.

Dunoon overhead line rebuild

The Dunoon overhead line rebuild project is to replace the existing transmission overhead line which connects Dunoon to the wider national grid.

The existing overhead line is supported by an old design suite of steel lattice towers (often referred to as pylons) which are coming towards the end of their operational capabilities.The project is currently in development and following consultation on the preferred route alignment in August 2021, SSEN Transmission plan to submit a Section 37 application for this project in February 2023,

Glen Falloch and Sloy VISTA

As part of the SSEN Transmission VISTA (Visual Impact of Scottish Transmission Assets) initiative, we have installed a 132kV twin cable section of the existing 132kV double overhead line circuit at Sloy and Glen Falloch. Construction commenced in 2021 and 26 steel towers have now been removed.

Wind farm connection projects

The Argyll and Kintyre 275kV Strategy is required to facilitate renewable generation in Argyll. We also have a requirement to connect this renewable generation to our upgraded infrastructure.

Blarghour wind farm

This project aims to connect the consented Blarghour wind farm to the proposed Creag Dhubh substation via approximately 10km of overhead line by spring 2026.

High Constellation wind farm connection

This project aims to connect High Constellation wind farm to the existing Crossaig substation via approximately 400m of underground cable by spring 2025

Earraghail Wind Farm

The project aims to connect the Earraghail Wind Farm development via c.5.4km of 275kV double circuit overhead line onto the existing Craig Murrail – Crossaig overhead line for Spring 2027.

Tangy IV Wind Farm

The project aims to connect the Tangy IV Wind Farm development via approximately c.19.5km of 132kV single circuit overhead line onto the existing Crossaig Carradale overhead line for Spring 2027.

Construction projects

Inveraray – Crossaig reinforcement

This project involves the rebuild of the existing overhead line between Inveraray and Crossaig and has been in construction since late 2019.

Construction of phase 1 of the project (Inveraray to Port Ann) was completed in March 2022, and construction of phase 2 commenced in autumn 2021.

Carradale substation

The aim of this project is to reinforce Carradale substation in order to enable renewable generation connection requests.

This involves the replacement of four existing transformers with higher capacity unity to enable this upgraded connection. Work is ongoing and due to be completed by the end of 2022.

Each of our projects are ultimately given their own dedicated project website.

This is where you will find regular, more specific updates regarding the latest news and timelines relating to the individual projects works.

To view the complete list of projects with websites please use the following URL:
https://bit.ly/3MShRoN

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How do I have my say?

We understand and recognise the value of the feedback provided by members of the public during all engagements, consultations and events. Without this valuable feedback, the project development team would be unable to progress projects and reach a balanced proposal to submit for planning.

Join our face to face and virtual consultation events

Our consultation events have been organised to ensure our project teams will be available to answer questions on the following dates and times.

These will be held at location:

Tuesday 27th September 2022 Skipness Village Hall PA29 6XT – 2pm till 7pm

Wednesday 28th September 2022 Whitehouse Village Hall, Tarbert A29 6XR – 2pm till 7pm

We will also hold a virtual consultation on:

Thursday 6th October 5pm till 7pm

During this session you will be able to send us your questions using a live instant message chat and they will be answered by the project team.

The feedback form in this booklet can be detached and sent back, or you can fill it in online using the forms on the project webpage. We do request that any feedback that you wish to be included in the Report on Consultation is received in written format (feedback received via phone calls will be circulated to the project team but would not be included in reporting).

All feedback received will be collated, reviewed and included in the Report on Consultation which will be published on the project webpage. Can you please ensure all feedback is submitted by Tuesday 18th October 2022.

Recite me

To support everyone online, we provide accessibility and language options on our website through 'Recite Me'. The accessibility and language support options provided by 'Recite Me' include text-to-speech functionality, fully customisable styling features, reading aids, and a translation tool with over 100 languages, including 35 text-to-speech.

Please select "Accessibility" on our website to try out our inclusive toolbar."

Keep in touch

In you have any questions of require further information regarding any of these projects, please do not hesitate to contact the Community Liaison Manager:

Caitlin Quinn Community Liaison Manager

caitlin.quinn@sse.com

M: +44(0)7901 135758

Scottish and Southern Electricity Networks,
1 Waterloo St,
Glasgow, G2 6AY

If you are unable to join the face to face and virtual consultation live chat sessions, there are still plenty of ways to engage with our team:

- You can contact us by email, phone or post. Please see details for the Community Liaison Manager.
- We are happy to arrange (virtual) meetings for individuals or small groups to discuss any areas of interest and if this is something you would like us to facilitate, please contact us as soon as possible.
- We are happy to post copies of this brochure, please contact the Community Liaison Manager to arrange this.
- Copies of this brochure can be made available in larger print if required.

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Your feedback

If you prefer, the same feedback form is available to complete online and can be found on the project webpage:
https://bit.ly/3RjH9hX
Please complete in **BLOCK CAPITALS**.

Q1 **Has the need for the project been adequately explained? What other information would you consider useful at this stage?**

Yes ☐ No ☐ If no, please tell us how we could provide further explanation

Q2 **Has the approach taken to select the preferred alignment been adequately explained?**

Yes ☐ No ☐ If no, please tell us how we could provide further explanation

Q3 **Are there any factors, or environmental features, that you consider may have been overlooked during the preferred alignment selection process?**

Q4 **Do you feel, on balance, that the preferred alignment selected is the most appropriate for further consideration? Please provide an explanation of your answer.**

Q5 **If you don't agree to our preferred alignment which of the options would you consider the best option for SSEN Transmission to develop? Please provide an explanation of your answer.**

Q6 **Please use this box to provide any other feedback.**

Full name

Address

Telephone

Email

If you would like to be kept informed of progress on the project please tick this box.

If you would like your comments to remain anonymous please tick this box.

Thank you for taking the time to complete this feedback form.

Please submit your completed form by one of the methods below:

Post: Scottish and Southern Electricity Networks, 1 Waterloo St, Glasgow, G2 6AY

Email: caitlin.quinn@sse.com