

Beauly-Blackhillock and Blackhillock-Kintore Reinforcement Projects

Frequently asked questions and answers – July 2016

Who is Scottish Hydro Electric Transmission (SHE Transmission)?

Scottish Hydro Electric Transmission plc (SHE Transmission) is a wholly owned subsidiary of SSE plc. SHE Transmission, as the holder of the license for the transmission of electricity in the north of Scotland and their business activities are regulated by the Office of Gas and Electric Markets (Ofgem).

What does SHE Transmission do?

SHE Transmission owns, maintains and develops the electricity transmission network operating at 132 kV and above across the north of Scotland. This comprises around 5,000 km of overhead and underground electricity transmission infrastructure.

Electricity networks provide the physical link between electricity generation stations and the electricity consumer. In terms of their license obligations SHE Transmission has the following responsibilities:

- To develop and maintain an efficient, coordinated and economical system of electricity transmission
- To facilitate competition in the supply and generation of electricity (ensuring that there is sufficient network capacity and a connection for developers who wish to export their generated electricity to the national grid)
- To ensure that the security of the network is maintained as the demand and/or generation connections change over time

How are Transmission network upgrades paid for?

The investment in the Projects will be made by SHE Transmission plc. Electricity transmission companies are authorised to recover the costs of such investments through 'use of system' charges which are levied by National Grid Electricity Transmission plc on generators and suppliers of electricity. Suppliers recover their costs from all electricity customers. In order to protect the interests of customers, the transmission companies have to demonstrate to the energy regulator, Ofgem (Office for Gas and Electricity Markets) that proposed investments are necessary, are efficient and are economical so that the charges which are ultimately levied on all electricity customers are justified.

This means SHE Transmission is subject to a funding mechanism established by Parliament and regulated by Ofgem. Cross subsidies between different businesses in the SSE group is not permitted.

How are SHE Transmission's proposals scrutinised?

The Scottish Ministers are responsible for determination of applications submitted under Section 37 of the Electricity Act 1989. Both statutory consultees and members of the public have the right to submit their representations on the application. All representations will be considered by The Scottish Ministers in their determination of the application.

Office for Gas and Electricity Markets (Ofgem), as the regulator, has to approve all investment so the Project proposals have been developed under license conditions.

The preferred route corridor chosen also complies with revised 'Holford Rules' which are the recognised industry approach to routing overhead lines amended to reflect Scottish circumstances.

What are The Holford Rules.

The Holford Rules originated in 1959 as the result of work by Lord Holford, a part-time member of the Central Electricity Generating Board (National Grid's predecessor). The Holford Rules have been augmented by both National Grid and SHE Transmission to reflect environmental legislation and best practice in recent years. SHE Transmission has continued to use them as a valuable set of guidelines for reducing the impact of its assets on landscapes.

The guidance recommends appropriate application of the Holford Rules to inform routeing. These rules advocate the application of a hierarchical approach to routeing which first avoids major areas of highest amenity, then smaller areas of high amenity, and finally considers factors such as backdrop, woodland and orientation. The Holford Rules apply the term 'amenity' to refer to environmental designations and classifications such as Natura 2000 sites, Sites of Special Scientific Interest (SSSI), Scheduled Monuments, Listed Buildings, National Parks.

The guidance also recognises that the key effect of overhead lines is visual and it advises that the routeing of overhead lines should consider the types of mitigation (screening) that could offset any visual effects.

In their National Policy Statement EN-5, the Government has stated that the Holford Rules "should be followed by developers when designing their proposals." Their use is therefore Government policy, rather than a voluntary choice of SHE Transmission.

How and to what extent are electricity consumers' interests considered?

SHE Transmission is regulated by the Office for Gas and Electricity Markets (Ofgem), the regulator responsible for representing consumers' interests. Electricity consumer interests are therefore one of SHE Transmission's key drivers and this is enshrined in SHE Transmission's statutory duties under the Electricity Act.

In particular SHE Transmission has a statutory duty to develop, maintain and operate an efficient, economic and co-ordinated transmission system. Since the costs of these Projects will ultimately be paid for by electricity consumers, SHE Transmission has a responsibility to take cost into account with due weighting in a comparison against other important factors.

Why are proposals for reinforcement of the electricity network between Beauly, Blackhillock and Kintore being promoted?

The current transmission infrastructure has developed over many years; originally it was built to connect the demand centres that are spread around the north of Scotland and the remote multiple hydro electric power stations developed mainly in the 1950s and 60s. However, with the recent huge increase in renewable generation, in particular wind generation, the pattern of electricity supply and consumption has changed dramatically. As a consequence parts of the transmission network now need substantial upgrading as SHE Transmission seeks to meet its Licence obligations to develop and maintain an economic, efficient and coordinated system as well as ensuring security of supply to electricity consumers.

