

Red John Pump Storage Scheme 275kV Connection

Public Consultation Event

April 2022



Scottish & Southern
Electricity Networks

TRANSMISSION

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.

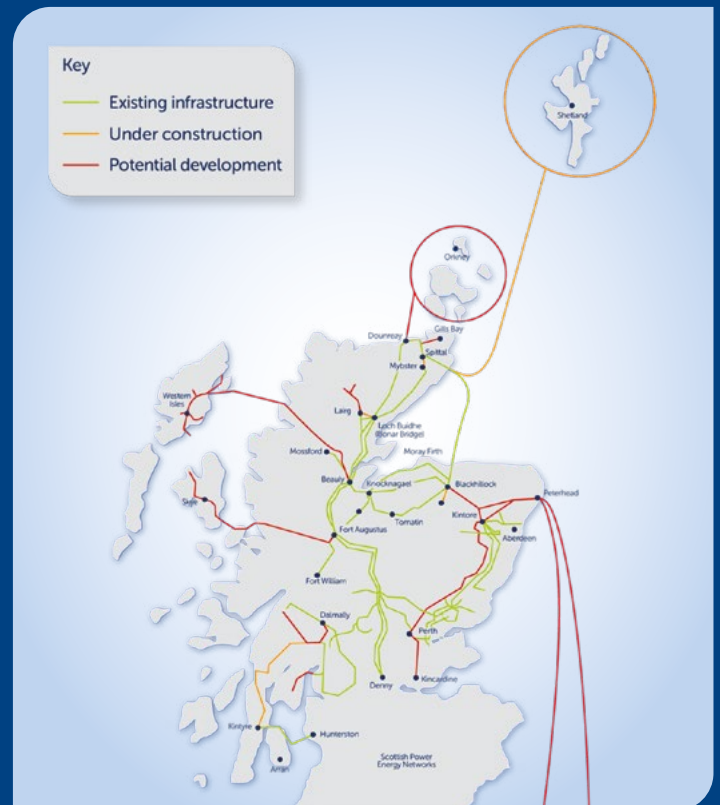
What is the difference between transmission and distribution?

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



Project need and overview

Project need

SSEN Transmission are required to provide a connection to the consented Red John Pumped Storage Hydro (PSH) Scheme (450 Megawatts (MW)) near Dores, Highlands approximately 14km south-west of Inverness.

Under our Network Operators Licence we are required to deliver the connection in a technically efficient, co-ordinated and economic manner, whilst having the least practicable impact on people and the environment. The connection for Red John is to be provided at 275 Kilovolts (kV) (275,000 volts) and is currently proposed to be via Underground Cable (UGC).

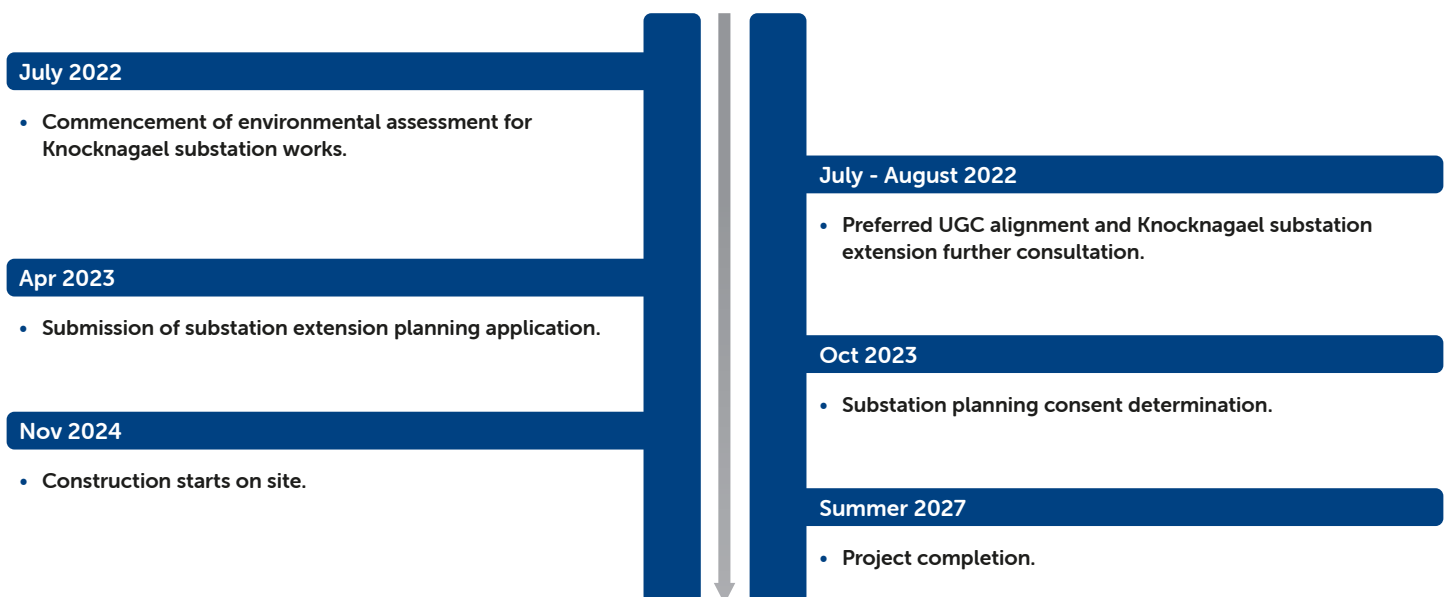
The UGC will connect to the main transmission network at the Knocknagael 275kV substation. In order to facilitate this connection an extension is required to the existing Knocknagael substation platform to accommodate the additional electrical equipment required. At the Red John end of the UGC a new switching station will be constructed within the Red John PSH site.

Project overview

Red John PSH Connection Works Include:

- Construction of a new 4-bay 275kV Indoor Gas Insulated Substation (GIS) Switching Station at the Red John PSH Scheme
- Installation of 9km of 275kV underground cabling between Red John PSH Scheme and Knocknagael Substation
- An extension to the existing Knocknagael Substation platform to allow for the extension of the existing Knocknagael 275kV Air Insulated Substation (AIS) double busbar to connect the new circuits from the Red John 275kV Switching Station.

Project timeline



Our underground cable routeing and design process

SSEN Transmission has developed and implemented formal Guidance for the selection of routes and alignments for its new Underground Cable (UGC).

The main aim of the Guidance is to provide a consistent approach to the selection of new UGC alignments and is underpinned by our statutory obligations to: 'Develop and maintain an efficient, coordinated and economical electricity transmission system in its licenced area' and in so doing, to 'have regard to the desirability of preserving the natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and protecting sites, buildings and objects of architectural, historic or archaeological interest; and do what we reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites buildings or objects.'

These duties capture the principal objective of the routeing process which is to balance technical and cost considerations

with environmental considerations, to select a proposed alignment which is economically viable, technically feasible, minimises impacts on important resources or features of the environment and reduces disturbance to those living in it, working in it, visiting it or using it for recreational purposes.

Site selection follows a similar process to that of the UGC routeing detailed below, following a number of refinement stages to determine the most appropriate site, based on environmental, engineering and economical factors. In this instance the site of connection is at the existing Knocknagael Substation and therefore a site selection study is not required. However, in selecting the most suitable area in which to extend the existing Knocknagael Substation to accommodate the connection the same criteria will be used in order to select the optimum solution.

