



Proposed Upgrade of Existing XL Overhead Line Route From Kincardine to SHETL Boundary at Blairingone

Environmental Statement Non-Technical Summary

October 2013





Executive Summary

Scottish Power Transmission (SPT) is submitting an application to the Scottish Ministers under Section 37 of the Electricity Act 1989 for upgrade works to the transmission network in Fife and Clackmannanshire.

An Environmental Statement (ES) has been prepared in support of the application to the Scottish Ministers. This Non-Technical Summary provides a summary of the ES in non-technical language. Technical Appendices also accompany the ES along with a volume of figures and drawings.

The ES describes the environmental effects of the proposals, examines the nature and scale of these effects and recommends measures to manage and control adverse impacts (mitigation measures). Beneficial impacts are also considered if they have the potential to occur.

The document has been compiled by



In conjunction with the following Companies



Environmental Designworks



PREFACE

The Environmental Statement comprises the following documents:

- Written Statement (principal document)
- Figures
- Appendices

Further copies of all these documents may be obtained, and will be available for viewing, from:

Scottish Power Energy Networks
Environmental Planning
Ochil House
Technology Avenue
Hamilton International Park
Blantyre
G72OHT

The Non-Technical Summary is available free of charge, a copy of the Environmental Statement, Figures & Technical Appendices for £150.00. In addition all documents are available (as a PDF for screen viewing only) on a DVD for £10.00.

Copies of all documents are also available free of charge at
http://www.spenergynetworks.co.uk/serving_our_customers/performance.asp

Any representations to the application should be made by completing the online representation form on The Scottish Government, Energy Consents website at <http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-Consents/Support-object>

or

by email to The Scottish Government, Energy Consents Unit mailbox at representations@scotland.gsi.gov.uk

or

by post to The Scottish Government, Energy Consents Unit, Scottish Government, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU, identifying the proposal and specifying the grounds for representation, not later than Friday 20th December 2013.

Representations should be dated and should clearly state the name (in block capitals) and full return email or postal address of those making representation. All representations to the Scottish Government will be copied in full to the planning authority, and made available to the public on request, unless individuals request otherwise.

Copies of the documents will be available for public viewing at the following Council departments and Libraries:

SP Energy Networks, Environmental Planning, Ochil House, Technology Avenue, Hamilton International Park, Blantyre, G72OHT	Clackmannashire Council, Development Quality, Kilncraigs, Greenside Street, Alloa, FK10 1EB
Fife Council, Planning Department, Fife House, North Street, Glenrothes, KY7 5LT	Kincardine Library , 2 Keith Street, Kincardine, FK10 4ND



East Coast 400kV Reinforcement Project (Blairingone to Kincardine)

Environmental Statement Non-Technical Summary

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1. INTRODUCTION

1.1 Purpose of this Summary

This document sets out the main findings of the Environmental Statement (ES) prepared as a report on the Environmental Impact Assessment (EIA) which has been undertaken on the proposed upgrade of the existing overhead line route from Kincardine to the SHETL boundary at Blairingone and the construction of a new substation at Kincardine (“the Project”).

The assessments include both the construction and operational effects of the proposed development. The NTS is set out in the same chapter number format as the ES so as to assist readers wishing to know more about a particular topic, allowing them to easily find the information in the corresponding chapter of the ES. The sections within this NTS are therefore as follows:

2. Scoping Outcome;
3. Description of the Project;
4. Planning Context;
5. Water Environment;
6. Flora & Fauna;
7. Landscape and Visual Assessment;
8. Other Issues;
9. Cumulative Effects;
10. Residual Effects; and
11. Environmental Management Plan.

The NTS summarises the key findings from the environmental assessment process. Where the assessment identifies potential negative effects on the environment, measures to address and control effects - known as mitigation measures - are identified. The assessment then presents the overall effects remaining after mitigation has been applied; these are referred to as the residual effects.

1.2 The Legislative Framework

Consent for the overhead line works is being sought from Scottish Ministers under Section 37 of the Electricity Act 1989. An application for deemed planning permission is also being made to Scottish Ministers under Section 57 of the Town and Country Planning (Scotland) Act 1997 for the Project.