Following detailed analysis of required system transfers and comparing this with actual network capacity, SHE Transmission has identified the need to reinforce the transmission network between Beauly and Blackhillock substations and between Blackhillock and Kintore substations.

The Projects' need is reviewed by SHE Transmission and National Grid (in its role as Great Britain system operator) on an annual basis, and the anticipated timing of these Projects may change in response to changing economic signals from a range of electricity generation and demand scenarios.

This would take into account any consequences arising from changes in Government renewable energy subsidies.

What other options have been considered?

A range of options were identified for the Projects which considered the available technology and covered geographic locations which allowed a connection to the three identified substations. The boundaries of the study area were defined as follows:-

The northern boundary is formed by the Moray Firth coastline, from Beaulieu as far east as Portgordon, to the north of Blackhillock substation, as well as an area to the east of Huntly.

The eastern boundary is located approximately 10 km east of a direct line between Blackhillock and Kintore substations, in order to allow full consideration of this area;

The southern boundary is formed by the boundary of the Cairngorms National Park, as well as the location of site options for a new substation at Tomatin.

The western boundary is formed by the existing Beaulieu substation and Loch Ness, as well as the area along the western side of Loch Ness.

The options identified were appraised in terms of technical, environmental and cost factors. The options considered were as follows:

- Option 1 Upgrade of existing infrastructure between Beaulieu, Blackhillock and Kintore to operate at 400 kV;
- Option 2 Construction of a marine cable link for part of the route between Beaulieu and Blackhillock, as well as a new/upgraded overhead line to Blackhillock and Kintore;
- Option 3 Construction of a new onshore AC underground cable between the connection points;
- Option 4 Construction of a new onshore HVDC link incorporating underground cable between the connection points;
- Option 5 Construction of a new double-circuit 400 kV overhead line, in combination with upgrades to existing infrastructure; or
- Option 6 Construction of a new double-circuit 400 kV overhead line for the entire length of the connection.

In the first instance, technical assessments were made, to review the engineering feasibility of these potential options.

Environmental studies identified the most sensitive environmental features within the areas under consideration. Potential effects on nature conservation designations as well as effects on people, communities and the economy were highlighted.

Finally, costs were considered in order to assess the financial impact of each option. A key requirement for SHE Transmission, is to provide an economic, efficient and coordinated solution. Regard has to be had to not only the total cost of construction/installation, but also the lifetime operation and maintenance costs.

This appraisal of the various options concluded that the following two options were appropriate to progress to the next stage of analysis:

- Option 5 Construction of a new double-circuit 400 kV overhead line, in combination with upgrades to existing infrastructure; or

Option 6 Construction of a new double-circuit 400 kV overhead line for the entire length of the connection.

As a result of further analysis, the options appraisal determined that the option to be developed will comprise a new 400 kV overhead line connection, mounted on steel lattice towers of a typical height of 50 m and an anticipated average span length of 250-300 m.

What is the final scope of the Projects to be promoted by SHE Transmission?

The Projects being promoted by SHE Transmission comprise a 400 kV overhead electricity line between the existing substations at Beaully and Blackhillock and a 400 kV overhead electricity line between the existing substations at Blackhillock and Kintore. The overhead electricity lines will be supported by steel lattice towers.

These Projects will deliver important transmission infrastructure within the overall National Main Interconnected Transmission System (MITS). The MITS must remain secure and stable for all credible planned and unplanned events including unexpected fault events and loss of generation. As a consequence novel and unproven solutions cannot be considered.

Why have some of the options not been progressed?

An explanation of the reasons for Options 1, 2, 3, 4 and 5 not being progressed can be provided as follows:-

Option 1 Upgrade of existing infrastructure between Beaully, Blackhillock and Kintore to operate at 400 kV;

The existing 132 kV overhead lines between Beaully and Blackhillock cannot be upgraded to operate at 275 kV or 400 kV as the towers cannot support the required size of conductors.

The existing 275 kV overhead line between Beaully and Blackhillock is not suitable for 400 kV operation and has already been upgraded using the largest conductor that could be accommodated on the existing tower suite. This infrastructure is therefore at the capacity limit of what can be provided.

There are two existing 275 kV overhead lines between Blackhillock and Kintore; one is constructed at 400 kV and is capable of operating at 400 kV so will be upgraded in the future. The other is a 275 kV tower design and cannot be upgraded to 400 kV operation. Both must be retained for security and capacity reasons.

The transmission system Security and Quality of Supply Standards (SQSS) require that there is sufficient capacity in the transmission network to allow for credible faults and subsequent circuit trips. Consequently the number of circuits in an area can be just as important as the capacity of the circuits.

Therefore, taking account of the tower construction, circuit capacity and number of circuits in this area, it is not technically feasible to connect the three substations with a 400 kV line by means of upgrading existing infrastructure. Therefore this option was not progressed.