Key stages

For new UGC projects, the process follows four principal stages, each iterative and increasing in detail and resolution, bringing cost, technical and environmental considerations together in a way which seeks the best balance.

Stage 1: strategic options assessment/routeing strategy

The starting point in all UGC projects is to establish the need for the project and to select the preferred strategic option to deliver it. This process will be triggered by the preparation of a number of internal assessments and documents which identify the technology to be used and the point on the existing transmission network where a connection can be made. In the case of the Red John PSH this point is at Knocknagael Substation.

Stage 2: corridor selection

Corridor selection seeks to identify possible corridors which are as short as practicable, which are not constrained by altitude or topography and which would avoid, where possible, any interaction with man-made infrastructure and features of environmental sensitivity. Corridors may be 1km wide or may extend over many kilometres in width, depending on the scale and length of the project. For the project included in this consultation, the corridor stage is omitted as the location of the Red John PSH and point of connection on the network naturally define a corridor of a few kilometres in width. Routeing a new UGC any further afield than this would be too expensive and add unnecessary infrastructure to the landscape.

Stage 3: route selection

Route selection seeks to find a route within the corridor which avoids where possible physical, environmental and amenity constraints, is likely to be acceptable to stakeholders, and is economically viable, taking in to account factors such as altitude, slope, ground conditions and access. The dimensions of a route will depend on the context provided by the corridor. A route may be several kilometres in length and may range from 200m to 1km in width, depending on the scale of the project, the nature and extent of constraints and the character of the area in question. A number of route options are usually identified and assessed, leading to a preferred route being selected.

Stage 4: alignment selection

Alignment selection seeks to identify an alignment within the preferred route and to define the access strategy which will be adopted in terms of, for example, the nature and extent of temporary and/or permanent access tracks and possible road improvements. It will be influenced by local constraints, such as individual properties, their aspect, and amenity; ground suitability; habitats; and cultural heritage features and setting. There may be more than one distinct alignment option through the preferred route. It is more likely however that variants to sections of an alignment may arise where there are different ways to avoid a constraint.

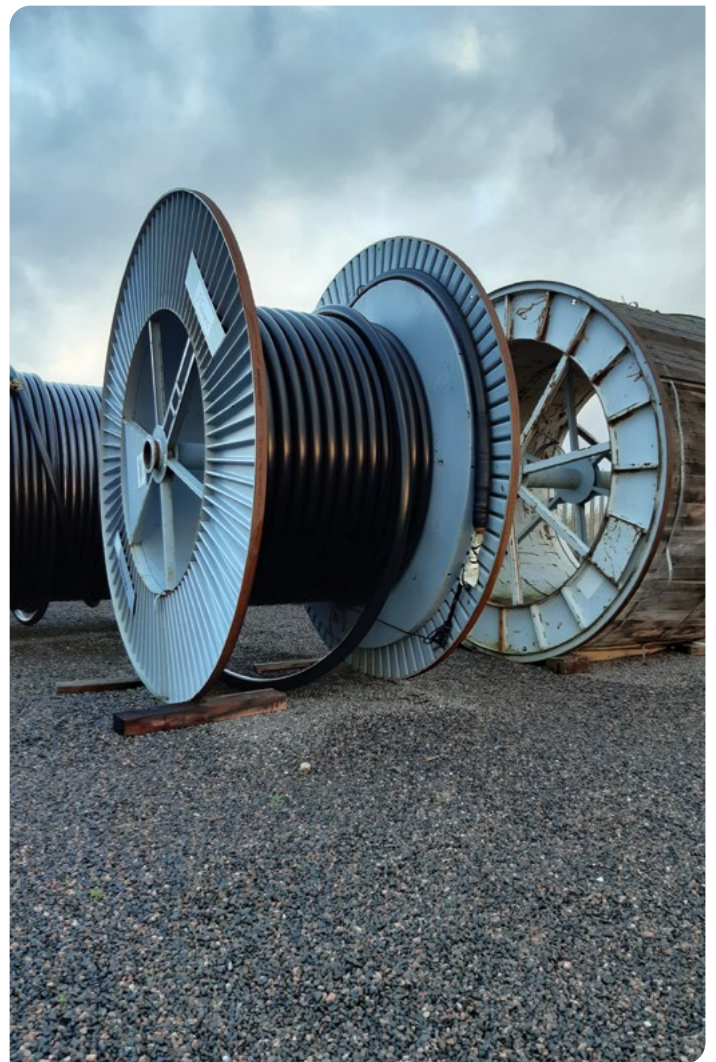
What happens next

The outcome of the UGC Routeing Process is to identify a preferred alignment, which following stakeholder engagement with the public, statutory bodies and landowners, is finalised as a proposed alignment to be taken forward for formal environmental assessment and consent application.

Our underground cable routeing and design process

Key engineering considerations

- Construction costs and buildability (largely affected by ground conditions, such as peat/rock/flooding/contaminated land, etc).
- Operations and maintenance requirements.
- Outage requirements and network constraints.
- Vicinity to other existing electrical OHL and underground structures, as well as existing substation infrastructure.
- Vicinity to any other utility, overhead or underground.
- Existing land boundaries and ownership.
- Environmental constraints.
- Communications masts and infrastructure.
- Urban development.
- Forestry and biodiversity.
- Technology costs and design parameters.
- Site accessibility.
- Route length.



Environmental

Desk-based assessment has been undertaken to gather data and understand the key environmental constraints and opportunities within the local area. This process has helped to identify the key environmental issues for this project. Site survey focussing on these will commence in Spring 2022.

Natural heritage designations

Loch Ashie Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), located approximately 3km east of Loch Ness, is designated for regularly supporting a non-breeding population of the Annex 1 species Slavonian grebe *Podiceps auritus*, representing 10% of the UK population of this species. Loch Ashie is the most important moult site in Scotland for this species.

Torvean Landforms Site of Special Scientific Interest (SSSI) (Geological) and Geological Conservation Review (GCR) area, is located approximately 2km to the northwest.



Hydrology and geology

There are numerous field drains and burns in the area associated with historic land improvement and natural process. There are also mapped areas of class 2 peat within the local area. Class 2 peat is described as areas dominated by peat soil and peatland habitats.

There are known Private Water Supplies (PWS) within the route options areas under consideration.

Ornithology, habitats and protected species

Suitable habitat for Schedule 1 species including peregrine, merlin, kingfisher and brambling is present and these species are known to occur within the area.

Suitable nesting habitat for Birds of Conservation Concern (BoCC) including greenfinch, yellowhammer, song thrush, linnet and cuckoo is present within the area.

Habitats present within the area comprise coniferous plantation woodland and areas of broadleaved woodland and scrub, semi improved and improved grassland, and arable fields.

There are areas of woodland recorded on the Native Woodland Survey of Scotland (NWSS) as Annex I habitat, Caledonian forest. European protected species known to occur in the area, include otter, wildcat and bat species.

UK Biodiversity Action Plan (BAP) species including red squirrel, pine marten, and brown hare are also known to occur in the area. Suitable habitat for these species is present.





Land use

A number of core paths are present in the area along with the Caledonia Way National Cycle Path (National Route 78) and the Loch Ness 360 trail.