1.3 The EIA Process

The three volumes of the ES set out the findings of an Environmental Impact Assessment (‘EIA’) of the proposed development.

An EIA is an assessment of the possible positive or negative effects that a proposed development may have on the environment during the construction and operation phases. The purpose is to ensure that decision makers consider the potential environmental effects of a proposed development when determining whether to grant consent. The EIA process takes place in stages beginning with screening and followed by scoping before completion of the ES. As the process moves through these stages, information about the project and its potential to impact the environment is collated, allowing the required content of the assessment to be honed and a picture of the overall impact of the Project to be acquired.

The following four documents were prepared to accompany the Section 37 application and deemed planning permission:

1. The Non-Technical Summary (NTS), this document;
2. Volume 1: The Environmental Statement (ES);
3. Volume 2: Figures, Plates and Technical Drawings to accompany the ES; and
4. Volume 3: Technical Appendices (technical reports, which inform the ES).

1.4 The Applicant

SP Transmission Limited (SPT) is one of three transmission licence holders in the UK and is under a statutory duty to develop and maintain an efficient, co-ordinated and economical transmission system in accordance with the Electricity Act 1989.

The requirement for the Project arises out of SPT's statutory and licence duties.



2. DESCRIPTION OF THE PROJECT

The upgrade of the existing overhead line from 275 Kilovolts (kV) to 400kV will require limited works to the existing towers. However the voltage upgrade requires the establishment of a new substation at Kincardine in order to connect the upgraded line into the electricity grid. The Project will comprise three distinct sections, these being:

- Overhead line upgrade including removal of two existing towers and one new terminal tower at Kincardine
- Replacement cable sealing end compounds (where a high-voltage underground cable joins onto an overhead line) and low level gantries adjacent to the road crossing of the A977 at Kilbagie
- Construction of new 400/275kV Gas Insulated Substation (GIS) at Kincardine

2.1 Overhead Line Components

Figure 3.1 shows the typical arrangement and component parts of the existing towers along the overhead line route. The towers each carry twelve conductors and an earth wire. Each conductor is joined to the tower cross arm via an insulator string (comprising glass dishes). The conductors and earth wire will not require to be replaced in order to facilitate the upgrade of the line to 400kV; however the insulators will require to be replaced to allow for the increased clearances required for the increased voltage of the line.

To replace the towers requires access to each tower along the route. The principle method to be employed is to use existing tracks (and bridges) with upgrading of these if necessary. Given the type of plant and machinery required to reinsulate the OHL and the existing agricultural accesses, it is anticipated that low pressure vehicle use will be used to access all towers on the route

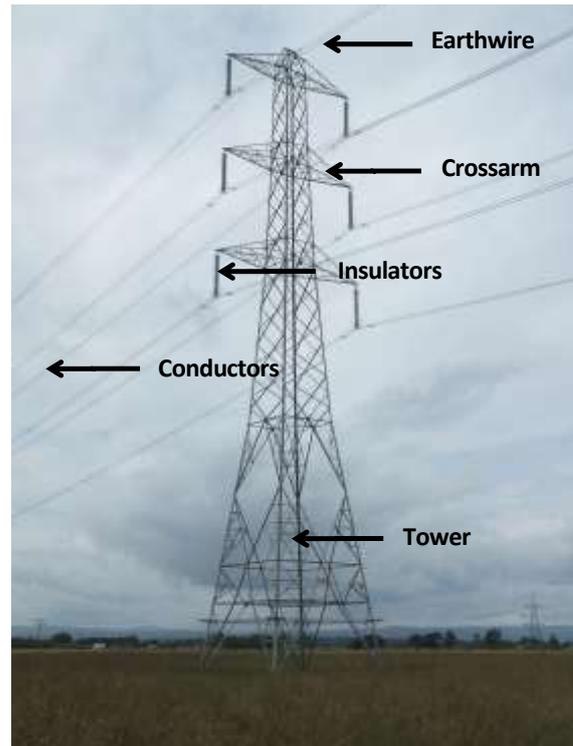


Figure 3.1: The typical arrangement of the towers along the route and their various component parts.