Option 2 Construction of a marine cable link for part of the route between Beaully and Blackhillock, as well as new/upgraded overhead line to Blackhillock and Kintore;

The Beaully Firth is designated as a Special Protection Area (SPA), a Special Area of Conservation (SAC), a Site of Special Scientific Interest (SSSI) and Ramsar site, while the Inner Moray Firth is designated as a Special Area of Conservation (SAC).

These environmental factors mean that a marine cable link from Beauly is unlikely to be a favourable option to statutory consultees.

A subsea cable option from the Black Isle to the Moray coast was also considered but this would have to cross the Moray Firth SAC and therefore is unlikely to be a favourable option to statutory consultees.

In addition to the environmental constraints the installation of a 400 kV subsea cable is not technically feasible since it is not a proven technology at that voltage. The highest voltage subsea cables with any reliable service history operate at 220 kV. Therefore, a 220 kV subsea cable link would have to be used. This would require 400/220 kV transformers at each landfall location, which would have a nominal footprint of at least 100 m x 100 m. Due to the capacity limits on these subsea cables which are significantly less than an overhead line, there would be a requirement for multiple 220 kV cables per circuit to match the rating of the overhead line.

As a medium to high cost option, combined with engineering constraints and high consenting risk, these options were not progressed.

Option 3 Construction of a new onshore AC underground cable between the connection points;

Long lengths of 400 kV AC cable suffer from high capacitive charging current which limits the real power transfer through the cable. Significant reactive compensation equipment at both ends and at locations along the route would be required i.e. additional substation compounds. This option carries a very high technical risk and is unlikely to be technically viable due to potentially severe issues with harmonic magnification, low frequency resonance and voltage instability.

A new underground cable would require a far greater land take than an overhead line during installation. It may have adverse impacts on peatland, groundwater dependent terrestrial ecosystems (GWDTes) and hydrology. Key receptors would be likely to include the following designated sites: River Spey SAC; River Findhorn SAC. This is a high cost option.

This option was not progressed on technical, environmental and cost considerations.

Option 4 Construction of a new onshore HVDC underground cable between the connection points;

An HVDC link could be installed between the connection points using the same HVDC technology that is proposed for the Caithness – Moray, Western Isles and Shetland projects. This technology has a capacity restriction of 1200 Megawatts (MW) which means that it would have significantly less capacity compared to the overhead line solution. The link would require an HVDC converter station at each end of the link (footprint approx. 170 m x 90 m x 17 m high). To increase the capacity to better match the overhead line capacity, two HVDC links could be installed, however this would require two converters at each end. An HVDC underground cable would require a greater land take than an overhead line during installation and it may have adverse impacts on peatland, groundwater dependent terrestrial ecosystems (GWDTes) and hydrology. Key receptors would be likely to include the following designated sites: River Spey SAC; River Findhorn SAC. This is a high cost option.

This option was not progressed on technical, environmental and cost considerations.

Other HVDC technologies with higher capacities are available, but these have larger, more expensive, converter stations and cables so were not progressed.

Option 5 Construction of a new double-circuit 400 kV overhead line, in combination with upgrades to existing infrastructure;

Further investigations confirmed that as with Option 1 above, the existing overhead lines are not suitable for 400 kV operation or the number of circuits in a corridor required to be increased.

Why is a 400 kV line required?

In Scotland, electricity transmission lines can be built at 132 kV, 275 kV or 400 kV. The need for reinforcement is demonstrated through application of the Planning Standards against different generation and demand scenarios and also through economic assessment of constrained energy as a result of congestion on the existing and post reinforced network. To accommodate the level of generation connections over the next few years, SHE Transmission has determined that the capacity required necessitates the use of a 400 kV overhead line. As it happens, the size of the towers would be similar for a new 275 kV or 400 kV line.

How much will the Projects cost?

The Final cost of the Projects will depend on a number of factors including the route chosen, the tower design required, the scale and scope of any public road improvements required, access requirements, mitigation measures that may be required and the terms of any consent conditions that may have a cost impact. All costs will have to be justified to Ofgem but at this stage are expected to be several hundred million pounds.

How does SHE Transmission consult on their proposals?

For projects of this scale and complexity SHE Transmission will consult with the public as soon as it is relevant and meaningful to do so. At the beginning of project development, the focus is on ensuring electrical connection and security of supply. Once SHE Transmission establishes broad geographical areas that could be affected by the proposals, statutory stakeholders are consulted to seek their initial feedback on the Projects. The Scottish Government Local Energy and Consents chair these statutory stakeholder meetings due to the geographical spread. As broad areas are still under consideration, at this stage, it is difficult for SHE Transmission to give any definitive information about which communities may or may not be affected, therefore it is not until a preferred route corridor is identified, that full public consultation is undertaken.

SHE Transmission as a responsible developer understands the value of effective consultation but that has to be at an appropriate juncture in the project development cycle. Further consultation with the public and statutory consultees will be undertaken at various points in the development of the Projects.