Land capability for agriculture in the area is generally categorised as supporting mixed agriculture and improved grassland, although there are small pockets of prime agricultural land.

Cultural heritage

There are a number of listed buildings, scheduled monuments and Gardens and Designed Landscapes located in the area. There are also several non-designated assets in the wider area. These indicate a broad and diverse range of previous function and use, dating from the Neolithic to the 19th century. As a result of the known archaeological presence there is a high likelihood of unknown archaeology assets present in the area.

Forestry

There are a number of forestry compartments in the wider area designated as ancient woodland inventory sites (AWIS), with the compartments most prevalent in the southern section of the routes.

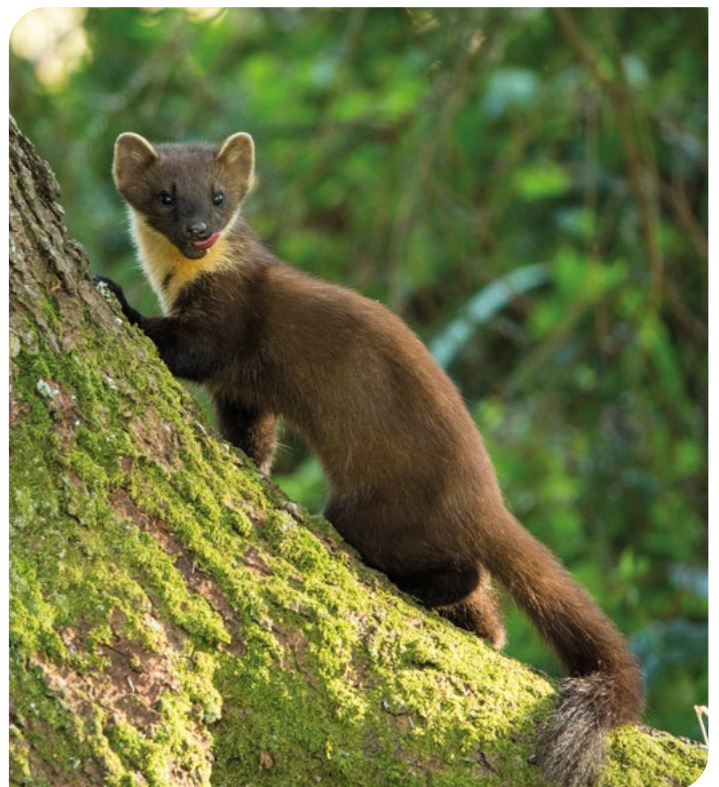
In Scotland, Ancient Woodland is defined as land that is currently wooded and has been continually wooded, at least since 1750. The inventory is a provisional indication only and further survey and assessment will be required.

Landscape and visual

The southern section of route options extend into the northern edge of the Loch Ness and Duntelchaig Special Landscape Area.

This area is dominated by the vast linear feature of Loch Ness and its dramatic landform trench, flanked by steep, towering wooded slopes that leads to undulating moorland ridges and a contrasting remote interior plateau of upland lochs, small woods and rocky knolls. The scale and striking linearity of Loch Ness adds to the landscape uniqueness.

The local area transitions from an area of broad steep sided glen in the south, to flat moorland plateau with farmland, with a small section of rolling farmland and woodland in the north at Knocknagael substation.



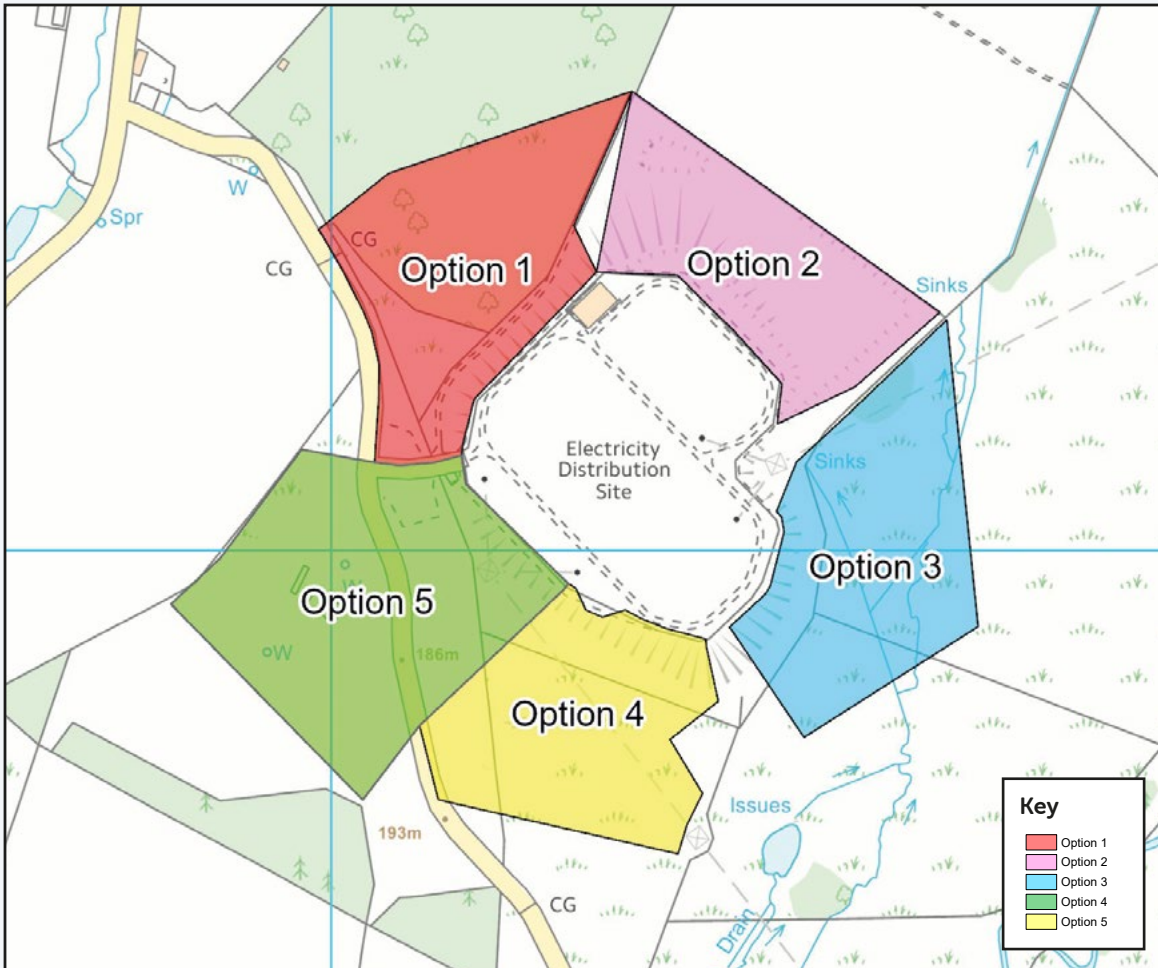
Proposed options

Knocknagael substation extension options/solutions

The figure below shows the option areas considered for the extension of the Knocknagael substation to allow for the additional two bays required to accommodate the Red John Underground Cable Connection. An extension to the substation is required because the existing 275kV bays within the Knocknagael site are in use.

