Scottish & Southern Electricity Networks

TRANSMISSION

Environmental Impact Assessment (EIA) Report

LT383 Alyth to Tealing Overhead Line (OHL) 400kV Upgrade

November 2024

VOLUME 2: CHAPTER 4 – ALTERNATIVES CONSIDERED

Figures (Volume 3 of this EIA Report)

There are no Figures associated with this chapter.

Appendices (Volume 4 of this EIA Report)

There are no Appendices associated with this chapter.

4. ALTERNATIVES CONSIDERED

4.1 Introduction

4.1.1 The need for the project and the work undertaken by SSEN Transmission to assess the strategic electricity transmission infrastructure requirements to identify the most appropriate, viable, and long term, enduring technical design solution is explained in Chapter 2:

4.1.2 (Volume 2).

4.1.3 As detailed in Chapter 2: Project Need and Strategy (Volume 2), the Proposed Development falls within the nine projects, included in Ofgem's decision on accelerating onshore electricity transmission investment. This confirmed thar all nine of these projects are required to meet the ASTI criteria which includes (a) the need to be operational by 2030, and (b) there is clear evidence that it is of benefit to the GB consumer to apply the accelerated delivery framework to the project.[1]

4.2 Development Considerations

4.2.1 The Applicant has obligations under Section 9 of the 1989 Act to '*develop and maintain an efficient, co-ordinated and economical system of electricity transmission*'.

4.2.2 The Applicant, as a licence holder under the Electricity Act 1989, *'when formulating proposals to generate, transmit, distribute or supply electricity*' is required, under Schedule 9 to:

- "*have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest*"; and
- "*do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects*".

4.2.3 The Construction (Design and Management) Regulations 2015 (CDM Regulations) require that the design aims to minimise hazards and reduces risks during construction.

4.3 Alternatives

4.3.1 The EIA Regulations require the Applicant to report upon the reasonable alternatives that were studied and the main reasons for the choice of the development, taking into account the environmental effects. The following alternatives have been considered during project development.

- the "do nothing" scenario; and
- refurbish and upgrade existing 275 kV OHL to 400 kV.

"Do Nothing"

4.3.2 The "do-nothing" scenario assumes that no other options are considered as reinforcement and the section of the transmission network forming part of this application would remain operational at a voltage of 275 kV.

4.3.3 The upgrade to the transmission network in the north of Scotland is necessary due to the growth in renewable electricity generation requiring an increase in transmission capacity. Therefore, a "do nothing" scenario would result in a significant network capacity deficit. This would not support the Applicant's ability to meet their licence

[1] Ofgem (2022) Decision on accelerating onshore electricity transmission investment (online) Available at: https://www.ofgem.gov.uk/sites/default/files/2022-12/ASTI%20decision%20doc%20-%20Final_Published.pdf [Accessed June 2024]

requirements, in respect of the planning and operation criteria, as required by National Electricity Transmission System Security and Quality of Supply Standard. Furthermore, without the transmission capacity increase future renewable energy generating developments in the region would be constrained by a lack of suitable grid connection. This would therefore impact Scotland's carbon reduction targets and commitment to net zero emissions by 2045. The network would be at risk of potentially huge transmission constraints, through being unable to convey the generation connected to it, resulting in significant operational cost to constrain generation. Additionally, this would also make any future reinforcement of the network expensive and difficult due to the network being highly constrained resulting in high construction outage costs.

4.3.4 The "do nothing" scenario is not considered a sustainable development option, resulting in insufficient capacity in the network and a failure to meet the generation and supply demands. It would be inconsistent with the Applicant's licence obligations to develop and maintain an efficient, coordinated and economic electricity system, which on balance causes the least disturbance to the environment and to the people who live and work within it.

Refurbish and upgrade existing 275 kV OHL to 400 kV

4.3.5 The option of refurbishing and upgrading the existing OHL was based upon re-using the existing tower assets, as this could be achieved and would avoid additional cost, time and potential impacts of installing new assets. Whilst the existing steel lattice towers can be utilised for future reinforcement, a technical and asset review was required to understand the ability for the existing conductors, insulators and earthwire to be used at a nominal voltage of 400 kV.

4.4 Summary

4.4.1 The Applicant has considered alternatives in determining the key parameters of the Proposed Development.

4.4.2 The "do nothing" scenario (i.e. no reinforcement to the existing 275 kV network) would result in a significant network capacity deficit due to the substantial growth in current and expected electricity generation in the north of Scotland and is therefore not considered to be a sustainable development option.