The Great Grid Upgrade

Sea Link

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1. Introduction

1.1 Background

1.1.1 This Offshore Decommissioning Technical Note has been prepared for the Sea Link Project Offshore Scheme.

1.1.2 The Sea Link Project (hereafter referred to as the 'Proposed Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the South East and East Anglia. The Proposed Project is required to accommodate additional power flows generated from renewable and low carbon generation, as well as accommodating additional new interconnection with mainland Europe.

1.1.3 National Grid owns, builds and maintains the electricity transmission network in England and Wales. Under the Electricity Act 1989, National Grid holds a transmission licence under which it is required to develop and maintain an efficient, coordinated, and economic electricity transmission system.

1.1.4 This would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400 kV overhead line close to Richborough in Kent.

1.1.5 National Grid is also required, under Section 38 of the Electricity Act 1989, to comply with the provisions of Schedule 9 of the Act. Schedule 9 requires licence holders, in the formulation of proposals to transmit electricity, to:

- *Schedule 9(1)(a) "…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*
- *Schedule 9(1)(b) "…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."*

1.1.6 The Proposed Project includes the Offshore Scheme, which is a subsea HVDC cable across the outer Thames region of the southern North Sea, linking Suffolk to Kent. The Offshore Scheme includes three distinct components: the Suffolk landfall at Aldeburgh, the marine HVDC cable and the Kent landfall at Pegwell Bay.

Purpose and Objectives of this Offshore Decommissioning Technical Note

1.1.7 This Offshore Decommissioning Technical Note is submitted to explain the nature of the decommissioning activities.

1.1.8 Decommissioning is required to be assessed in order that the Examining Authority (ExA) and Secretary of State can have regard to the likely significant effects of the whole project over its lifecycle in making a recommendation and determination.

However, given the length of time which would elapse before decommissioning activities take place, an assessment at consent stage can only ever be based on assumptions as to the known requirements and methodologies at this time. The Environmental Statement (ES) for this application accordingly applies an envelope approach to decommissioning, in common with other offshore subsea cable projects.

1.1.9 The confirmed approach to decommissioning will be detailed within the final Offshore Decommissioning Plan submitted to the Secretary of State for approval approximately 2 years prior to decommissioning commencing. This will be subject to agreement with the relevant authorities based on further and more refined surveys and assessments performed prior to decommissioning in line with the relevant legislation and guidance in place at that time.

1.1.10 The approach will be based on an assessment of relative net environmental benefit, taking into consideration the *in situ* ecological value of the offshore components alongside other factors such as navigational safety, available technology and the feasibility of recycling. Further consents as required, including marine licensing, will be sought at the time of decommissioning and will factor in the- assessments carried out.

1.1.11 Onshore decommissioning is not included in this Technical Note.

1.2 The Proposed Project

1.2.1 The Proposed Project would comprise the following elements:

The Suffolk Onshore Scheme

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under another consent, only a connection into the substation would be constructed as part of the Proposed Project.
- A high voltage alternating current (HVAC) underground cable of approximately 1.9 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW high voltage direct current (HVDC) converter station (including permanent access from the B1121 and a new bridge over the River Fromus) up to 26 m high plus external equipment (such as lightning protection, safety rails for maintenance works, ventilation equipment, aerials, similar small scale operational plant, or other roof treatment) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a Transition Joint Bay (TJB) approximately 900 m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

The Offshore Scheme

1.2.2 Approximately 122 km of subsea HVDC cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

The Kent Onshore Scheme

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800 m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 1.7 km to a new converter station (below).
- A 2 GW HVDC converter station (including a new permanent access off the A256), up to 28 m high (2m allowance for ground level rise plus 26m converter station) plus external equipment such as lightning protection, safety rails for maintenance works, ventilation equipment, aerials, and similar small scale operational plant near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 2.2 km of existing HVAC overhead line, and installation of two sections of new HVAC overhead line, together totalling approximately 3.5 km, each connecting from the substation near Minster and the existing Richborough to Canterbury overhead line.

1.2.3 The Proposed Project also includes modifications to sections of existing overhead lines in Suffolk (only if Friston Substation is not built pursuant to another consent) and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation and compensation. The construction phase will involve various temporary construction activities including overhead line diversions, use of temporary towers or masts, working areas for construction equipment and machinery, site offices, parking spaces, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way (PROWs) and other ancillary operations.

1.2.4 This document is applicable to the Offshore Scheme only.

1.3 Location

1.3.1 The proposed bundled marine HVDC cables would be routed from the TJB at the Suffolk landfall located at Aldeburgh and the TJB at the Kent landfall at located within Pegwell Bay to the south of the settlement of Cliffsend.

2. Offshore Decommissioning

2.1 Introduction

2.1.1 When the Proposed Project reaches the point of decommissioning, evaluation of the available technologies will be undertaken to select the most suitable methodology and tools. Assessments will be carried out to optimise the vessel and equipment spread that will be used. Surveys will be used to provide an indication of the condition of the infrastructure, the state of the environment. Consideration will also be given to safety when making decisions on the best practicable environmental option.

2.1.2 Sediment transport studies have been commissioned and undertaken by National Grid which outline the short to long term nearshore beach variance and stability at both landfalls. These studies would be used to inform the initial decommissioning plan. This initial decommissioning plan would be updated throughout the life of the project in preparation for the eventual decommissioning of the link.

2.2 Description of Potential Decommissioning Methods

2.2.1 Dependent on requirements at end of asset life, the redundant cables could either be recovered for recycling (in its entirety, or in parts), or left *in-situ*, if that has less environmental impact. When decommissioning comprises cable removal, the recovered cables/cable sections would be disposed of in accordance with the relevant waste stream management regulations at the time of decommissioning.

2.2.2 Operations to undertake decommissioning of the cable would be dependent on the burial depth of the cable and the mobility of the seabed, which may have significantly changed the design depth of lowering and the depth of sediment over the cable at the end of asset life.

2.2.3 The techniques for decommissioning are often simpler than for installation, prioritising minimising seabed disturbance over cable integrity. In areas where the cable is shallow buried it may be possible to pull the cable out of the seabed without the use of other equipment. In areas where it is slightly more deeply buried under-running the cable to help free it from the seabed may be a possibility.

2.2.4 The potential removal techniques have a low environmental impact and are only suitable where the cable is not deeply buried. In areas of deeper burial, or mobile seabed, the use of jetting or controlled flow excavation to release the cable from the seabed may be considered.

2.2.5 Any active crossings, at the time of decommissioning, would normally be left in place, with a section of decommissioned cable left *in-situ* for a safe distance from the in-service asset. Similarly, where the cables are in close proximity to other in-service assets, removal of the decommissioned Sea Link cables may not be possible until the other assets are decommissioned. Removal of the trenchless solutions from the transition joint bay passing under the beach landfalls to the bellmouth exits should be reviewed at the time of decommissioning as it may be less damaging to leave *in-situ* with stabilisation, than to excavate and remove, especially given the sensitivity of both landfall trajectories.

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