How were the consultation events publicised?

A broad range of media were used by SHE Transmission to ensure as many people as possible were made aware of the consultations being undertaken and therefore able to access the information and take part in local events or make their representations to SHE Transmission. Those included the use of social media, broadcast on local and regional radio stations and advertisements in regional, local and farming newspapers. In addition, posters were displayed on community notice boards, in local shops and post offices and provided to local community councils to display. For the Monymusk consultation in March 2016, letters were also sent directly to 935 households in the area.

SHE Transmission posted information on their project websites about the consultation events being held and has published its Consultation document, issued public information booklets at the events, and sought input from the consultation events by way of a feedback form to be completed by those interested in the Projects.

SHE Transmission considers that the methods employed to advertise the consultation events and seek feedback were appropriate to the stage that the Projects were at but will take account of representations made in feedback forms as to how events and consultations can be best publicised in the future.

What are the timescale for the delivery of the Projects?

For the last two years, SHE Transmission and its environmental consultants have been working to identify a corridor within which a new overhead line could be routed.

In October 2015 a corridor of least constraint was identified. This corridor is several kilometres wide in places and less than one kilometre in others. The corridor width is determined by constraints, for example, environmental designations, cultural heritage assets, built environment constraints, topography and terrain, existing infrastructure and large areas of population. The corridor identified still has some constraints within it and these will be assessed as work progresses to define a preferred route alignment within the corridor.

Between October 2015 and January 2016 SHE Transmission consulted on a preferred corridor. Feedback during that consultation suggested a narrow area between Monymusk and Kintore should be considered as well. A further consultation event was then held between March and May 2016 in the Monymusk area showing the extended width to the preferred corridor in the area suggested.

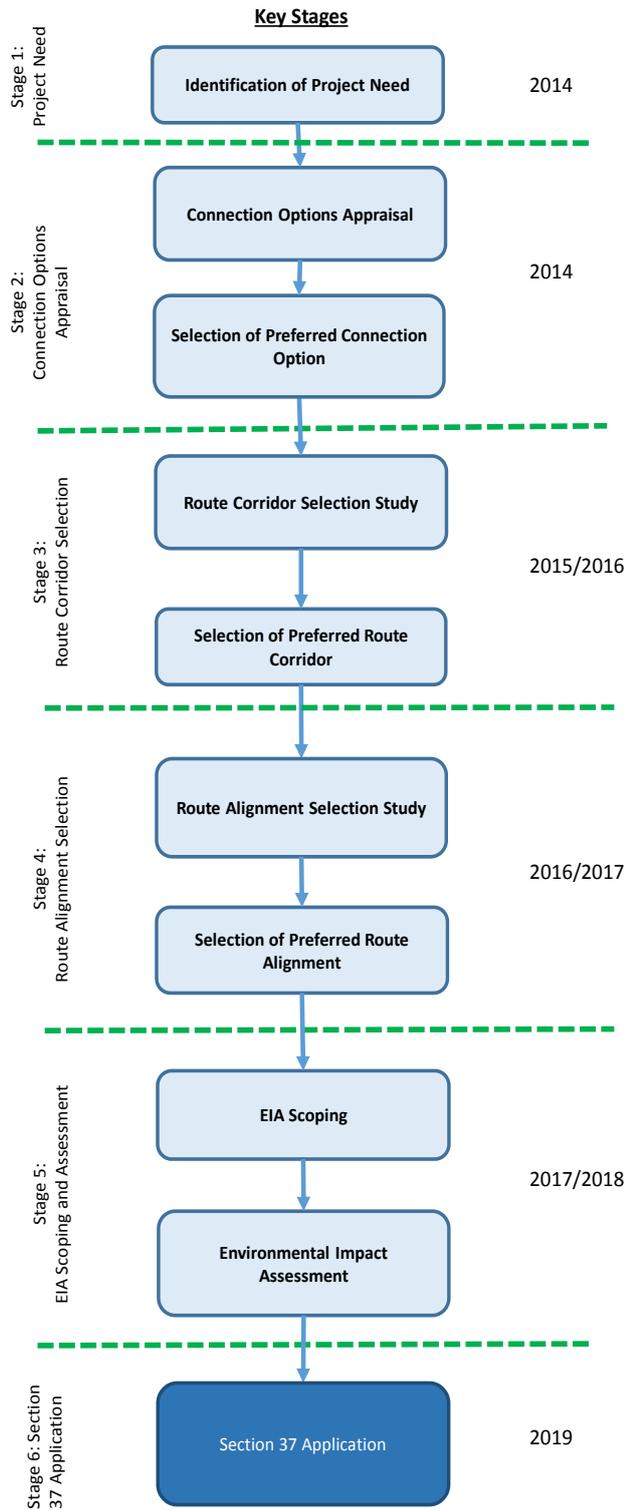
For the remainder of 2016 and the first half of 2017, the multi-disciplinary project team will focus on the preferred corridor, incorporating feedback received where possible, to narrow down to a preferred route. During this period SHE Transmission will be engaging with statutory and non statutory consultees to ensure the process is robust and consistent and will also be contacting potentially affected landowners and occupiers during this period.