2.2 Cable Sealing End Compounds

The upgrade of the overhead line to 400kV will require the replacement of the existing 275kV cable sealing ends at Kilbagie. This will allow one side of the line to be terminated on to a new 400kV cable between the two compounds in order to safely pass under the existing tower lines crossing the A977. Similar to the existing arrangement this will require a new sealing end compound on each side of the road. Each compound will be surrounded by a 2.74m high security fence and a 1.5m wide perimeter pathway. The compound to the east of the road will be approx. 43m x 42m and the compound to the west will be approx. 46m x 42m.

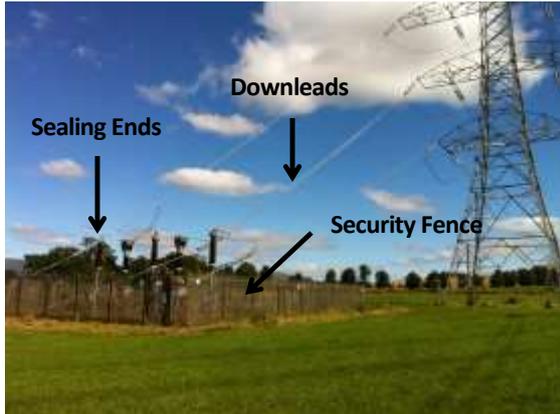


Figure 3.2: One of the existing 275 kV Cable Sealing End Compounds.

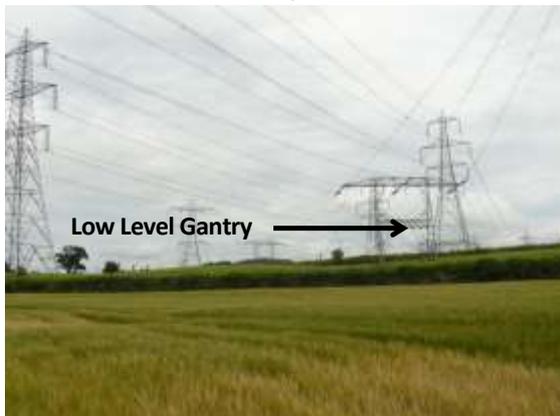


Figure 3.3: One of the existing 275 kV Low Level Gantries.

The other side of the line will cross under the existing lines and over the A977 on a low level gantry.

The existing 275kV sealing end compounds and low level gantries will be removed upon commissioning of the 400kV line. The existing 275kV cable will be capped and left in situ.

Figures 3.2 and 3.3 shows the existing arrangement at the sealing end compounds and low level gantries at Kilbagie.

2.3 Kincardine GIS (Gas Insulated Substation)

The voltage upgrade requires the establishment of a new 400/275kV substation at Kincardine in order to connect the upgraded line into the electricity grid.

A gas insulated substation is an electrical substation in which the major structures are contained in a sealed environment (steel clad building) with sulphur hexafluoride (SF₆) gas as the insulating medium (Figure 3.4 shows a typical GIS). SF₆ gas is an

extremely efficient insulating medium and one of the main reasons why gas insulated substations were developed was to allow high voltage installations to be made as compact as possible.



Figure 3.4: A typical 132kV GIS Building. It should be noted that the proposed substation at Kincardine would have a capacity of 275kV and would therefore be larger in size.

Figure 3.5 below shows the AIS substation that is currently located at Kincardine.



Figure 3.5: Existing substation at Kincardine, which contains an air insulated switcher (AIS).

The proposed 400/275kV GIS at Kincardine will be contained in a compound approx. 218m x 110m surrounded by a 2.74m high security fence and a 1.5m wide perimeter pathway. Drawing no. SP4105140 (Volume 2) shows the proposed layout of the substation.



3. SCOPING OUTCOME

During 2012 and early 2013, SPT undertook a series of consultation and scoping meetings with Fife Council, Clackmannanshire Council, Scottish Natural Heritage (SNH) and others. Following this round of consultations, the comments from respondents were used to inform the EIA Scoping Report ('Scoping Report').

In June 2013, EnviroCentre issued an EIA Scoping Report directly to key stakeholders. The objective of doing this was to obtain an opinion on the key topics (*i.e.* ecology, *etc.*) that should be assessed in the EIA, as well as the depth of study. This is typically based on whether significant environmental effects are likely.