The Red John Pump Storage scheme requires a firm (resilient) connection meaning that two circuits, one on either side of the bus section, is necessary to enable SSEN Transmission to have operational flexibility to swap the circuit onto either side to accommodate routine maintenance or inspection without switching off supply to the pump storage scheme. Therefore 2No. areas have been identified as the preferred options to be taken forward to consultation with the public and Statutory Bodies to allow for this requirement.

The five areas below are available to accommodate extension works at Knocknagael Substation. However, due to the existing electrical configuration of the Substation, areas 1 and 3 are the only viable options for extension. Since the overhead AIS equipment necessary to enable the extension require a physical close connection point to the relevant existing electrical equipment, areas 1 and 3 are the only options to accommodate this.



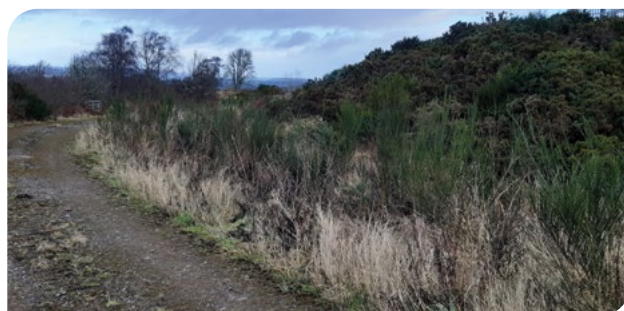
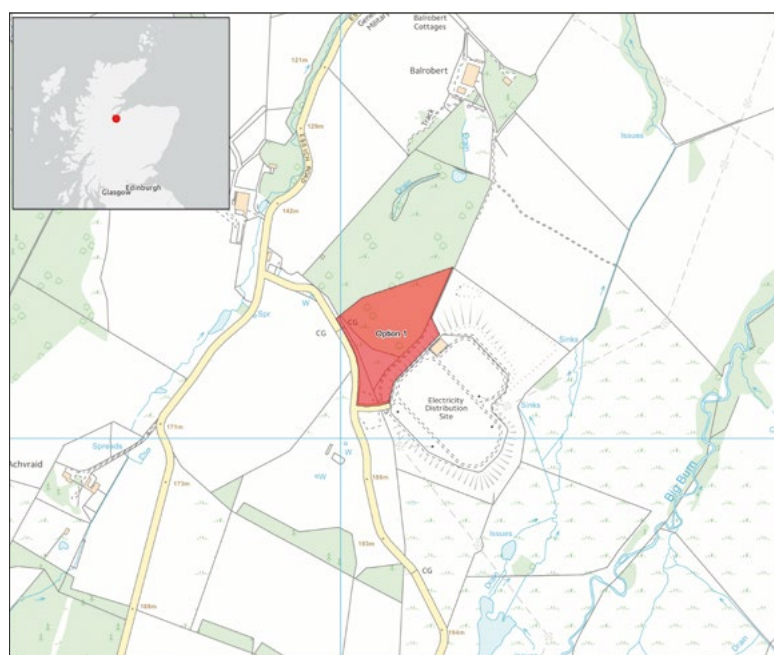
Areas 1 (NW) and 3 (SE) have therefore been identified as our initial preferred options to be taken forward, having been selected on the basis they provide the optimum solution from an engineering perspective given their proximity to the existing electrical assets to be extended, whilst also providing a balance of environmental and cost factors.

The following tables provide a summary of the environmental and engineering considerations for each of the site options considered:

Site option 1:

Site option 1 is located to the north-west of the existing Knocknagael Substation, within an area of broadleaved woodland. It is adjacent to one end of the existing busbar to be extended.

Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Utilises area bordering existing substation. Existing habitat, ornithology and ecology may be less sensitive to change. 	<ul style="list-style-type: none"> May require partial removal of wetland area including native tree planting within.
Hydrology and geology	<ul style="list-style-type: none"> No anticipated PWS impact. 	<ul style="list-style-type: none"> Existing wetland area may require to be partially removed.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. Avoids non-designated assets. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high.
Landscape and visual	<ul style="list-style-type: none"> Extends existing substation infrastructure rather than adding new standalone infrastructure. 	<ul style="list-style-type: none"> Potential to impact on views from local properties.
Land use	<ul style="list-style-type: none"> Approximately half is already under SSE Transmission ownership and is unused. The other half is under a farm tenancy and is used as rough grazing. 	<ul style="list-style-type: none"> Land provides opportunity for local ecology and habitats which would be lost.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> Potential to overlap commitments made as part of the original substation consent.
Forestry	<ul style="list-style-type: none"> No commercial plantation or ancient woodland inventory to be removed. 	<ul style="list-style-type: none"> Native woodland would require to be felled.
Engineering	<ul style="list-style-type: none"> Adjacent to the existing busbar to be extended and therefore no existing bays would be affected by the proposed extension solution. Provides a physical close connection point to existing electrical equipment for extension. 	<ul style="list-style-type: none"> None.

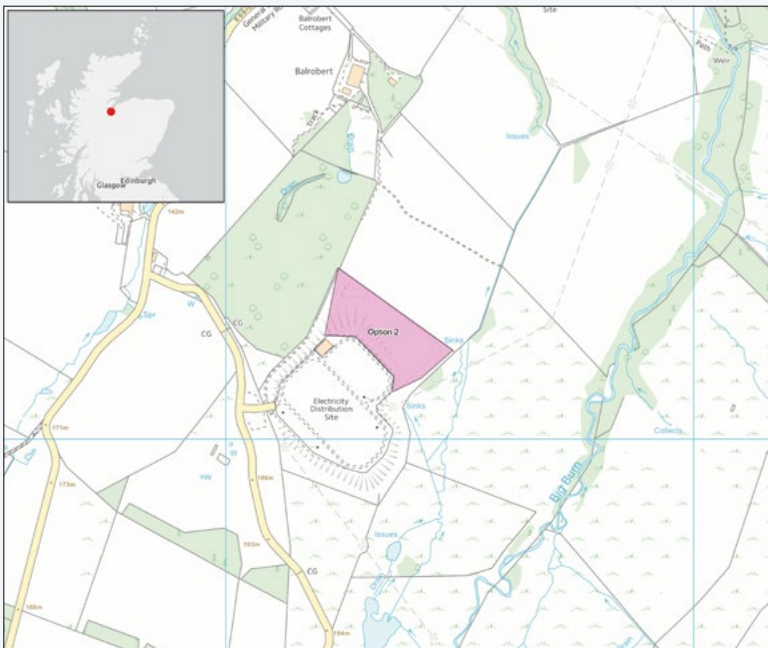


Proposed options

Site option 2:

Option 2 is to the north-east of the existing substation. Given it is not in close proximity to the existing busbar to be extended it is considered highly impractical from an engineering perspective.

