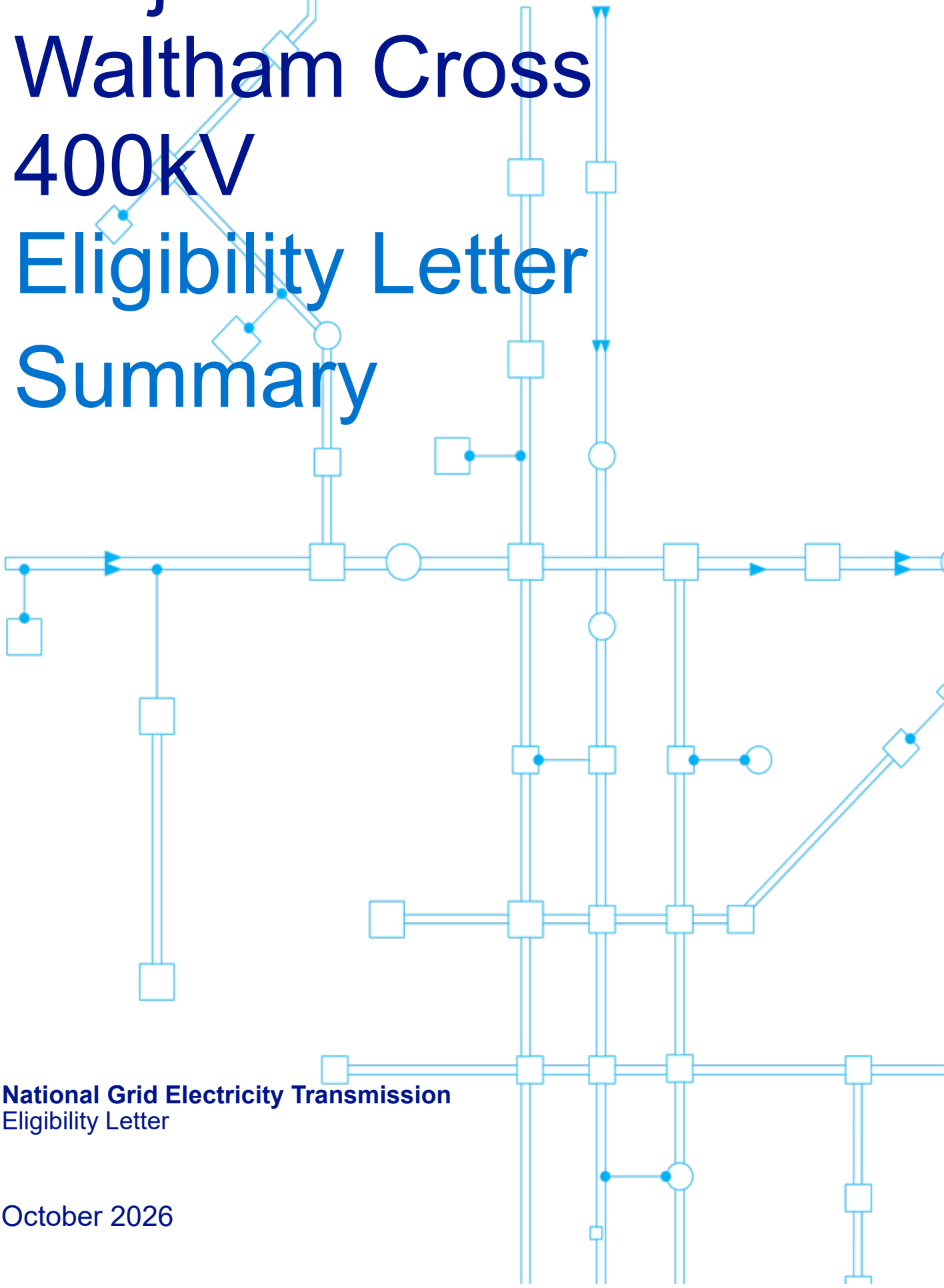
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Project Red Waltham Cross 400kV Eligibility Letter Summary



