

01 - What stage is the project at?

In July 2005, Scottish Hydro Electric Transmission Limited (SHETL) and Scottish Power Transmission Limited (SPT) published the proposed route for the 400,000 volts (400kV) overhead electricity transmission line which will replace the existing 132,000 volts (132kV) transmission line between Beauly and Denny. In September 2005 SHETL and SPT submitted applications to the Scottish Ministers under Section 37 of the Electricity Act 1989, to construct and operate the line in their respective licensed areas.

Scottish Ministers announced on 30 August 2006 that the proposed upgrade to the overhead electricity transmission line between Beauly and Denny would be referred to a public inquiry. The inquiry started in February 2007 and evidence was heard in public throughout that year. The Public Inquiry Report by the Reporters is expected towards the end of 2008. Ministers have indicated that a decision on the planning application may be expected during 2009.

02 - What consultation was there prior to the public inquiry?

The publication of the proposed route, in July 2005, followed 18 months of public consultations held by the two companies, based on documents and draft routes published in January 2004 and in June 2004. A further period of formal public consultation on the companies' proposal took place, in line with the procedure for considering Section 37 applications.

The formal process of consultation concluded on 30 April 2006 but discussion has continued with statutory consultees throughout the process. The five Planning Authorities within whose boundaries the proposed development falls (Highland Council, Perth and Kinross Council, Stirling Council, Falkirk Council and Cairngorm National Park Authority) had concerns about some aspects of the application.

03 - Why does the line need to be built?

SHETL and SPT are licensed electricity transmission companies and have a duty under the Electricity Act 1989 to develop and maintain an efficient, co-ordinated and economical system of electricity transmission and to facilitate competition in supply and generation of electricity.

The levels of renewable generation that developers are contracting to connect to transmission and distribution networks are such that the existing transmission capacity is insufficient. The replacement transmission line will provide more reliable and less constrained electricity network capacity for around 2,500MW (megawatts) of renewable energy capacity in the north of Scotland, and will form a basis for growth in the long term.

The significance of such growth has been confirmed by recent Ministerial statements. In November 2007, the Scottish government announced a new target to generate 50% of Scotland's electricity from renewables by 2020, and the UK Government confirmed that it is committed to the EU target for 20% of all energy requirements being met from renewable sources by 2020.

A GfK NOP poll commissioned by Scottish Renewables asked Scots in November 2005 their opinions

about renewable energy and the importance of the electricity network. 76% agreed that it is important that the national grid accommodates new renewable schemes.

Rebuilding the weakest leg (Beaully-Denny) of the north of Scotland transmission ring allows the other elements of that ring to be strengthened through relatively uncontentious re-conductoring and re-insulation work on existing tower routes, and substation extensions (i.e. no new major overhead line routes). This in total will release the capacity for renewable generation in the north to some 6.4GW (cf 2.2GW already connected). These next projects have been identified in the government's National Planning Framework for Scotland. The reinforced ring facilitates collection of the output from onshore developments and the identified sub sea island links for Western Isles, Shetland and Orkney that are proposed for connection onto the reinforced transmission system.

04 - Why is a 400kV line required?

In Scotland, electricity transmission lines can be built at 132kV, 275kV or 400kV. In order to facilitate competition in electricity generation, SHETL and SPT must seek to avoid unduly restricting generation output. To achieve this, at the level necessitated by contracts over the next few years, the replacement line needs to have a capacity of 400kV to maximise the efficiency of the transmission network. As it happens, the size of the towers would be similar for a 275kV or 400kV line.

05 - What difference does the fact that SHETL and SPT are regulated companies make?

As licensed regulated companies SHETL and SPT are obliged by law to develop and maintain an efficient, co-ordinated and economic system of electricity transmission and to facilitate competition in the supply and generation of electricity. SHETL and SPT are also responsible for developing the transmission system and connecting new demand and generation to the grid network in accordance with the GB Security and Quality of Supply Standards.

All investment has to be approved by the regulators (Ofgem) and the Beaully-Denny upgrade proposal has been developed under license conditions. The route chosen also complies with revised 'Holford Rules' which are the recognised industry approach to routing overhead lines amended to reflect Scottish circumstances.

