

# North West London (NWL) Submission Summary

**National Grid Electricity Transmission**  
Eligibility Letter

May 2026

## T3 – North West London (NWL)

### Executive Summary

#### Background

The investment will reinforce the North West London (NWL) network by delivering the ESC1 and SER4 schemes: a second 400 kV circuit between Elstree and St John's Wood and reconductoring of the Sundon–Elstree route, increasing import capability into London. It was identified by the former ESO as an HND Essential Option in the NOA 2021/22 Refresh<sup>1</sup>, supports delivery of Clean Power 2030, and helps enable reinforcement across key boundaries.

The NWL scheme is complex and is multidisciplinary in nature, requiring all the typical technologies associated with HV transmission asset construction: power cables, overhead lines, substations, tunnel installation and third-party connections in both urban and rural environments.

This Eligibility Letter and associated Cost Benefit Analysis are being submitted as part of the RIIO-ET3 Load Reopener (LR) mechanism under Special Condition 3.18 (Load Re-opener and Price Control Deliverable) of the Electricity Transmission Licence Conditions. This submission is requesting Ofgem's approval of project eligibility against the Load Reopener criteria and seeks approval of the project's needs case and preferred solution for the North West London project. This submission further requests Ofgem's determination on the appropriate track for the project and seeks Pre-Construction Funding (PCF) under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable).

#### Investment Drivers

NWL is a single investment that delivers two NESO schemes: ESC1 and SER4 (see map, below). These are the Elstree to St John's Wood Cable (ESC1) project and the Sundon to Elstree Reconductoring (SER4) project. ESC1 and SER2 (which later became SER4) were recognised by the former ESO as Holistic Network Design (HND) Essential Options in its NOA 2021/22 Refresh meaning they are needed for the delivery of 50 GW of offshore wind (OSW) and are classified as a Clean Power 2030 (CP2030) projects. They are needed to avoid constraint costs to consumers.

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<sup>1</sup> Network Options Assessment 2021/2022 Refresh <https://www.neso.energy/document/262981/download>

Figure 1: Satellite view of site location



## Options

### *SER4 optioneering*

To arrive at the scope of work defined for SER4, we coordinated with the former ESO on how best to deliver a capacity increase on the Sundon-Eltree second circuit. We undertook a multi-factor optioneering process to identify a proportionate and deliverable solution in the interests of consumers. We first considered nine strategic options, including non-build options (do-minimum, market-based, whole-system), hotwiring, and reconductoring options that differed based on the conductor type:

We were immediately able to rule out most options on the basis that they could not deliver the driver. Of the remaining options, the **use of a GAP conductor (Option Y-2) was selected as the preferred option**, given that this was assessed independently by NESO to be the most cost-effective option for delivering against its identified driver. This aligns with the scope of work for SER4.

### *ESC1 circuit optioneering*

A similar approach was used to arrive at the scope of work defined for ESC1. From the seven strategic options, we were able to rule out the non-build options on the basis that they could not deliver the driver. The **use of the existing cable tunnel (Option X-1) was selected as the preferred option**. The construction of new infrastructure when there is already an existing tunnel that has been future-proofed with the specific intention of providing space for this cable would result in unjustified costs to consumers and environmental impacts. The scope of work also aligns with HND Essential Option ESC1.

### *ESC1 connection optioneering*

Once it was determined that a cable would be routed through the existing Eltree – St John's Wood tunnel by delivering ESC1, we optioneered how to connect this cable at each substation. For each substation, we undertook a multifactorial options analysis to identify a solution that would deliver in the interests of consumers.

For **Eltree substation**, we shortlisted three of the five considered options:

- **Option E-1:** 400 kV SF6-free GIS extension of existing building
- **Option E-2:** 400 kV SF6-free GIS extension in the 132 kV AIS area
- **Option E-3:** 400 kV SF6-free GIS extension in Greenfield northeast of site

For **St John's Wood substation**, we shortlisted three of the seven considered options:

- **Option S-1:** 400 kV GIS busbar extension
- **Option S-3:** Tee-off into 400 kV Shunt Reactor 1
- **Option S-6:** Elstree 2 connection into ex-Shunt Reactor 1 bay

**Our preferred options for these connections at Elstree and St John's Wood are options E-2 and S-6, respectively.** Option E-2 ensures timely delivery of the programme. Option E-1, while having a marginally lower upfront capital cost than Option E-2, has lower future-proofing potential and has a significantly larger environmental impact due to the need to fell a large section of trees. Option S-6 is a viable option and has the lowest upfront capital costs by a large margin.

## Preferred Overall Solution

In summary, our overall preferred option for the NWL investment is as follows:

- For SER4, our preferred option is Y-2, which is to reconductor the existing OHL route between Sundon and Elstree with a GAP conductor
- For ESC1, our preferred option is X-1, which is to route a cable through the existing future-proofed tunnel between Elstree and St John's Wood
- For the connection of the ESC1 cable at Elstree substation, our preferred option is E-2, which is a 400 kV New GIS Extension in the 132 kV AIS area
- For the connection of the ESC1 cable at St John's Wood substation, our preferred option is S-6, which is an Elstree 2 connection into ex-Shunt Reactor 1 bay

Taken together, the preferred solution enables the investment drivers and avoids constraint costs to consumers that would otherwise be incurred. It also supports the Pathway to 2030 strategy and enables increased power transfer into London.