nationalgrid

# Elstree 132kV Extension

## Eligibility Letter Summary

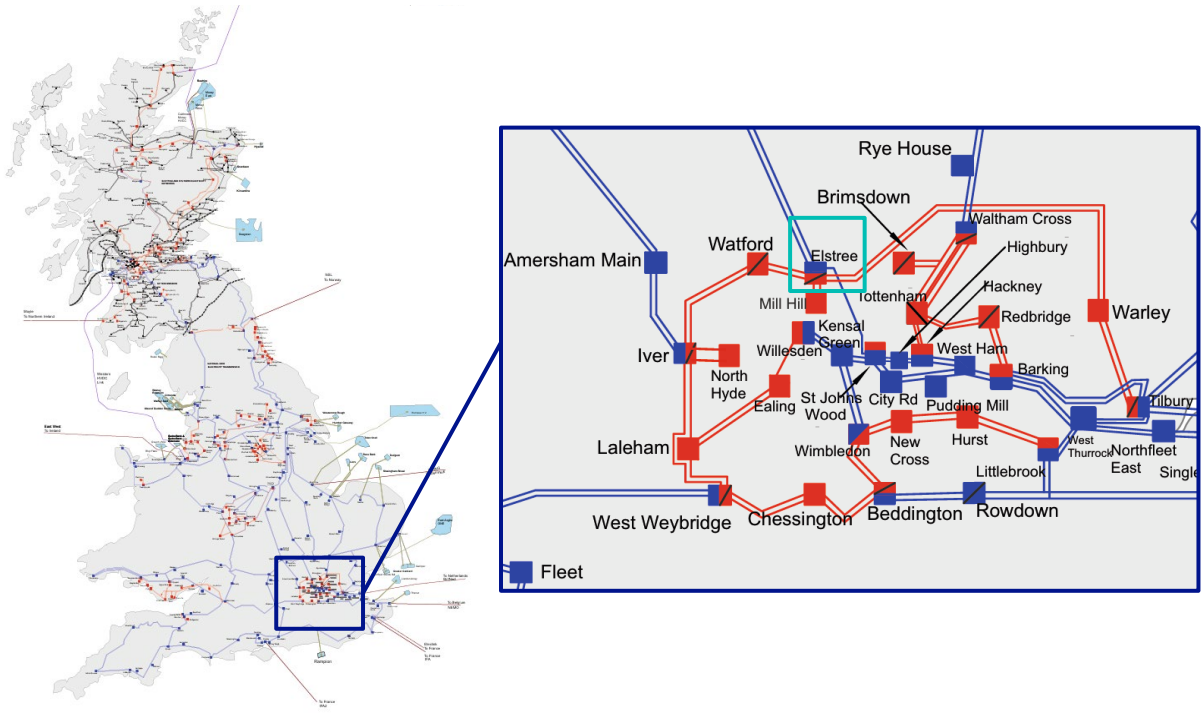
**National Grid Electricity Transmission**
Eligibility Letter

October 2026

# 1. Background

Elstree 132kV Extension is a demand-driven reinforcement project in northwest London. It will deliver a new 132 kV GIS extension and associated infrastructure, including a new GIS substation building, bays for the connecting customers, and the installation and upgrade of transformers to increase capacity across the site.

Figure 1: Proposed location of investment on our network




*Key: **Red** = 275kV assets, **Blue** = 400kV assets. Investment location shown in **green** box.*

This Eligibility Letter is being submitted as part of the RIIO-ET3 Load Re-opener (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 Re-opener criteria and seeks approval of the project's needs case and preferred solution. This submission further requests confirmation that the project should proceed via Track 2 and seeks Pre-Construction Funding (PCF) under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable).

# 2. Investment Drivers

The primary driver is customer connections. This includes a customer that is designated as a Gate 2 Phase 1 connection as part of Connections Reform.[1] Asset health is not a key driver.