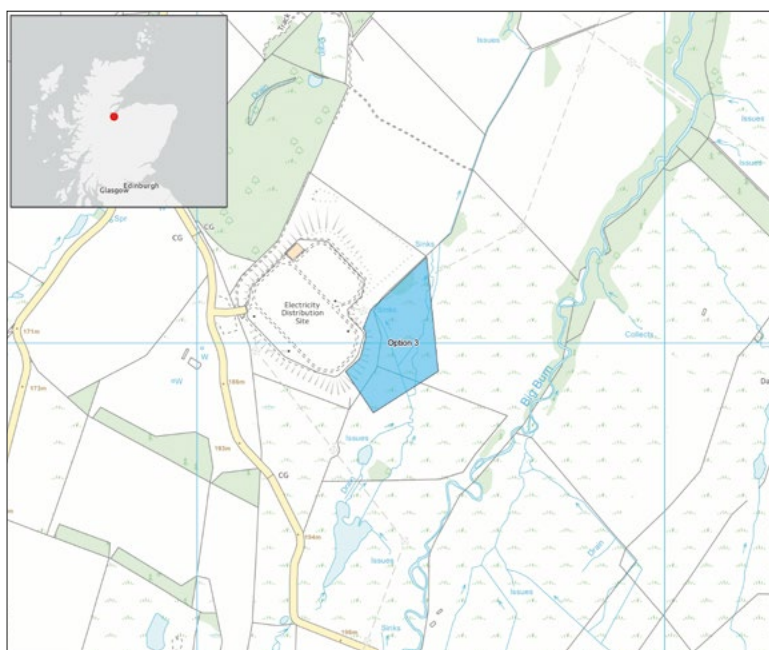
Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Utilises area bordering existing substation. Existing habitat, ornithology and ecology may be less sensitive to change. 	<ul style="list-style-type: none"> Would require removal of existing habitat and young tree planting.
Hydrology and geology	<ul style="list-style-type: none"> No anticipated PWS impact. 	<ul style="list-style-type: none"> Small pockets of surface water flooding identified on SEPA flood maps. Existing SUDS pond would potentially require to be relocated.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. Avoids non-designated assets. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high.
Landscape and visual	<ul style="list-style-type: none"> Extends existing substation infrastructure rather than adding new standalone infrastructure. 	<ul style="list-style-type: none"> Potential to impact on views from local properties.
Land use	<ul style="list-style-type: none"> Already under SSE Transmission ownership and is currently used for screening purposes. 	<ul style="list-style-type: none"> Includes area of arable improved grassland which would potentially be lost.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> Potential to overlap commitments made as part of the original substation consent.
Forestry	<ul style="list-style-type: none"> No commercial plantation or ancient woodland inventory to be removed. 	<ul style="list-style-type: none"> Young landscape tree planting/screening would require to be removed.
Engineering	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Is not in close proximity to the existing busbar to be extended and therefore not feasible for the required extension without significant and disruptive reconfiguration of the existing substation site.



Site option 3:

Option 3 is to the east of the existing substation, to the west of Big Burn. It is adjacent to one end of the existing busbar to be extended.

Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Utilises area bordering existing substation. Existing habitat, ornithology and ecology may be less sensitive to change. 	<ul style="list-style-type: none"> Would require removal of existing scrub habitat.
Hydrology and geology	<ul style="list-style-type: none"> No anticipated PWS impact. 	<ul style="list-style-type: none"> SEPA flood maps indicate high likelihood of surface water flooding.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. Avoids non-designated assets. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high.
Landscape and visual	<ul style="list-style-type: none"> Extends existing substation infrastructure rather than adding new standalone infrastructure. Properties located further away than other options. Views considered to not be significant. 	<ul style="list-style-type: none"> There is the potential for views from the road to the south-west.
Land use	<ul style="list-style-type: none"> Majority is under a farm tenancy and is used for rough grazing and outwintering cattle. 	<ul style="list-style-type: none"> Mixture of arable land and shrub heathland which would potentially be lost.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> Potential to overlap commitments made as part of the original substation consent.
Forestry	<ul style="list-style-type: none"> No commercial plantation or ancient woodland inventory to be removed. 	<ul style="list-style-type: none"> Some small patches of broad-leaved woodland are present, with potential to be retained.
Engineering	<ul style="list-style-type: none"> Adjacent to the existing busbar to be extended and therefore no existing bays would be affected by the proposed extension solution Provides a physical close connection point to existing electrical equipment for extension. 	<ul style="list-style-type: none"> None.

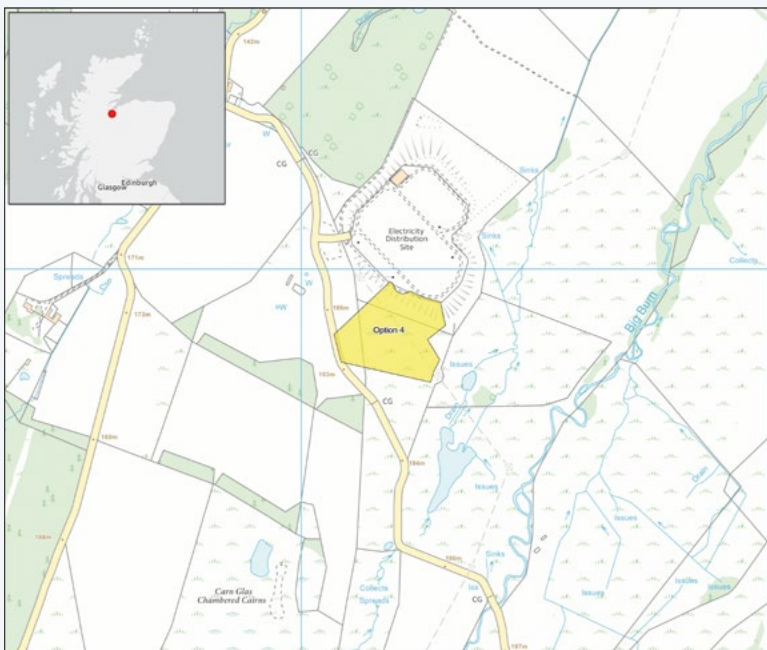


Proposed options

Site option 4:

Site option 4 is to the south of the existing Knocknagael substation, east of Essich Road. Given it is not in close proximity to the existing busbar to be extended it is considered highly impractical from an engineering perspective.

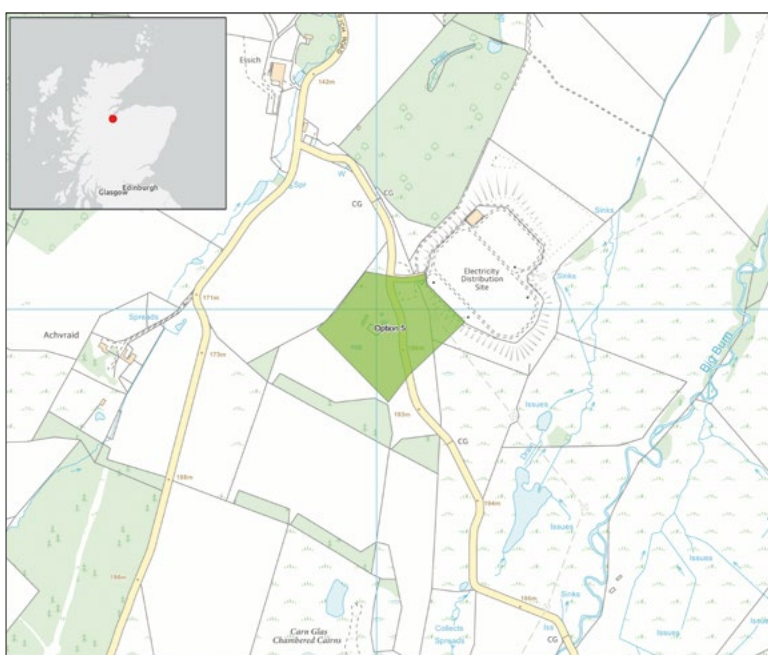
Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Utilises area bordering existing substation. Existing habitat, ornithology and ecology may be less sensitive to change. 	<ul style="list-style-type: none"> Would require removal of existing scrub habitat.
Hydrology and geology	<ul style="list-style-type: none"> No anticipated PWS impact. 	<ul style="list-style-type: none"> SEPA flood maps indicate small areas of high likelihood of surface water flooding.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. Avoids non-designated assets. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high.
Landscape and visual	<ul style="list-style-type: none"> Extends existing substation infrastructure rather than adding new standalone infrastructure. 	<ul style="list-style-type: none"> There is the potential for views from the road to the south-west and nearby properties.
Land use	<ul style="list-style-type: none"> Majority is under farm tenancy and is used for rough grazing and overwintering cattle. 	<ul style="list-style-type: none"> Mixture of arable land and shrub heathland which would potentially be lost.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> Potential to overlap commitments made as part of the original substation consent.
Forestry	<ul style="list-style-type: none"> No commercial plantation or ancient woodland inventory to be removed. 	<ul style="list-style-type: none"> None.
Engineering	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Is not in close proximity to the existing busbar to be extended and therefore not feasible for the required extension without significant and disruptive reconfiguration of the existing substation site.