06 - Why are renewable energy schemes being developed?

The development of renewable energy is needed:

1. as part of the strategy to reduce greenhouse gas emissions (the UK is responsible for around 2% of global greenhouse gas emissions even though it only has 1% of the world's population); and
2. to increase the amount of electricity generated in the UK from indigenous sources now that the UK is becoming a net importer of gas and is set to become a net importer of oil by around 2010.

07 - What will happen if the upgraded line is not built?

The need for the country's green and more indigenous sources of energy is becoming increasingly acute and a rejection (or even partial rejection) of the replacement line will significantly delay Scotland's efforts to tackle climate change. A fresh round of consultation, likely public inquiry and further political consideration could result in the transmission system being unable to accept additional renewable electricity until at least 2016. Scotland's climate change commitments, industry confidence in renewables investment, broader economic development and employment in harnessing Scotland's renewable resources will all falter, at a time when the delivery of green energy solutions has never been more urgent.

Should the Section 37 application be conditional on undergrounding one or more sections for this project, this will require detailed development, which may itself be subject to planning approval and result in substantial increases in costs.

08 - How long will the project take to build?

If consent for the line is received in early 2009 and SHETL and SPT obtain the necessary approvals to start work by the 1 June 2009, then the estimated commissioning date for the new line is September 2012. However, due to the seasonal constraints and timing of the necessary electrical outages to facilitate the new build programme, if work cannot commence in June 2009 then the start of construction would be delayed until 2010 and the commissioning of the new line would be delayed by a full year to September 2013.

If consent is granted for only part or parts of the line then SHETL and SPT would need to review the consent and revise its construction programme accordingly. The impact on the final commissioning date for the network reinforcement would depend on the solutions identified to 'bridge' the sections of the line for which consent was not granted. If, for example, an alternative overhead line route was identified then a further s37 consent application would be required. Such an application could potentially delay completion of the line by at least three years (subject to the progress of the section 37 application).

If consent is not granted then SHETL would immediately commence work to bring forward an alternative network reinforcement or reinforcements. At this time, no alternative reinforcement has been identified as Beauldy-Denny remains, by far, the optimum solution to the demand for transmission capacity in the north of Scotland. Alternative solutions which would also require Ofgem approval would result in additional radial transmission lines in order to harvest the generation, a higher cost to consumers and would significantly delay the development of renewable generation in Scotland.

09 - Is the new line being built on the same route as the existing one and what will happen to the old towers?

While the proposed route for the 400kV line has been selected on the basis of technical and environmental criteria, around 60% of the line will be built on a route adjacent to the existing line, which it will replace. The existing transmission line between Beauldy and Denny will be dismantled and removed once the new line is operational.

10 - How many towers will there be?

The replacement line will be 220km long, largely the same as the existing line. Of this, 200km will be in the SHETL area and 20km will be in the SPT area. It will be supported by around 600 towers, which is at least 200 fewer towers compared with the existing line. Of this, 102.6km will be in The Highland Council area; 89.5km in Perth and Kinross Council area ; 27km in Stirling Council area; and 0.9km in Falkirk Council area.

11 - What height will the towers be?

The height of the new towers will range from 42 metres to 65 metres, depending on the topography and the altitude. Almost 80% will be lower than 57 metres. The height of the towers on the existing line ranges from 25 metres to 41 metres.

Amongst other things, the towers need to be high enough to maintain the statutory electrical safety clearance to ground for 400kV lines of 7.6 metres and a minimum distance between conductors to ensure adequate separation.

Overall, the towers are similar in height and dimensions to those supporting the Dunbar to Kaimess transmission line in East Lothian. The tallest towers in Scotland are close to the River Forth and are over 130 metres high to take account of the river crossing.

12 - Will the towers be the same height as the Wallace Monument?

The Wallace Monument is 67m tall and stands on a 110m crag, giving a total height of almost 180m above sea level. The tower nearest the Monument, over 1km away, will be erected on the floor of the Forth Valley and will be 46.5m tall, the top of which will be 58.5m above sea level

13 - Will the new line be close to any properties?