[1] The customer connection pipeline has been refined through Connections Reform. As part of this process, projects that did not meet the required progression criteria were reassigned to Gate 1, removing less mature projects from the near-term connection background. The remaining projects (Gate 2, which is split into Phases 1 and 2) therefore represent the current view of the most credible and deliverable customer connections.

# 3. Options

We undertook a structured, multi-factor optioneering process to identify a proportionate and deliverable solution in the interests of consumers. We first identified **eight longlist options** within five strategic option categories: do nothing, market-based, non-transmission whole-system, making use of existing assets, and building a new substation.

From the longlist, we **shortlisted options D-1 to D-4** following a high-level assessment against balanced scorecard criteria (see table, below). Options A-C were rejected due to their failure to deliver compliant physical connections. Option E was rejected given that there is physical and electrical space to extend the existing substation on NGET land, which means that a new substation would not provide value to consumers and would present planning and consenting risks.

Table 1: Summary of longlist options assessment

| Option | Details | Shortlist? | Preferred? |
|---|---|---|---|
| A | Do nothing counterfactual | No – cannot deliver compliant physical connection | |
| B | Market-based solution | No – cannot deliver compliant physical connection | |
| C | Non-transmission, whole systems solutions | No – cannot deliver compliant physical connection | |
| D-1 | 132kV AIS solution with SGT10 in decommissioned 132kV AIS compound | ✓ | |
| D-2 | 132kV GIS Hall extension with SGT10 in decommissioned 132kV AIS compound | ✓ | |
| D-3 | 132kV GIS Hall extension with SGT10 to mirror SGT9 in laydown area | ✓ | |
| D-4 | New 132kV GIS hall with SGT10 in decommissioned 132kV AIS compound | ✓ | ✓ |
| E | Construct a new substation | No – we have space at the existing substation | |

# 4. Qualitative Trade-offs Between the Shortlisted Options

The table below sets out how the four shortlisted options compare against the balanced scorecard criteria used in our qualitative assessment.

Table 2: Qualitative trade-offs between the shortlisted options

| Criteria | Option D-1 | Option D-2 | Option D-3 | Option D-4 |
|---|---|---|---|---|
| **Engineering** | **Neutral.** Technically feasible, but requires cable diversion and substantial enabling works in the former AIS compound. Its large footprint limits flexibility for future works at the wider site. | **Detractor.** Technically feasible and has a shorter cable route than D-3, but extending the existing GIS hall requires complex structural works, piling and integration with operational assets. | **Detractor.** Technically feasible, but has the most complex cable arrangement and significant interfaces with existing services and cables. It also requires extension of the existing GIS hall. | **Benefit.** Technically feasible and avoids modifying the existing GIS hall. The separate building simplifies structural integration and reduces cable-interface complexity compared with D-3. |