Site option 5:

Site option 5 is to the south-west of the existing Knocknagael substation, east of Essich Road. Given it is not in close proximity to the existing busbar to be extended it is considered highly impractical from an engineering perspective.

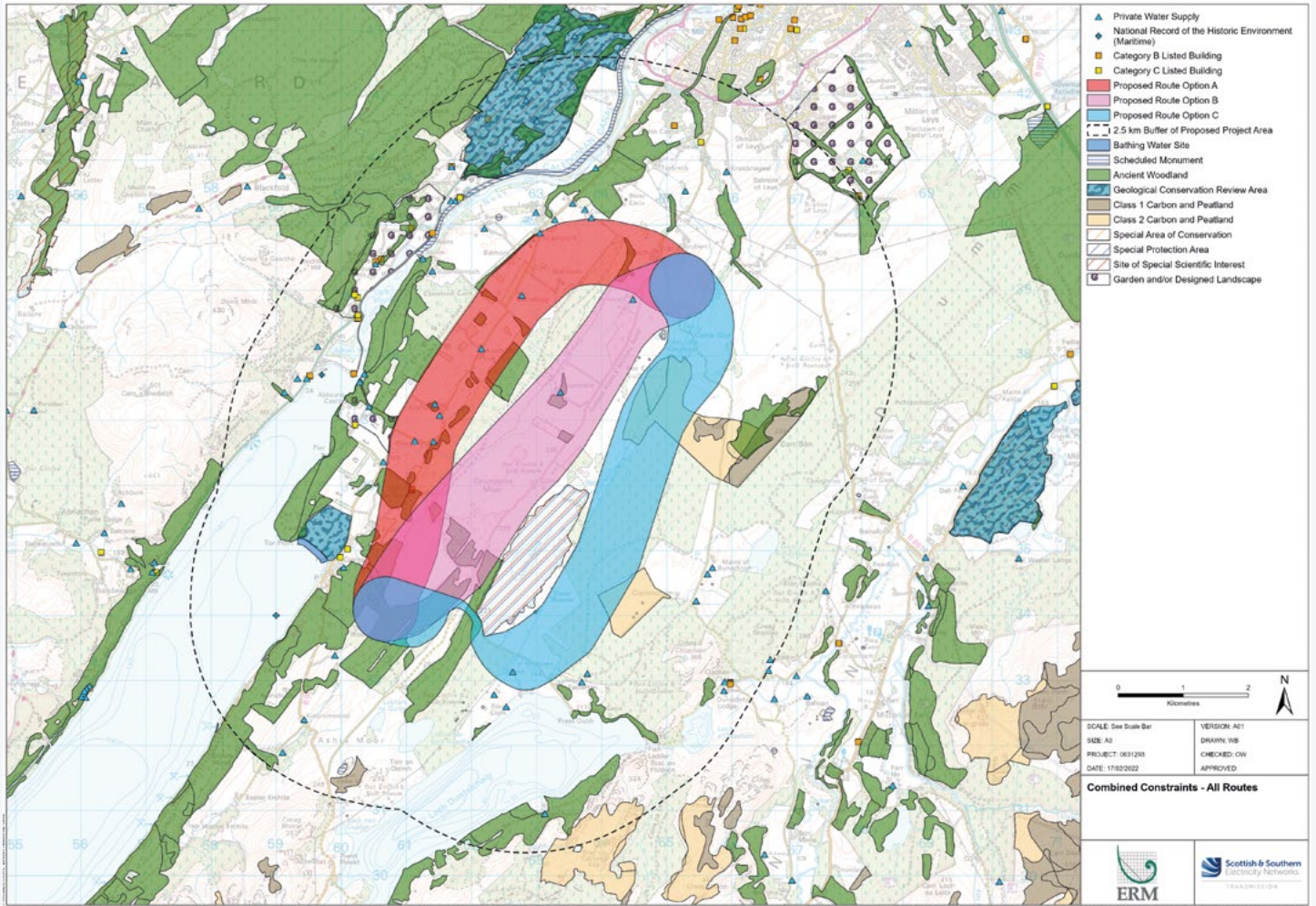
Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Utilises area bordering existing substation. Existing habitat, ornithology and ecology may be less sensitive to change. 	<ul style="list-style-type: none"> Would require removal of existing scrub habitat.
Hydrology and geology	<ul style="list-style-type: none"> No anticipated PWS impact. 	<ul style="list-style-type: none"> SEPA flood maps indicate high likelihood of surface water flooding.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high. There are four known non-designated assets within the option area.
Landscape and visual	<ul style="list-style-type: none"> Extends existing substation infrastructure rather than adding new standalone infrastructure. Properties located further away than other options. Views considered to not be significant. 	<ul style="list-style-type: none"> There is the potential for views from nearby properties. Existing public road dissects the Option area therefore views would likely be prominent.
Land use	<ul style="list-style-type: none"> Majority is used for livestock grazing. 	<ul style="list-style-type: none"> Mixture of arable land and shrub heathland which would potentially be lost.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> Potential to overlap commitments made as part of the original substation consent.
Forestry	<ul style="list-style-type: none"> No commercial plantation or ancient woodland inventory to be removed. 	<ul style="list-style-type: none"> Some small patches of broad-leaved woodland are present, with potential to be retained.
Engineering	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Is not in close proximity to the existing busbar to be extended and therefore not feasible for the required extension without significant and disruptive reconfiguration of the existing substation site.



Proposed cable route options

Knocknagael Substation – Red John Pump Storage Switching Station

The map below shows the route options considered for the underground cable connection of Red John Pumped Storage Scheme to Knocknagael Substation. Three route options were identified for assessment following a desk-based assessment and initial site visits.



Route option B has been identified as our initial Preferred Route to be taken forward to consultation with the public and Statutory Bodies, having been selected on the basis it provides an optimum balance of environmental, technical and cost factors.