The Scoping report was provided to each of the following statutory consultees:

- The Scottish Government;
- Clackmannanshire Council;
- Fife Council;
- Scottish Environment Protection Agency (SEPA);
- Scottish Natural Heritage (SNH); and
- Historic Scotland.

Furthermore, the scoping process enables the topics to be covered in the ES to be agreed and for those topics not considered pertinent to be scoped out or reduced in scope (*i.e.* not meriting a full chapter). See

Responses were received from the following bodies:

- Scottish Natural Heritage (SNH);
- Scottish Environment Protection Agency (SEPA); and
- Historic Scotland.

See Table 5.1 within Volume 1 of the ES, for further details on the scoping responses received.

3.1 Scope of the ES

Based on the consultation undertaken and responses received to date, a view was reached on the key topics to be assessed and included as a full impact assessment chapter as part of the ES. These were:

- Water Environment;
- Terrestrial Ecology; and
- Landscape and Visual.

Other topics were considered relevant but unlikely to lead to significant environmental effects, so not meriting a full impact assessment study. These topics are addressed under Chapter 8: Other Issues and include:

- Geology and Soils;
- Noise, Vibration and Electro-Magnetic Field; and
- Traffic and transport.

The following topics were deemed not to need any further study:

- Air Quality; and
- Archaeology and Cultural

The scope of the ES was also informed through consultation meetings with Fife and Clackmannanshire Council, as well as a meeting with Kincardine Community Council.

4. PLANNING CONTEXT

The key objective of this ES is to support the applications for consent under Section 37 of the Electricity Act and for deemed planning permission, both of which are being submitted to Scottish Ministers.

This chapter involved a review of relevant planning policy.

Relevant planning policy was considered from a local to National level, in both Fife and Clackmannanshire Council areas.



5. WATER ENVIRONMENT

For the purposes of the assessment, the water environment comprises the surface water, groundwater and wetland receptors.

The assessment included surveys at the location of the proposed substation at Kincardine, at either site of the A977 at Kilbagie and along the overhead tower route.

The assessment assessed the impacts for four main aspects, which were:

- Surface Water Flow Alterations and Flood Risk;
- Groundwater Flow and Level Alterations;
- Sediment Discharges; and
- Contaminant Discharges.

Assessing the significance of the potential impacts, focused on the access routes to each tower and the construction works proposed at Kincardine and Kilbagie.

It was identified that there was a need to make four water crossings, over man made drainage ditches, to access certain towers. An example of such a ditch is shown in Figure 6.1 below.



Figure 6.1: Drainage ditch to be crossed

The water assessment concluded that none of the impacts resulting from the proposed works is likely to result in significant effects on the water environment. With appropriate mitigation and controls in place the residual effects are predicted to be negligible to low.

The assessment has identified that the mitigation measures can be managed, to protect the water environment, as part of an Environmental Management Plan (EMP). The EMP will document the specific mitigation and control measures.



6. FLORA AND FAUNA

An Ecological Impact Assessment (EclA) on the flora (plants) and fauna (animals) was undertaken using the guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM).

The assessment included habitat surveys along the route of the proposed upgrade works, as well as the location of the new substation at Kincardine and undergrounding compounds at Kilbagie.

More detailed habitat surveys were undertaken at a couple of locations along the route where sensitive habitats have been identified.

A breeding bird survey was undertaken at the proposed location of the new Kincardine GIS. The potential effects on birds wintering on the Firth of Forth have also been included in the assessment.

Using maps of the proposed access routes and knowledge of the intended works we have been able to predict the potential effects on flora and fauna.

The assessment has predicted that the effects on fauna species, such as badgers, bats and other species will not be significant.

The habitat surveys noted that the majority of the overhead towers pass through areas dominated by agriculture, consisting of crop fields or semi-improved/improved grassland.



Figure 7.1: Typical tower habitat

This habitat is shown on Figure 7.1. Such habitats are not sensitive to the works proposed as they are already man-made and subject to farming activity which is similar to that required to access the towers (*i.e.* use of 4X4 low ground bearing pressure vehicles and tractors).

