SP ENERGY NETWORKS

The Kendoon to Tongland 132kV Reinforcement Project

Underground Cable Study: Our Approach

November 2018

Kendoon to Tongland Reinforcement (KTR) Project

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SP Energy Networks
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This note provides an update on the Kendoon to Tongland Reinforcement (KTR) Project, specifically SP Energy Networks' (SPEN's) intention to undertake an appraisal of underground cable options as part of the Environmental Impact Assessment (EIA) process.

SPEN's Approach

SPEN's approach to routeing is set out in its published document "*Major Infrastructure Projects: Approach to Routeing and Environmental Impact Assessment*" which can be viewed under the Project Documents tab of the KTR website at www.spendgsr.co.uk. This document underpins the work undertaken to date to develop a proposal for the required reinforcement of the transmission network between Kendoon and Tongland.

On the basis of the detailed routeing work undertaken to date, informed by the previous three rounds of stakeholder consultation, SPEN remains of the view that the use of an overhead line on the selected routes meets the Statutory and Transmission License holder obligations under the Electricity Act 1989. However, in line with the overall approach, SPEN recognises that routeing the overhead line is an iterative process and will continue to review both the routes and the apparatus used throughout the consultation and Environmental Impact Assessment (EIA) stages of the KTR Project.

Background to the Cable Study

A fundamental part of the EIA process is the consideration of alternatives. For overhead line projects, this is taken to mean consideration of alternative overhead line routes. Notwithstanding SPEN's published approach to routeing major electrical infrastructure projects, the Scottish Ministers, in their scoping opinion (October 2017) stated that SPEN's Environmental Impact Assessment Report (EIA-R) for KTR should "*include information on alternative measures, including undergrounding, which have been considered to avoid, prevent or reduce and if possible offset the likely significant adverse landscape and visual effects where these have been identified through consultation feedback from affected communities or the routeing process e.g. 'pinch points' or cumulative effects on sensitive receptors.*"

In response to the Scottish Ministers' scoping opinion, taken with consultation feedback received from stakeholders and communities affected by the KTR Project, SPEN propose to undertake a study of underground options for the areas identified through the three rounds of pre-application consultation. The areas identified for inclusion in this study are as follows:

- Polquhanity to Kendoon
- Queen's Way Crossing
- Bennan, Slogarie and Laurieston Forests
- A75 crossing
- Consideration of undergrounding the proposed Glenlee to Tongland route in its entirety

Study Aims and Outputs

The main aim of the study is to undertake a comparative appraisal of underground cable and overhead lines for the identified areas. The findings of the resulting appraisals will be presented as alternatives in the KTR EIA Report (EIA-R) which will accompany the applications for consent to the Scottish Minsters. This appraisal will focus on a range of factors under the following broad headings:

- technical
- economic
- environmental

Identification of Cable Routes

For a variety of reasons an underground cable will not necessarily follow the route of the proposed overhead line, therefore, it is proposed that potential cable route options will be identified and appraised for each of the areas, culminating in the selection of a cable route for each area.

In a similar method to developing an overhead line route, a cable routeing objective has been developed to "*identify a technically feasible and economically viable cable route, between the specified points, which causes on balance the least disturbance to people and the environment.*" Cable routes will therefore have to establish a balance between engineering requirements, economic viability, land use and the environment. This approach is consistent with SPEN's transmission license duties and environmental obligations under Schedule 9 of the Electricity Act 1989.

The criteria for the identification of cable routes may include the following:

- safety and reliability;
- constructability
- Suitable locations for transition between OHL and cable;
- ease of access for construction and maintenance along route of cable;
- likely impact on the local environment during construction and ability to mitigate this;
- disruption to third parties during construction and ability to mitigate this;
- ground conditions, including risk of contamination and also ground stability;
- the need to cross wet areas and/or habitats that are difficult to reinstate successfully;
- flood risk, proximity to water supplies and ability to cross watercourses at their narrowest point;
- long term visibility of the cable route post construction, including the length that will be seen and the distance at which it will be visible;
- likely long term loss of landscape features such as hedges or individual trees;
- likely long term impact on known and unknown archaeology.

Appraisal of Cable and Overhead Line

The final cable routes for each area will be used as the basis for a comparative appraisal against the proposed overhead line routes developed to date. SPEN will consider the outcome of this study as part of the EIA process and will publish its overall conclusions as part of the EIA Report.

Roles and Responsibilities

SPEN have brought together a multi-disciplinary team consisting of both in-house and external expertise to undertake this appraisal. The broad roles and responsibilities for each discipline are set out in the table below.

Project Team Member	Responsibilities
Cable Consulting International Limited (CCI)	Identify technically feasible cable routes Technical commentary on cable options
SPEN	Economic assessment of cable options provided by CCI Economic assessment of overhead line options by CCI Technical assessment of overhead line sections
Land Use Consultants (LUC)	Provide landscape and environmental information/site input to inform CCI work on identification of cable options. Provide landscape and environmental commentary on cable options provided by CCI. Provide landscape and environmental commentary on overhead line sections provided by SPEN.
Copper Consultancy	Community relations, consultation and managing public and stakeholder enquiries for the KTR Project. **Note: Any queries regarding the cable study should be made to the existing KTR contact centre** **Freephone 0800 157 7353** **Email dgsr@communityrelations.co.uk**

Cable Consulting International Limited (CCI)

Cable Consulting International Ltd (CCI) is a wholly independent specialist engineering consultancy providing power cable engineering support to underground and subsea power cable system owners, operators, developers and insurers.

CCI's experience and expertise in all aspects of land and subsea power cable systems from 10kV to above 500kV mean they are well placed to lead on the identification of potential cable options for the KTR cable study.

CCI has a range of experience on large infrastructure projects, including:

- An underground cable route survey for a 275kV underground cable connection between Kirkby and Liverpool.
- Cable route studies in England for a 600kV HVDC cable connection between Scotland and England.
- Providing expert witness evidence on 400kV and 275kV power cable route options and costs to the Beauly-Denny Inquiry.

Land Use Consultants (LUC)

LUC provides award winning planning, impact assessment, landscape design and ecology services to a wide range of public and private sector clients.

LUC's extensive experience in grid connection development encompasses projects throughout Scotland, including leading on the routeing and assessment work for the KTR Project to date. Their sound knowledge of the landscape, environmental and community issues on the KTR Project will enable them to identify key issues, constraints to be fed into the design of cable options and help to ensure the successful delivery of high quality outputs.

LUC has also secured the Institute of Environmental Management and Assessment (IEMA)'s Quality Mark, demonstrating their commitment to ensuring the high quality of their EIA Reports, as well as contributing to and developing good practice.

Copper Consultancy

Copper Consultancy is a leading expert in communications, community relations, public consultation and stakeholder engagement during the planning and construction of major infrastructure projects, with particular expertise in electricity transmission and distribution.

Copper has provided the interface between SPEN and the community on the KTR Project since work commenced in 2015 and will continue to assist with external enquiries from stakeholders and communities as the cable study progresses.