Route option B provides the best scope of the route options considered to avoid forestry and limit the extent of felling, whilst reducing potential effects on private water supplies and properties as well as avoiding areas of class 1 and 2 peat. The remaining route B advantages and its drawbacks are also generally observed throughout Routes A and C hence the overall advantages of route B make it our preferred route.

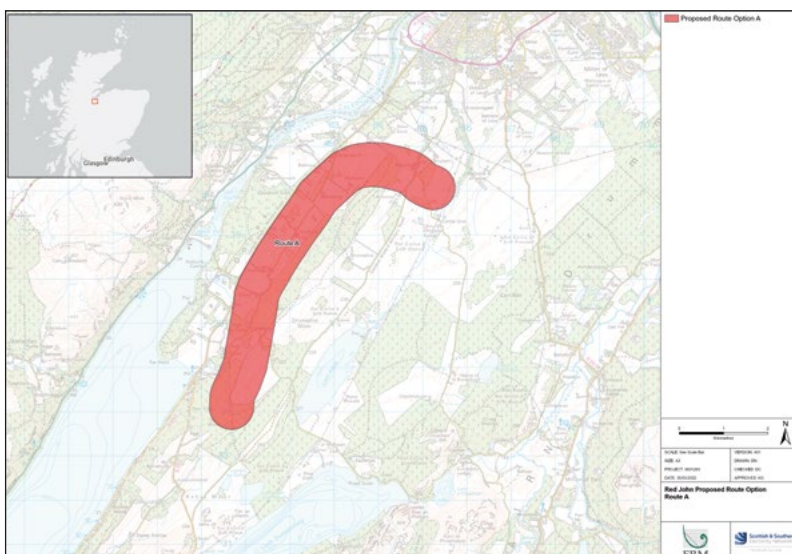
The following tables provide a summary of the environmental and engineering considerations for each of the route options considered.

Environment for cable route options

Environment route option A:

Route A begins in the Red John Pumped Storage site and travels north until it meets the B862. Here, the route travels in a north-easterly direction, until it crosses Laggan Burn, where the route curves to the east to join the Knocknagael substation, east of Essich.

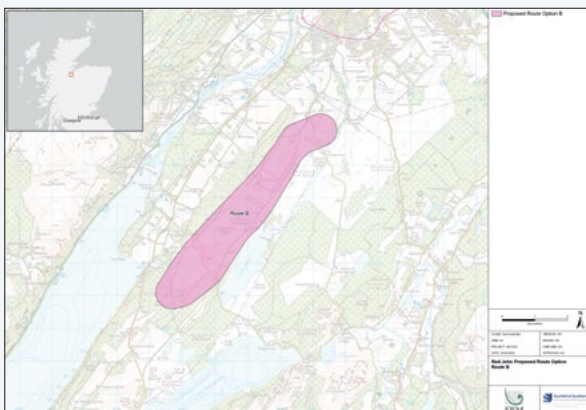
Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Avoids Loch Ashie SPA and SSSI by circa 1km. Unlikely to comprise the conservation status of known presence or suitable habitat for European Protected Species, or UK BAP species. 	<ul style="list-style-type: none"> May contain Annex I habitat Caledonian Forest.
Hydrology and geology	<ul style="list-style-type: none"> Does not pass through any areas of class 1 or 2 peat. 	<ul style="list-style-type: none"> Seven known Private Water Supplies are present within the route.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high. Potential to not be able to avoid non-designated assets.
Landscape and visual	<ul style="list-style-type: none"> Underground cable once installed would generally allow full reinstatement and not be visible. No direct effects anticipated on any landscape and visual designation. 	<ul style="list-style-type: none"> Required tree felling would alter existing baseline. Partially located in Loch Ness and Duntelchaig Special Landscape Area.
Land use	<ul style="list-style-type: none"> Once cable is installed previous agricultural land use would likely be able to be carried out. Previously forested areas would remain unplanted. 	<ul style="list-style-type: none"> Some areas of prime agricultural land present. Commercial forestry present. Recreational and core paths present in area.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> None known.
Forestry	<ul style="list-style-type: none"> None known. 	<ul style="list-style-type: none"> Crosses substantial areas of commercial conifer plantation woodland. There may be impact on forestry operations resulting in loss in commercial returns. Passes directly through numerous areas of Ancient Woodland Inventory Sites (AWIS).
Proximity to people	<ul style="list-style-type: none"> As the route is UGC, there will only be temporary visual impacts at construction phase. 	<ul style="list-style-type: none"> Passes a number of residential communities in close proximity, including Dores and Essich. The route also passes a number of scattered residential properties along the B862.
Engineering	<ul style="list-style-type: none"> Good access along this route given proximity to the B862. Favourable ground conditions based on desktop studies and site visits. 	<ul style="list-style-type: none"> Longer route when compared to route B. Steep topography at either end of the proposed route. Close proximity to dwellings and therefore more interaction with other buried services.



Environment route option B:

Route B begins in the Red John Pumped Storage development, and travels in a north easterly direction, to the west of Loch Ashie, until it meets Knocknagael substation. Route B is the most direct route.

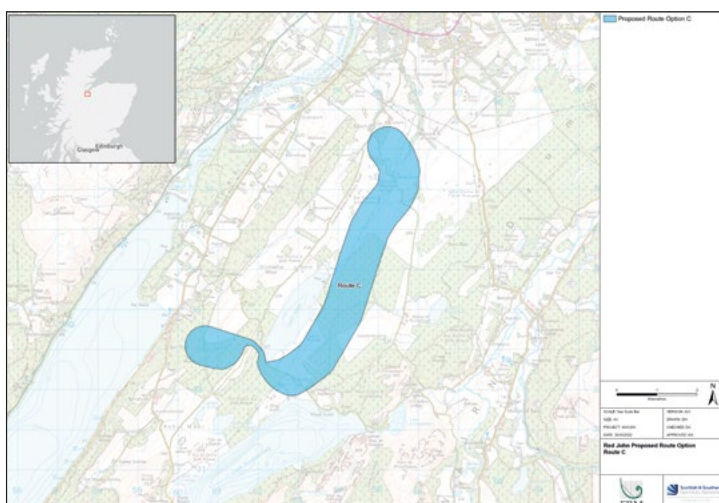
Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Avoids Loch Ashie SPA and SSSI by circa 1km. Unlikely to comprise the conservation status of known presence or suitable habitat for European Protected Species, or UK BAP species. 	<ul style="list-style-type: none"> Located directly adjacent to Loch Ashie SPA and SSSI. May contain Annex I habitat Caledonian Forest. Potential to contain peatland habitat and blanket bog.
Hydrology and geology	<ul style="list-style-type: none"> Does not pass through any areas of class 1 or 2 peat. Less PWS present in the route than option A. 	<ul style="list-style-type: none"> Two Private Water Supplies are present within the route.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high. Potential to not be able to avoid non-designated assets.
Landscape and visual	<ul style="list-style-type: none"> Underground cable once installed would generally allow full reinstatement and not be visible. No direct effects anticipated on any landscape and visual designation. 	<ul style="list-style-type: none"> Required tree felling would alter existing baseline. Partially located in Loch Ness and Duntelchaig Special Landscape Area.
Land use	<ul style="list-style-type: none"> Once cable is installed previous agricultural land use would likely be able to be carried out. Previously forested areas would remain unplanted. Any agricultural land mainly grazing, or rough grazing. 	<ul style="list-style-type: none"> Commercial forestry present. Recreational and core paths present in area.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> None known.
Forestry	<ul style="list-style-type: none"> Less felling anticipated than with route A. 	<ul style="list-style-type: none"> Crosses commercial conifer plantation woodland. There may be impact on forestry operations resulting in loss in commercial returns. Crosses conifer plantation woodland. There may be impact on forestry operations resulting in loss in commercial returns. Passes directly through areas of Ancient Woodland Inventory Sites (AWIS).
Proximity to people	<ul style="list-style-type: none"> Does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape. As the route is UGC, there will only be temporary visual impacts at construction phase. 	<ul style="list-style-type: none"> Passes a small number of scattered residential properties.
Engineering	<ul style="list-style-type: none"> Direct and shortest route. Good access along this route given its proximity to the Old Military Road. Largely constant topography along the route Least wet route (most favourable ground conditions). 	<ul style="list-style-type: none"> Tree removal is required to the south-west of the route.