When a preferred route has been identified in late 2017 SHE Transmission will hold further public events to consult on the preferred route. This will involve the preparation of a Consultation Document prior to the events and a Report on Consultation after the events.

SHE Transmission expects to submit an application under Section 37 of the Electricity Act 1989 to construct and operate the line, to the Scottish Government Local Energy and Consents in 2019, but that will be subject to National Grid and Ofgem review. Once we have submitted our application, comments and representations can be sent to the Scottish Government Local Energy and Consents.

On our current timetable, it is anticipated to begin construction in 2021.

The dates given and shown in the graphic below are indicative at this stage and subject to regular review. SHE Transmission will liaise with all communities and stakeholders throughout the Projects.



Will the new lines be close to any properties?

Minimising as far as possible the impact of the lines on the visual amenity of the area from Beauly to Blackhillock and Kintore will be one of the critical factors in identifying the proposed route alignment. Another key objective will be to try to avoid proximity to as many residential properties as possible and when designing the route of a high voltage overhead line SHE Transmission endeavour to align the route so as to stay at least 100 m from houses, however, this may not be possible in some situations. Detailed analysis will be undertaken as part of the route selection and SHE Transmission will then be in a position to demonstrate what, if any, impact there would be on properties. In developing the route alignment, SHE Transmission will aim to ensure that landscape features are used to either screen or provide backclothing for the towers and lines in views from residential properties, so to minimise impacts on visual amenity.

Why is the proposed line not taking the most direct route?

The most direct route between Blackhillock and Kintore would be a straight line that would pass very close to Bennachie and also the Hill of Foundland further to the north-west.

The option of passing on the north side of these landmarks has been considered, but this would involve a corridor either north-east or south-west of the existing overhead lines.

Going south-west of the existing overhead lines would involve passing closer to Bennachie and on higher ground, which SHE Transmission have tried to avoid due to its landscape and amenity value.

On balance of human, environmental, technical and economic factors, SHE Transmission believes the proposed corridor offers a shorter and less constrained route than options to the north-east of the existing overhead lines.

Why is an underground cable solution not being considered?

The widespread use of transmission cables as an alternative to overhead lines is not a feasible way forward from a technical standpoint as there are potentially severe technical issues with harmonic magnification, low frequency resonance and voltage stability which are likely to make the system inoperable.

Overhead lines are a standard, well established technology that has many advantages. The technology is not outdated as modern higher tensile steel allows slimmer tower designs; while significant advances in conductor technology allow higher capacities to be carried on new and existing towers. Overhead lines form the majority of new and existing electricity transmission infrastructure around the world.

Furthermore, overhead lines are still the most economical way of transmitting electricity between two points. Newer technologies are sometimes unproven and commonly cost significantly more to construct and operate with a shorter life span.

Although there are some countries in the world that are proposing undergrounding as a default for new infrastructure (for example, Denmark) a different regulatory regime is in place, with different economic drivers and objectives. World wide, there is very little undergrounding of the 400 kV network. Where undergrounding is pursued, there will be technical challenges of cable charging current, voltage and network stability which increase with increased voltage and circuit length.

The SHE Transmission approach seeks to ensure that a full process of consultation and appraisal is followed to strike a balance between the needs of many different stakeholders.

Why can't the new lines be built alongside the existing line?

Existing lines were routed using similar criteria to those being used today to avoid designated features, minimise impacts on people, take account of engineering constraints, topography, watercourses, land use and existing infrastructure. If an overhead electricity line already exists that does not imply that SHE Transmission can construct a new line beside it without impacting on, or being impacted by, those same features. The existing lines may have taken the only route through a particular area to avoid constraints so in some cases there may be no room for additional infrastructure.

For the Beauly-Blackhillock Project, the existing 275 kV line forms the northern boundary of the preferred corridor so it is possible that the new and existing line could be adjacent in places.

For the Blackhillock-Kintore Project a new corridor has been identified with fewer constraints than the existing route.

Why can't the new lines be undergrounded alongside the A96?

The existing A96 is routed through and adjacent to towns and villages and as such that is not a practical consideration.

It would be difficult to underground the required number of cables next the new A96 as our cables require the same width as a dual carriageway. This could mean houses and other infrastructure would be adversely affected. An overhead line would also encounter similar issues with existing housing etc.

See comments under the question "Why have some of the options not been progressed" option 3.

What will the overhead line look like?

SHE Transmission has consulted at an early stage on these Projects. As a result, specific images are not available at present, given that the project development is at the stage of assessing a preferred corridor and not specific route alignments.