It is understood that the majority of tower access routes, will use established tracks, such as the one shown on Figure 7.2 below. The use of these tracks further reduces the potential to impact on plant habitats.



Figure 7.2: Typical track access

The assessment then focused on a couple of specific locations where sensitive habitats (*e.g.* marshy grassland) were present and where it was proposed to cross this habitat to access the towers.

The assessment has shown that the predicted impacts on such habitats will not be significant and can be controlled, by the application of mitigation measures. Mitigation measures will be documented with the EMP and will seek to avoid or where not possible, limit effects on these sensitive plant habitats.



7. LANDSCAPE AND VISUAL

A Landscape and Visual Impact Assessment (LVIA) was undertaken to assess the potential effects of the Project. This was undertaken by Environmental Designworks.

Good practice as described in the “Guidelines for Landscape and Visual Impact Assessment” (LI, IEMA, 2013) was followed in undertaking the appraisal of the potential effects on landscape and visual amenity arising from the Project.

The landscape and visual assessment found that the overall effect of the proposed 400/275kV Gas Insulated Substation (GIS) and associated Overhead Line (OHL) works at Kincardine Substation would be minor beneficial for the landscape, and moderate adverse visually, and therefore significant in terms of the adopted criteria. However, it is considered that the assessed adverse visual effects will decrease over time as the associated landscape planting and woodland management works are implemented, and become established.

During construction, there will be a minor adverse and beneficial landscape effects associated with the removal of some landscape features and land raising, and development of disused derelict land. Proposed landscape mitigation measures include for new mixed woodland planting immediately to the north and south of the proposed GIS, and reinforcement of the existing A876 roadside planting to the west, that will add value to the overall landscape character.

The greatest change in the character of views and visual amenity will be very localised and restricted to the immediate south. For all residential properties, road users and others with a view of the site, the proposed development will form a proportion of the overall view, which includes the existing Substation, Forth Crossing Towers and Overhead Lines. For the majority, the change in visual amenity will be moderate to minor. Change to the character of views will be limited further over time by the proposed landscape planting.

The proposed GIS and OHL works have been designed with the aim of minimising environmental effects. The associated landscape planting and woodland management works supports this aim by providing for the long term strategic screening and containment of the proposed development, reinforcing the existing landscape features and character, whilst enhancing the biodiversity of the overall site.



8. OTHER ISSUES

8.1 Context

Topics, for which the extent of study was considered not to merit full impact assessment (*i.e.* scoped down) were summarised in Chapter 8 of the ES and cross referenced to supporting documents contained with Volume 3 of the ES. The section below provides a brief overview of each topic.

8.2 Geology and Soils

The planned earth works and ground excavation activities, required to construct the new GIS at Kincardine and sealing end compounds have the potential to impact on the site soils and underlying geology. The two main aspects that required consideration was contamination and peat.

8.2.1 Contamination Potential

The site of the proposed GIS is on land that was formerly part of the former coal fired power station. Such energy generating industries have the potential to leave behind soil and groundwater contamination which can present a risk to future developments.

A desktop study exercise, included as Appendix C in Volume 3, was undertaken to assess the potential for contamination and concluded that the ground contamination risk is low and that a watching brief should be maintained during construction works.

8.2.2 Peat

Small, localised peat deposits were recorded in proximity to one of the towers. Targeted peat probing was undertaken during a site walkover which indicated that peat is localised in extent and is present in a valley bottom. There are no proposed excavations in the area and although one of the access routes cross this area, this is via an existing farm track. No significant effects are therefore predicted on peat deposits.

8.3 Electric and Magnetic Fields (EMFs)

The effects of EMF on members of the public, as a result of the proposed upgrade to the OHL and the new GIS at Kincardine were assessed.

The assessment by National Grid concludes that both the updated OHL and new GIS substation will produce EMF's which are compliant with Government exposure limits. No mitigation measures are therefore considered necessary.

8.4 Noise

As with all construction works some noise will be generated which is greater than the existing background levels and that could impact on nearby residents. The proposed construction works at Kincardine and Kilbagie therefore needed some consideration. Similarly, the operation of the new GIS at Kincardine could also change the background noise levels. The effects of both aspects were considered within the EIA.