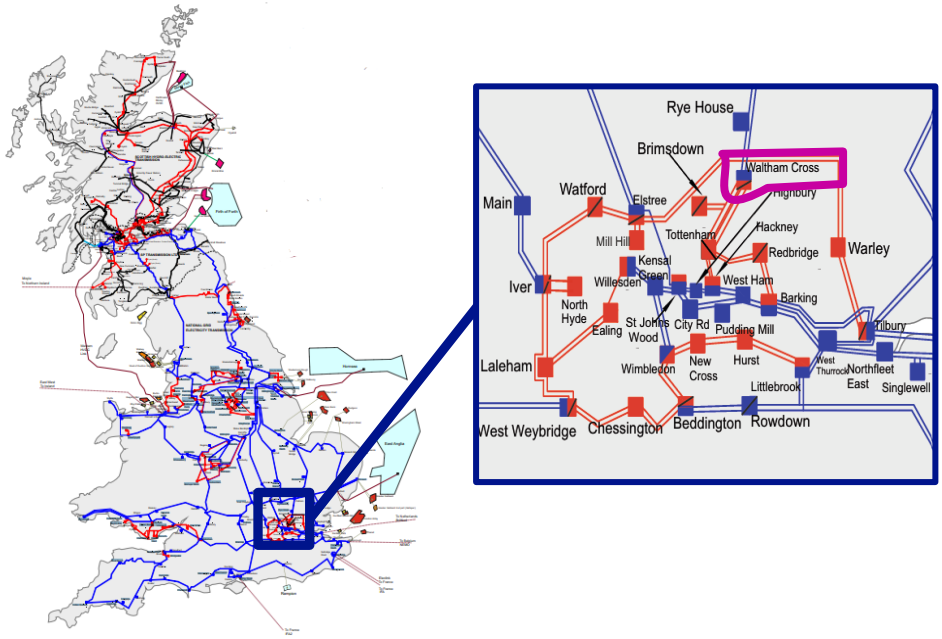
National Grid Electricity Transmission
Eligibility Letter

October 2026

1. Background

This investment is a demand-driven connection project at Waltham Cross. It will install new Super Grid Transformers (SGTs) and associated connection equipment into the new 400kV GIS substation being delivered through the Hackney Waltham Cross Upgrade Programme (HWUP). Waltham Cross is an established transmission site serving North London and Hertfordshire. The project makes use of planned infrastructure at the site. By connecting through infrastructure already planned under HWUP, the project avoids the need for a separate standalone substation, reducing additional network costs. It therefore makes efficient use of investment already being delivered at Waltham Cross, representing better value for consumers.

Figure 1: Proposed location of investment on our network



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

The Eligibility Letter has been submitted under the RIIO-ET3 Load Re-opener mechanism. It seeks Ofgem's confirmation of project eligibility, agreement in principle to the preferred option, confirmation that the project should proceed through Track 2, and approval of Pre-Construction Funding.

2. Investment Drivers

The primary driver is a contracted customer demand connection at Waltham Cross. This includes a customer that is designated as a Gate 2 Phase 1 connection as part of Connections Reform.[1] The proposed approach has been designed to meet this contracted requirement while minimising additional infrastructure and making efficient use of assets already planned at Waltham Cross, helping to reduce costs for consumers.

Asset health is not a key driver.

3. Options

[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.

We undertook a structured, multi-factor optioneering process to identify a proportionate and deliverable solution in the interests of consumers. We first identified **12 longlist options** within five strategic option categories: do nothing, market-based approaches, non-transmission alternatives, modifications to existing infrastructure, and the construction of new facilities.

From the longlist, we **shortlisted options D-2A to D-2E** following a high-level assessment against balanced scorecard criteria (see table, below). Options were discounted from the longlist where they could not deliver the required customer connection, were not technically feasible, or would introduce significant delivery risks or additional costs. This process narrowed the assessment to **five** credible options that could meet the connection requirement and were taken forward for more detailed evaluation. The principal differences between these **five shortlisted** options were the proposed locations of the transformers and how each option would interact with the wider HWUP works, existing infrastructure and potential future development at Waltham Cross.

Table 1: Summary of longlist options assessment

Option	Details	Shortlist?	Preferred?
Option A	Do nothing counterfactual option	No - does not deliver the contracted connection	
Option B	Market-based solution	No - does not deliver a physical connection	
Option C	Non-transmission, whole-system solutions	No - cannot provide the required connection	
Option D-1	Installing SGTs into the **existing** Waltham Cross 275kV substation	No - constrained, outage-intensive and not an enduring solution	
Option D-2A	Installing SGTs within **the southwest and southeast corners** of the 275kV substation compound, connecting into the new 400kV GIS substation	✓	
Option D-2B	Installing SGTs within the **southeast and northwest corners** of the 275kV substation compound, connecting into the new 400kV GIS substation	✓	
Option D-2C	Installing SGTs within the **southeast and northeast corners** of the 275kV substation compound, connecting into the new 400kV GIS substation	✓	✓
Option D-2D	Installing SGTs in the **northwest DCO-approved area** of the existing 400kV substation compound, connecting into the new 400kV GIS substation	✓	
Option D-2E	Installing SGTs in the **northeast and east parts** of the 275kV substation compound, connecting into the new 400kV GIS substation	✓	
Option E-1	Installing SGTs to allow multiple customer connections with banked 132kV connections	No - additional cost and HWUP land dependency	
Option E-2	Installing SGTs to allow multiple customer connections with a new 132kV AIS substation	No - land, engineering and programme constraints	
Option E-3	Installing SGTs to allow multiple customer connections with a new 132kV GIS substation	No - land, engineering and programme constraints	