The choice of tower type will be determined by the topography and altitude of the route of the proposed line and the associated wind and ice loadings. Depending on the type of standard tower selected, the height of the towers will be 46 m or 50 m. The towers need to be high enough to maintain statutory electrical safety clearance to ground for 400 kV lines of 7.6 m and a minimum distance between conductors to ensure adequate separation.

Overall, the 46 m towers are similar in height and dimensions to those supporting the existing transmission lines between Kintore, Peterhead and Blackhillock and the Kintore to Kincardine line. The 50 m towers would be similar to the Beauly to Denny line standard towers.

Can alternative tower designs be used to limit the visual intrusion of towers?

SHE Transmission is committed to investigating all appropriate mitigation techniques in order to reduce the potential impact of overhead lines. This mitigation may include alternative tower designs. Both SHE Transmission and National Grid are developing alternative tower designs but these are in the very early stages of development. These new designs may be suitable for these Projects, however, rigorous testing and assessments have to be carried out before a decision can be taken as to whether they could be used on these Projects.

Can overhead lines with greater capacity be used in order to reduce the need for additional lines?

In all cases, SHE Transmission seeks to minimise the need for additional infrastructure, by making better use of the existing network and designing for future capacity. The relevant sections of the existing network will have been upgraded to its maximum capacity before these Projects will be built. The new line will be built to 400 kV capability to give additional capacity.

The transmission system SQSS require that there is sufficient capacity in the transmission network to allow for credible faults and subsequent circuit trips. Consequently the number of circuits in an area can be just as important as the capacity of the circuits.

Are there incentives for SHE Transmission to place overhead lines underground?

Ofgem have allocated £500M for the Transmission Operators in Great Britain (Scottish Hydro Electric Transmission, Scottish Power Energy Networks & National Grid) to bid for funding to mitigate the visual impact of existing transmission equipment in National Parks and National Scenic Areas. This could include location specific undergrounding, enhanced screening or some other mitigation. SHE Transmission is looking at the possibilities of this funding for existing lines.

The Incentive only applies to existing transmission infrastructure in National Parks and National Scenic Areas and not to transmission lines that are under development.

Can energy generation and transmission be planned together so that the need for high-voltage lines stretching across the country from generators to consumers is minimised.

SHE Transmission's duty is to ensure new generation is connected to the transmission grid. SHE Transmission do not influence where generation is located.

Are the Projects needed if wind farms/ micro hydro/solar projects have stopped due to the change in the subsidy regime?

SHE Transmission has an obligation to respond to the demand for connections that are contracted or forecasted to connect. The generation market is volatile and kept under annual review. If a development has a contracted connection date SHE Transmission must work to that date until the developer modifies its connection application or withdraws it. For these Projects SHE Transmission and National Grid are monitoring the activities and progress of many renewable developments including onshore and offshore wind, hydro, pumped storage, wave, tidal, solar and existing generating plant that may increase or decrease their contracted output in the north and north-east of Scotland.

These Projects are also required to increase system security of the national transmission network and comply with the requirements of the National Electricity Transmission System Security and Quality of Supply Standards (NETS SQSS).

A review of the needs case will be undertaken annually under the Network Options Assessment (NOA) during the Projects' development by SHE Transmission and National Grid and if it is found that the demand is no longer there the Projects will be put on hold until the generation background position changes.

What environmental studies will be undertaken?

Environmental Impact Assessments (EIA) will be completed for the Projects and submitted in the form of an Environmental Statement (ES) to accompany the Section 37 application to the Scottish Government Local Energy and Consents for approval. These assessments will include a number of surveys, which will be set out within the ES. The ES will also describe any proposed mitigation

measures agreed with statutory bodies such as Scottish Natural Heritage, Scottish Environment Protection Agency and Historic Environment Scotland. The topics that will be assessed as part of the EIA will include land use, forestry, agriculture and sporting interests, geology and soils, hydrology, ecology, birds, landscape and visual effects, cultural heritage and archaeology, tourism and recreation, electric and magnetic fields and noise, as applicable.

How will wildlife be protected?

Surveys will be conducted as the Projects develop so that all wildlife, including protected species which may be potentially affected, are identified and can be protected. This will be undertaken as part of the Environmental Impact Assessment, which will be required to support the application for consent to the Scottish Government Local Energy and Consents.

Will the Projects affect private water supplies?

Discussions will be held with landowners and surveys completed during development of the Projects to locate private water supplies. The outcome of these surveys and subsequent assessment will be documented in the Environmental Statements and supplied to the contractor.

Will the Projects pollute the local river/burn?

Mitigation will be put in place to ensure local rivers and burns are not adversely affected. This mitigation will be defined as part of the Environmental Impact Assessment process, and the specific measures that are required will be documented in the Environmental Statements.

Are there any potential impacts on archaeology or cultural heritage?