Minimising as far as possible the impact of the replacement line on the visual amenity of the area from Beaulieu to Denny has been one of the crucial factors for the companies in identifying the proposed route. In keeping with that, visual effects have been assessed for properties and settlement areas, roads, railways, other rights of way, open space and recreation areas.

Another key objective in selecting the proposed route has been to avoid proximity to as many residential properties as possible. There are currently around 90 residential properties located within 100 metres of the existing transmission line. There will be three residential properties within 100 metres of the proposed route for the replacement line: one in the SHETL area and two in the SPT area.

As part of the final design phase, the location of individual towers will be fine-tuned to minimise their effects on areas of particular sensitivity, for example by using topography and planting to minimise the effects on views.

14 - Will the new line encroach in any National Scenic Areas?

The proposed route for the 400kV line does not encroach within any National Scenic Areas. The proposed route will only encroach on the Ochil Hills Area of Great Landscape Value, where it will follow the route of the existing 132kV line, which will be dismantled.

15 - Will the existing line through Cairngorms National Park be changed?

The proposed route for the replacement line will result in a reduction in the length of the transmission line and in the number of towers going through the Cairngorms National Park. The length of the replacement line in the National Park will be 28km, supported by 76 towers. It will replace the existing line in the Park, which is 36km long and supported by 128 towers. The proposed route is on the boundary of the National Park and avoids settlements and popular tourist routes as far as possible.

16 - How many times will the line cross the A9?

The replacement line will cross the A9 three times (twice in the Drumochter area and once near Braco) compared with the twelve times which the existing line crosses the A9.

17 - Has putting the line under ground been considered?

Yes. During the consultations, The Highland Council, Cairngorms National Park Authority and Scottish Natural Heritage commissioned a study into the technical, financial and environmental issues pertaining to the undergrounding of Extra High Voltage (EHV) transmission lines. Amongst other things the study found that EHV underground cables (UGC):

- do "not offer the same level of availability as an overhead line.....prolonged faults are more frequent in underground cables than overhead lines and they also take, on average, much longer to repair";
- involve "motorway-width disturbance" and the movement of considerable volumes of spoil;
- need "sealing end compounds which are required where the cabled sections of the route connect to overhead line sections"; and
- cost between six and twelve times more than overhead lines "based on assumptions generally favourable to UGC"

At the Public Inquiry the Reporter heard evidence about the consideration given to undergrounding as an alternative. Reports were prepared which considered sections of undergrounding proposed by third parties. The conclusion reached in the reports was that an overhead line remained the best option, having regard to the companies fulfilling their statutory obligations.

18 - Why not use subsea cables instead?

SHETL and SPT prepared reports which were provided as evidence to the public inquiry in respect of using subsea cables as an alternative. Proposals were also submitted by third parties. The precognitions of the specialists who prepared the reports on behalf of the companies can be seen on the public inquiry website (www.beautydenny.co.uk) The evidence shows that a subsea cable will be significantly more expensive and will not deliver the additional grid capacity required to gather and connect the land-based renewable developments that are required.

19 - Why not strengthen the east coast line instead?

This is also a matter that will be assessed by the Inquiry Reporters. Again however, the fact is that to rebuild the east coast line to a level to significantly increase the North-South capacity of the system as an alternative to the Beauty-Denny, would increase costs significantly, result in greater environmental impact overall with more towers required and not deliver the connectivity required by renewable energy developments. Some strengthening of the east coast line is required subsequent to Beauty-Denny in order to further increase the capacity of the overall system as renewable developments increase to meet Government targets. (through relatively uncontentious re-conductoring and re-insulation work which now forms part of the proposed new National Planning Framework)

20 - What environmental studies have been undertaken?