8.4.1 Construction Noise

As the exact detail of the construction methods to be applied at the GIS are not known it was not possible to complete a detailed noise impact study. It was recognised that the sites at Kincardine and Kilbagie are relatively remote from residential receptors and that noise can be kept within acceptable levels, through the use of good practice methods and in compliance with an Environmental Management Plan (EMP).

8.4.2 Operational Noise

The impact of high voltage transmission line audible noise is a consideration when upgrading an existing OHL such as this. As part of the new GIS at Kincardine, two auto-transformers will be installed. Like the OHLs, this apparatus also has the potential to produce noise.

For the OHL upgrade the assessment has shown that in dry weather, no receptors are expected to experience noise levels greater than 5 dB above background, at which level complaints become likely.



In wet weather, three receptors fall in the range 5 dB to 10 dB increase above background. It should be noted that, of these three receptors, only one is currently a residential location. The other two receptors are located near potential property development and as such future considerations should be made at these receptor locations.

For the GIS, the noise levels from the auto-transformers are not predicted to cause unacceptable nuisance to the nearest receptor, except when the plant is run at 100% loading capacity. It should be noted that several pessimistic assumptions regarding the propagation of noise from the substation have been made. It is therefore likely that the level of noise received at the receptor will be less than the values calculated within the report.

Mitigation measures in relation to the OHL have not been recommended. For the GIS, mitigation measures will be considered in relation to the loading requirements of the GIS and documented in the EMP.

8.5 Traffic and Transport

The potential for traffic and transport effects associated with the construction and operation of the proposed GIS substation at Kincardine and OHL upgrade was investigated during initial studies. The study concluded that the assessment should focus on the proposed GIS at Kincardine. This was considered the only aspect of the Project that could potentially impact on traffic and transport.

Vehicle movements associated with the OHL and sealing end compound upgrade portion of the Project were considered as part of the assessment of cumulative traffic and transport effects.

The effect from construction traffic on most of the routes assessed was deemed not significant, however, significant effects from HGV traffic was identified over a short length of the A977 north of the proposed site and from the A977 through Kincardine. This was based on the criteria within the Guidelines for Environmental Assessment of Road Traffic.

To mitigate the effects HGV traffic through Kincardine should be restricted and modification to the existing private access junction to the A977 carried out.

Operational traffic effects were deemed to be minimal as the facility would be unmanned and hence would not be expected to generate vehicle trips other than for occasional maintenance.

9. CUMULATIVE EFFECTS

Significant cumulative effects can potentially occur as a result of the interaction of the Project and other developments within the geographical area. Similarly there can be cumulative effects on sensitive receptors such as a river habitat and the species that it supports. The assessment of cumulative effects considered two aspects which were:

- i. The potential cumulative effects of both the construction and operational requirements with existing operations or planned developments in the surrounding area; and
- ii. The cumulative effect of the interaction of a combination of predicted effects on a particular receptor; this is addressed within each chapter of the ES.

No significant cumulative effects have been identified. Any negative cumulative effects identified are considered to be minor or negligible and relate to the initial construction works rather than the long term operation of the development.

It is considered that any minor negative cumulative effects associated with the construction phase can be adequately controlled through the application of an EMP

10. RESIDUAL EFFECTS

Considering the nature of the Project (*i.e.* an upgrade and refurbishment of an existing OHL and new cable sealing end compounds) the potential for significant residual effects is considered to be limited. Taking into account the results of the EIA and the limited potential impacts predicted by the assessment, the potential for significant residual effects was anticipated to be low.



The predicted residual effects are conditional upon the effective implementation of the mitigation measures presented in the EMP.

11. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Prior to the commencement of works, a construction Environmental Management Plan (EMP) will be produced based on the outcomes of this ES. The EMP will take forward the mitigation measures set out in the ES to ensure that none to minor residual effects are achieved.

The EMP will be based on a review of a Construction Method Statements (CMS) which will be produced by the lead contractor. This document will confirm the final details of the proposed construction works and the how the contractor will comply with the requirements of the EMP. This will include clear roles and responsibilities for managing the construction activities, so as to protect the environment.

The EMP will be produced based on best practice guidance developed by organisations such as the Institute for Environmental Management & Assessment