Cultural heritage surveys will be conducted as part of the Environmental Impact Assessment process, to ensure that known archaeology is understood and assessed. Any mitigation measures will be agreed with Historic Environment Scotland and local authority archaeological services for the Projects which will include what to do if any unknown archaeology is discovered during construction. The next stage of the Projects will include more detailed assessments of the setting for sensitive cultural heritage receptors. The outcome of the archaeology and cultural heritage surveys and assessment will be documented in the Environmental Statements.

What will the impact be on ancient or semi-natural designated woodland areas?

Once the route alignment is known SHE Transmission will be able to consider fully the impact of the proposals on ancient or semi-natural designated woodland areas. SHE Transmission will aim to avoid these areas wherever possible during the detailed route selection process. If that cannot be achieved SHE Transmission will work with landowners to provide suitable mitigation.

What about the impact of the proposed overhead lines on ecology?

Ecology surveys and assessment will be undertaken as part of the Environmental Impact Assessment to ensure that all of the vegetation, plants, birds and protected species (both terrestrial and aquatic) which may be potentially affected are identified and can be protected. No significant long term adverse ecological effects are likely to arise as a result of erecting or operating the new transmission line. This is partly because, where potentially significant effects are identified, mitigation and off-set measures will be implemented. The surveys and assessment will be documented in the Environmental Statements, which will be required to support the consent applications.

Have tourism interests been considered?

SHE Transmission is always careful to minimise any impact on tourist attractions and early consultation will assist in identifying any concerns.

SHE Transmission will also look carefully at what impact construction might have during key events in local areas with the aim of minimising any inconvenience. Any impact on tourism interests will be assessed through the Environmental Impact Assessment and will be documented in the Environmental Statements.

Will SHE Transmission ensure that landscapes that are not designated as NSAs, SSSIs, National Parks or similar are not being ignored in the routeing process?

It is accepted that national designations do not, in themselves, represent the full extent of valued or sensitive landscapes to be taken into consideration. Accordingly, SHE Transmission has considered landscapes identified by local designations (e.g. Special Landscape Areas in the Highlands, Areas of Great Landscape Value in Moray and candidate special landscape areas of Aberdeenshire) as well as non-designated landscape types.

Will the new line encroach on any National Scenic Areas?

The proposed route corridor for the Projects does not encroach on any National Scenic Areas.

Is the route of the line between Beaully and Blackhillock going through Culloden Battlefield?

SHE Transmission's preferred route corridor is situated over 2 km to the south of Culloden Battlefield and further away than existing overhead line infrastructure in the area. The preferred route alignment has not yet been identified, however, SHE Transmission is fully aware of the importance of minimising impacts on Culloden Battlefield. At this stage, it cannot be confirmed that there will be no visibility of the overhead line from the battlefield but any such impact will be fully considered as part of the detailed route alignment process and any mitigation required will be considered to ensure the cultural and historic importance of the battlefield is not significantly affected by the proposals.

Have Electric and Magnetic Fields been considered?

SHE Transmission is obliged as part of its licence obligations, to ensure that its assets operate within the guidance set by the UK Government.

Electric and magnetic fields (EMF) will be considered as part of the Environmental Impact Assessment process to ensure that the Projects will be well within limits set by UK government guidance which in turn is based on the advice of the Government's independent scientific advisers, the NRPB (now part of the Health Protection Agency), who ensures the appropriate level of protection for the public from these fields.

Further information on the guidance can be accessed on the UK government website, <https://www.gov.uk/government/collections/electromagnetic-fields>

The NRPB keeps the results of EMF health studies under constant review to ensure that the guidelines for limiting exposure are based on the best available scientific information.

Additional information on the research into a possible link between electromagnetic fields generated from electricity transmission infrastructure and human health is documented in the Energy Networks Association (2013) publication Electric and Magnetic Fields.

Construction/Practicalities/ interfaces with community

What does the construction work involve and how long will the lines take to build?

At this stage, construction timetables are not known and so an accurate timescale cannot be provided, but by way of example, the Beauly to Denny line which is 220 km took four years to construct.

The projects consists of installing a double circuit 400 kV overhead transmission line from Beauly to Blackhillock, approximately 110 km, and from Blackhillock to Kintore, approximately 55 km. Existing substations will be utilised so no additional substations are planned as part of these Projects.

The construction of an overhead electricity line follows a standard sequence of events. The first stage is enabling works which includes public road improvements and any required tree cutting, improving existing access tracks and constructing new access tracks where required. Until the final alignment of the route is known SHE Transmission cannot say where these tracks might be required, and whether they will be required on a permanent or temporary basis.

Thereafter tower foundations will be installed and towers erected. On completion of that, the conductors (wires) will be strung. Once the towers are erected, the ground around the towers will be reinstated and ground cover will be allowed to regenerate naturally.

Reinstatement plans for any ground affected by the works would be agreed with statutory authorities ahead of works being started. SHE Transmission will work with landowners and communities to try and improve access for the long term, wherever possible.