Environment route option C:

Route C begins in the Red John Pumped Storage development and travels in a south easterly direction, to the south of Loch Ashie. The route curves around the south of Loch Ashie, to continue North towards Knocknagael substation.

Topic	PROS	CONS
Ecology and ornithology	<ul style="list-style-type: none"> Avoids Loch Ashie SPA and SSSI. Unlikely to comprise the conservation status of known presence or suitable habitat for European Protected Species, or UK BAP species. 	<ul style="list-style-type: none"> Located directly adjacent to Loch Ashie SPA and SSSI. May contain Annex I habitat Caledonian Forest. Crosses peatland habitats and blanket bog.
Hydrology and geology	<ul style="list-style-type: none"> Less PWS present in the route than option A or B. 	<ul style="list-style-type: none"> One Private Water Supply is present within the route. Passes through areas of Class 2 peat.
Cultural heritage	<ul style="list-style-type: none"> No direct effects on any designated cultural heritage sites. Unlikely to have indirect effects on designated cultural heritage sites. 	<ul style="list-style-type: none"> Given diverse range of assets locally, risk of potential buried archaeological remains high. Potential to not be able to avoid non-designated assets.
Landscape and visual	<ul style="list-style-type: none"> Underground cable once installed would generally allow full reinstatement and not be visible. No direct effects anticipated on any landscape and visual designation. 	<ul style="list-style-type: none"> Required tree felling would alter existing baseline. Partially located in Loch Ness and Duntelchaig Special Landscape Area.
Land use	<ul style="list-style-type: none"> Once cable is installed previous agricultural land use would likely be able to be carried out. Previously forested areas would remain unplanted. Any agricultural land is grazing, or rough grazing. 	<ul style="list-style-type: none"> Commercial forestry present. Recreational and core paths present in area.
Planning	<ul style="list-style-type: none"> Avoids other in-planning, consented or built developments. 	<ul style="list-style-type: none"> None known.
Forestry	<ul style="list-style-type: none"> None known. 	<ul style="list-style-type: none"> Crosses substantial areas of commercial conifer plantation woodland. There may be impact on forestry operations resulting in loss in commercial returns. Passes directly through numerous areas of Ancient Woodland Inventory Sites (AWIS).
Proximity to people	<ul style="list-style-type: none"> Does not pass any residential communities in close proximity, however there are scattered residential properties situated across the open landscape. As the route is UGC, there will only be temporary visual impacts at construction phase. 	<ul style="list-style-type: none"> Passes a small number of scattered residential properties.
Engineering	<ul style="list-style-type: none"> None. 	<ul style="list-style-type: none"> Longest of all the routes considered. Poor ground conditions with areas of peat based on desktop assessments. Steep topography at either end of the proposed route.



What happens now and how do I have my say?

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

We are keen to receive your views and comments in regards to the following questions:

- Have we adequately explained the need for this project?
- Do you feel sufficient information has been provided to enable you to understand what is being proposed on and why?
- Are you satisfied that our approach taken to select our preferred UGC route and Knocknagael Substation extension options have been adequately explained?
- Do you agree with our preferred routes, if not, why?
- Are there any factors, or environmental features, that you consider may have been overlooked during the preferred UGC route and substation extension process?
- Do you have any particular concerns or queries on the proposed connection project?
- Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or about the preferred UGC route and substation extension option.

Comments

Your views and comments can be provided to the project team by completing the feedback form or by writing to our Community Liaison Manager. All feedback received will be assessed and the proposed options adapted where necessary.

Feedback

We will be seeking feedback from members of the public on this exhibition and the virtual exhibition until **Friday 27th May**.

Feedback is welcomed throughout the development of the project. To provide comments on the proposal or to gain further information on the project, visit our virtual event or contact our Community Liaison Manager.

Community Liaison Manager, Ryan Davidson



ryan.davidson@sse.com



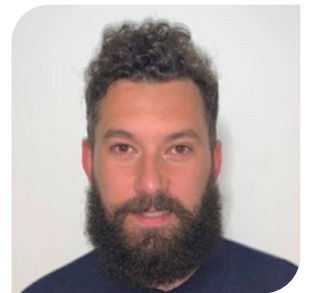
01463 728 072



07901 133 919



Ryan Davidson
Scottish Hydro
Electric Transmission,
1 Waterloo St,
Glasgow, G2 6AY



Additional information

Information will also be made available via the project webpage and social media channels:

Project website:

www.ssen-transmission.co.uk/projects/red-john-pump-storage-scheme-275kv-connection/

Follow us on Twitter:

@ssetransmission

Follow us on Facebook:

@ssencommunity

Your feedback

Thank you for taking the time to read this consultation booklet. In order to record your views and improve the effectiveness of our consultation, please complete this short feedback form.

Please complete in **BLOCK CAPITALS**. (Please tick one box per question only)

Q1 Have we adequately explained the need for this project?

Yes No Unsure

Comments:

Q2 Do you feel sufficient information has been provided to enable you to understand what is being proposed and why?

Yes No Unsure

Comments:

Q3 Are you satisfied that our approach taken to select our preferred UGC route and Knocknagael Substation extension options have been adequately explained?

Yes No Unsure

Comments:

Q4 Do you agree with our Preferred Routes, if not, why?

Yes No Unsure

Comments:

Q5 Are there any factors, or environmental features, that you consider may have been overlooked during the preferred UGC route and substation extension process?

Yes No Unsure

Comments:



Q6 Do you have any particular concerns or queries on the proposed connection project?

Yes No Unsure

Comments:

Q7 Do you have any other comments (positive or negative) or concerns in relation to the need for the project, the transmission infrastructure requirements or about the preferred UGC route and substation extension option.

Comments:

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 Hydro Electric Transmission, 1 Waterloo St, Glasgow, G2 6AY

Email: ryan.davidson@sse.com

Online: www.ssen-transmission.co.uk/projects/red-john-pump-storage-scheme-275kv-connection/

Download: Comments forms and all the information from today's event will also be available to download from the project website.

The feedback form and all information provided in this booklet can also be downloaded from the project websites.

Any information given on the feedback form can be used and published anonymously as part of Scottish and Southern Electricity Networks consultation report. By completing this feedback form you consent to Scottish and Southern Electricity Networks using feedback for this purpose.

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