The Section 37 application to the Scottish Ministers was accompanied by an Environmental Statement which is more than 2,600 pages and 1.17 million words long. It covers land use, forestry, agriculture and sporting interests, geology and soils, hydrology, ecology, landscape, visual effects, cultural heritage and archaeology, tourism and recreation, electric and magnetic fields and noise. In December 2005 further information, including an Ecology and Nature Conservation Addendum, was submitted to the Scottish Ministers. During 2006 further detailed bird surveys have taken place. In October 2006 a 2nd Addendum reported on a range of additional environmental information. In addition extensive undergrounding reports were undertaken.

21 - What about the overall ecological impact of the proposed overhead line?

No significant long term adverse ecological effects on vegetation, plants, birds, mammals or aquatic protected species are likely to arise as a result of replacing the transmission line. This is partly because where potentially significant effects have been identified, mitigation and off-set measures will be implemented.

22 - What will be the overall effect on ancient or semi-natural designated woodland areas?

The overall effect on ancient or semi-natural designated woodland following construction of the 400kV line and the dismantling of the existing 132kV line should be a net gain, over time, of 15 hectares of such woodland. This includes the release of Ancient or Semi-natural designated woodland following the dismantling of the existing 132kV line. To achieve this, the companies are committed to

working with landowners to naturally regenerate native species trees on existing ancient woodland sites where there are currently gaps.

23 - Have tourism interests been considered?

The companies commissioned an independent assessment of the potential impact on tourism and recreation as a result of the replacement of the existing transmission line with a new line. The assessment included a survey of businesses in the tourism and recreation sector located within 10km of the proposed route.

The survey found that 11 out of 155 respondents (7%) believed that the negative potential effect of the development of the replacement transmission line would be a loss of trade of greater than 15%. This survey sits within the context of wider comparative research highlighted which demonstrates that any such a loss of trade is generally recovered, at least in part, over time. In line with this, a study into the impact on tourism of the development of the so-called Moyle Interconnector in Ayrshire was commissioned and provided to the Public Inquiry. Its key conclusion was that *"the overhead transmission line interconnector has had an inconsequential impact on the tourism industry in Ayrshire and Arran."*

In addition, it is believed that the dismantling and removal of the existing 132kV line will improve the visitor experience in areas such as Laggan, south of the Monadhliath Mountains, because the proposed route for the line replacing it will not be visible to the majority of tourists and visitors in the area.

24 - Have Electric and Magnetic Fields (EMFs) been considered?

Yes. SHETL and SPT have designed the proposed replacement transmission line to comply with the government policy of adopting the guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP) on exposure to EMFs.

The companies believe that compliance with government policy on levels of exposure to EMFs, which in turn is based on the advice of the government's independent scientific advisers, the NRPB (now part of the Health Protection Agency), ensures the appropriate level of protection for the public from these 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. During the strategic session of the Public Inquiry parties were given the opportunity to provide evidence in relation to the topic of EMFs. Precognitions of those parties giving evidence on this matter can also be found on the Public Inquiry website. Following this session, The First Interim Assessment of the Stakeholder Advisory Group on ELF EMFs (SAGE) report was issued and parties to the public inquiry were given the opportunity to make written submissions on this report. SHETL's position was that the key conclusions of the SAGE report reflected an underlying approach to the precautionary principle which was consistent with that advanced by the Applicants in the strategy session of the Inquiry.

25 - How much will this project cost?

The companies forecast that constructing the new transmission line and associated substations, dismantling the existing line and reinstating the local environment around the existing line will require investment of between £300m and £400m. The final costs will be established after the conditions of planning consent are known.

26 - Who will pay for the project?

The investment in the project will be made by SHETL and by SPT. 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 that proposed investments are necessary and are efficient and economical so that the charges which are ultimately levied on all electricity customers are acceptable.

27 - How will the new line be built and the existing line dismantled?

Line construction follows a standard sequence of events, which is: preparation of access; installation of foundations; erection of towers; stringing of conductors; and reinstatement. It is likely to take around four years to complete the construction of the new line from end to end plus a further year to dismantle the existing line. Once the existing line is dismantled, the steel towers and aluminium conductors will be sent for recycling. Existing foundations will be removed to a depth of at least one metre below ground level. The ground will be reinstated and ground cover will be allowed to regenerate naturally with some low level planting in selected areas.