SHE Transmission will complete reinstatement works as soon as appropriate after completion of construction of the line and will monitor these for a period of time to ensure that they have been successful.

How will SHE Transmission work in designated environmental areas?

SHE Transmission will identify and assess designated environmental areas as part of the Environmental Impact Assessment and will produce detailed Environmental Management Plans which will be adhered to at all times during construction. They will be formulated in consultation with the construction contractor and statutory consultees such as the local authorities, Scottish Natural Heritage and Scottish Environmental Protection Agency.

How will construction traffic be managed?

Prior to the start of construction, SHE Transmission will agree Traffic Management Plans with the relevant local authorities and road space managers, including the police. These plans will detail works which may be required to upgrade or strengthen public roads to ensure their suitability for use. The Traffic Management Plans will also detail the routes to be used by construction traffic and anticipated volumes of traffic and any required mitigation measures. By undertaking these assessments, SHE Transmission aims to ensure that construction traffic uses the roads safely and that any inconvenience to the public is kept to a minimum whilst maintaining a safe environment for the workforce and all other road users.

Will any public roads be closed?

There may be a limited number of roads that will need to be closed for short periods to ensure that safety of the public and the construction workforce is maintained at all times. If there is a requirement to close roads, SHE Transmission will agree these in advance with the relevant authorities and inform local residents of any closures.

Will all public rights of way continue to be accessible?

Where construction access tracks coincide with rights of way SHE Transmission will ensure the access tracks are built in such a way that walkers and other users can still use the facilities. Signs will be erected to warn the public of construction activities and construction staff will be made aware of their responsibilities to ensure minimum disruption to the public.

How will SHE Transmission avoid gas pipelines, quarries, wind turbines and other infrastructure?

During the detailed routeing process SHE Transmission will contact and work with owners of existing infrastructure, businesses and landowners within the preferred corridor.

What will be the impact on agricultural land?

Assessment of effects on agriculture and land use, as well as further liaison with landowners, will be undertaken as part of the detailed route selection and subsequent Environmental Impact Assessment process, prior to a consent application being submitted. SHE Transmission seeks to work with landowners to ensure that disruption is minimised during construction.

Will construction works be noisy or dirty?

There is potential for short term noise and dust impact during construction, however, SHE Transmission will follow best practice to mitigate any effects and will work with contractors to keep both to a minimum.

Will there be power cuts during construction?

Where construction works require parts of the transmission network to be temporarily removed from service, SHE Transmission will agree these with National Grid, who control the operation of the Great Britain transmission system. These should not affect customers due to the nature of the interconnected transmission system. Where local shut downs are planned at lower distribution voltages, endeavours will be made to minimise these and affected parties will be notified.

Will community benefit be paid?

SHE Transmission is a regulated business and is not permitted to pay community benefit due to project costs being met by electricity customers across Great Britain. All project costs have to be approved in advance by Ofgem, the electricity industry regulator. However, SHE Transmission may require to carry out some improvements to local infrastructure as part of the project delivery.

There are indirect, but tangible benefits which arise during the construction of these projects. It was assessed that the construction of the Beaulay – Denny project contributed over £100m to the Scottish economy. The project had a direct impact by providing business to local companies, using local accommodation and supporting local businesses.

Will compensation be paid if construction of the lines impacts on businesses?

No compensation is payable but we will do everything we can to keep disruption to a minimum during construction.

Will I get compensation if SHE Transmission infrastructure is on my land?

Compensation will be paid to landowners on whose land the line is to be erected on and that will be agreed on a case by case basis in line with statutory provisions.

Will the Projects create local jobs?

As part of the process for submitting the application for consent under section 37 of the Electricity Act 1989 SHE Transmission has to estimate the number of jobs that the Projects may create. Experience in other areas is that many jobs are created as a result of the demand for staff by contractors and their sub contractors and are generally filled by local people. There are many additional jobs created in ancillary industries.

The construction of the overhead line from Beauly to Denny supported over 1500 full time jobs throughout peak periods. Whilst many of these roles were specialised, employment opportunities were created for those willing to learn new skills, join apprentice programmes or to put existing skills into new practices.

The SSE group operates a programme called “Open for Business” where individual businesses, large and small, can register to be considered for work. As far as individuals are concerned, opportunities might arise with the main contractor or their sub-contractors but SHE Transmission is not in a position to say who that will be at this stage. You can sign up for Open for Business on line at <https://www.sseopen4business-highlands.com/sse/signup.html>

How do I have my say?

Further rounds of consultation will be held once the route alignment has been identified and that consultation process will provide an opportunity to make representations and highlight concerns and these will be considered along with other comments. The consultation process will be widely advertised and events will be held along the route of the line.

Once an application for consent under Section 37 is submitted to the Scottish Government Local Energy and Consents, it will be advertised in the press and opportunities for submission of representations will be available at that time.