4. Qualitative Trade-offs Between the Shortlisted Options

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

All five shortlisted options could deliver the required customer connection. The main differences relate to how easily and efficiently they could be built, their interaction with existing infrastructure and HWUP, the risk of delay, and their overall value for consumers. **Option D-2C** provides the best overall balance of deliverability, engineering practicality and value for money.

Table 2: Qualitative trade-offs between the shortlisted options

Criteria	D-2A	D-2B	D-2C	D-2D	D-2E
Engineering	**Detractor.** Tight clearances and a congested cable route.	**Detractor.** Constrained by retained live assets and complex cable crossings.	**Benefit.** Supports segregation, avoids the proposed overhead line route and provides effective access.	**Benefit.** Provides a segregated compound, improving operational and maintenance access.	**Strong benefit.** Provides a clear consolidated long-term layout.
Environmental	**Neutral.** Works remain within existing substation land.	**Neutral.** Works remain within existing substation land.	**Neutral.** Works remain within existing substation land.	**Neutral.** Works remain within existing substation land.	**Neutral.** Works remain within existing substation land.
Deliverability	**Benefit.** Does not depend on completion of wider decommissioning, although cable crossings add complexity.	**Neutral.** Construction can start independently, but the northwest cable route is difficult.	**Strong benefit.** Supports the earliest achievable delivery and avoids key decommissioning dependencies.	**Strong detractor.** Conflicts with HWUP site-establishment requirements.	**Strong detractor.** Delivery depends on the 275kV decommissioning sequence.
Economic / consumer value	**Detractor.** Longest cable route – increasing cable quantity, installation and cost, although there will be futureproofing benefits.	**Neutral.** Futureproofing benefits but enabling works could add cost and programme activity.	**Neutral.** Futureproofing benefits but enabling works could add cost and programme activity.	**Neutral.** Futureproofing benefits but enabling works could add cost and programme activity.	**Neutral.** Same futureproofing benefits as other shortlisted options.
Consenting / stakeholder	**Neutral.** Within existing land but requires HWUP coordination.	**Neutral.** Within existing land, with HWUP coordination required.	**Neutral.** Within the operational boundary, with manageable site-interface coordination.	**Neutral.** Within consented land, but conflicts with HWUP site establishment.	**Detractor.** Requires close coordination with HWUP decommissioning.

5. Quantitative Trade-offs Between the Shortlisted Options

The table below expresses the position of the different shortlisted options relative to Option D-2C. 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 only provided cost ratios.

Table 3: Quantitative trade-offs between the shortlisted options

Measure	D-2A	D-2B	D-2C	D-2D	D-2E
Cost-book estimate	1.22	1.02	1.00	1.07	1.06
Total capital cost over the 50-year appraisal period, including replacement	1.22	1.02	1.00	1.07	1.06
Net present value (cost)*	1.15	1.02	1.00	1.05	1.04
Undiscounted carbon and losses costs	1.00	1.00	1.00	1.00	1.00
Useful economic life	1.00	1.00	1.00	1.00	1.00

**Lower is better*

Option D-2C is the most economical option based on the cost-book estimate and has the strongest NPV position. Option D-2A is around 22% more expensive on both the initial and 50-year capital-cost measures. Options D-2B, D-2D and D-2E are approximately 2%, 7% and 6% more expensive respectively on those measures. Carbon and losses costs and useful economic life do not differentiate the options.

6. Preferred Solution

Based on a qualitative and quantitative assessment of the shortlisted options, **Option D-2C** – installing SGTs within the southeast and northeast corners of the 275kV substation compound, connecting into the new 400kV GIS substation – is the preferred option because:

- It has the **lowest cost and highest net present value** of the shortlisted options, resulting in the best-value outcome for consumers.
- Construction does not depend on completion of the wider 275kV decommissioning sequence, **reducing programme and deliverability risk**.
- It **supports the earliest achievable connection date**, ensuring timely delivery of the customer's contracted requirement, and avoiding delays and associated costs.
- It **preserves future optionality** at Waltham Cross through use of planned HWUP infrastructure and avoids sterilising land that may support future transmission developments. This helps to reduce the risk of consumers funding avoidable future modifications.