| | | | | |
|---|---|---|---|---|
| **Environmental** | **Neutral.** Avoids major land cutting and retaining walls, but has by far the largest land take of the shortlisted options. | **Detractor.** Has a compact footprint, but requires substantial land cutting, retaining walls and concrete, with potential handling of excavated material. | **Detractor.** Has a compact footprint, but shares the land-cutting, retaining-wall and excavation impacts associated with extending the existing GIS hall. | **Benefit.** Uses a compact GIS arrangement and avoids the major land cutting and retaining-wall works associated with D-2 and D-3. Land take is substantially lower than D-1. |
| **Deliverability** | **Neutral.** Requires additional remedial works and cable diversion, but involves fewer outage and integration challenges than the GIS hall extension options. | **Detractor.** Construction next to the existing GIS hall creates structural, access and live-interface complexity, increasing programme and commissioning risk. | **Strong detractor.** The most complex cable interfaces and sequencing requirements create the greatest delivery and outage risk of the shortlisted options. | **Strong benefit.** Most works can be undertaken separately from existing operational assets, with outages limited to energisation. This reduces interfaces, coordination requirements and delivery risk. |
| **Economic / consumer value** | **Strong detractor.** Highest upfront capital cost and the large footprint could constrain future site development, increasing the risk of later reconfiguration costs. | **Neutral.** Lower cost than D-1, but more expensive than D-4. The retaining-wall arrangement could restrict corridors needed for future work at the wider site. | **Neutral.** Lower cost than D-1, but more expensive than D-4. It has a marginal whole-life cost advantage over D-4, but this is offset by greater delivery and outage risk. | **Strong benefit.** Lowest upfront capital cost and best preserves land, access and development corridors for future works, reducing the risk of avoidable future expenditure. |
| **Consenting / stakeholder** | **Strong detractor.** Can be delivered on existing land, but its large footprint would constrain future 400kV works and could increase reliance on additional land, with associated planning and stakeholder risks. | **Neutral.** Can be delivered on existing land, but the retaining-wall arrangement would create physical restrictions for future works at the wider site. | **Neutral.** Can be delivered on existing land, but construction interfaces and restrictions created by the GIS hall extension would increase stakeholder coordination requirements. | **Benefit.** Can be delivered on existing land and better preserves space and access for future works, reducing future planning, land and stakeholder risks. |

## 5. Quantitative Trade-offs Between the Shortlisted Options

The table below expresses the position of the different shortlisted options relative to Option D-4. The cost-book estimates reflect our view at the time of optioneering and allow a like-for-like comparison of the shortlisted options. To ensure we can maintain a competitive tender process and in turn protect consumer value, we have anonymised conductor supplier names and have only provided cost ratios.

Table 3: Quantitative trade-offs between the shortlisted options

| Measure | Option D-1 | Option D-2 | Option D-3 | Option D-4 |
|---|---|---|---|---|
| **Cost-book estimate** | 1.09 | 1.03 | 1.02 | 1 |
| **Total capital cost over the 50-year appraisal period, including replacement** | 1.09 | 1.03 | 1.02 | 1 |
| **Net present value (cost)*** | 1.01 | 0.99 | 0.98 | 1 |

| | | | | |
|---|---|---|---|---|
| **Undiscounted carbon and losses costs** | 0.96 | 1.01 | 1.01 | 1 |
| **Useful economic life** | 1 | 1 | 1 | 1 |

**Lower is better*

Option D-4 is the most economical based on the initial cost-book estimate. While D-3 delivers a marginally superior NPV (by a margin of 2%), the difference is not considered material when compared with the substantially greater delivery risk and outage requirements, the implications for the futureproofing of the 400kV site, and cable interface complexity associated with that option.

## 6. Preferred Solution

Based on a qualitative and quantitative assessment of the shortlisted options, **Option D-4 is the preferred option** because:

- It has the **lowest upfront capital costs** among the shortlisted options as it makes best use of the existing substation footprint, reducing the extent of new 400kV cable and civil works required.
- It has a significantly smaller footprint than AIS option D-1, which **prevents the sterilisation of future projects related to the 400kV site**[2] while also avoiding the potential planning and stakeholder risks associated with having to acquire new land on the green belt in future projects. Unlike GIS options D-2 and D-3, our preferred option D-4 also does not rely on extending the existing 132kV GIS hall, which would require large retaining walls that create physical restrictions for future projects related to the 400kV site.
- Unlike the other shortlisted options, **outages are only required for the energisation**. Construction works can be carried out away from the existing building, reducing engagement and coordination requirements with third parties.
- Preferred option D-4 has **significantly less land** take than AIS option D-1. It overcomes GIS hall extension impacts associated with D-2 and D-3 on excavation, land cutting, retaining walls, potential contaminated soil handling and concrete use.

[2] While future works were not known at the time of optioneering, this decision has proved to be valuable because, the AIS option would have prevented planned 400kV works that are to be delivered as part of the North West London scheme.