nationalgrid

Walpole 400kV CEGB Mark 1 Uprating

Eligibility Letter Summary

National Grid Electricity Transmission
Eligibility Letter

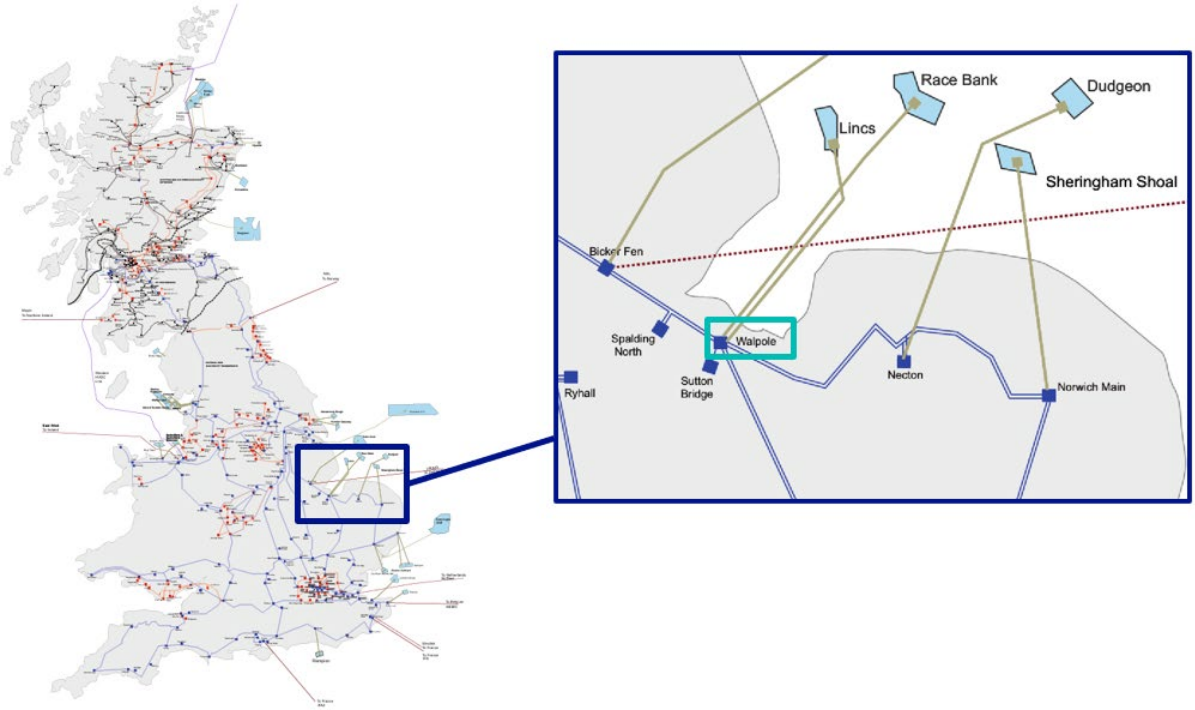
October 2026

1. Background

Walpole 400kV CEGB Mark 1 Uprating is primarily a load-driven reinforcement project at Walpole substation in East Anglia. It will increase the fault level rating of the original 1960s equipment at the 400kV substation from 50kA to 63kA by replacing it in situ with equipment rated for 63kA.[1] Asset health conditions are a secondary driver to this investment.

Walpole is a strategically important node in East Anglia, a region with significant growth in offshore wind, solar, battery storage and interconnector connections. An eastern extension built in the 2010s is already rated to 63kA, but the original equipment remains rated to 50kA. This project forms part of a wider strategy for the Walpole site and is being developed alongside a separate Eligibility Letter for the Walpole West 400kV AIS Extension.

Figure 1: Location of the proposed 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.[2] This submission requests Ofgem's approval of project eligibility and seeks approval of the project's needs case and preferred solution. This submission further requests Pre-Construction Funding (PCF) and confirmation that the project should proceed as a Track 2 project.[3]

2. Investment Drivers

The primary driver for this investment is customer connections. New generation and new circuits at and around Walpole are increasing the fault current at the site, which is forecast to exceed the 50kA capability of the original equipment. Ten Gate 2 Phase 1 customers and a further 25 Gate 2 Phase 2

[1] The fault level rating is the maximum current that the equipment can safely withstand when a fault occurs on the network.
[2] Under Special Condition 3.18 (Load Re-opener and Price Control Deliverable) of the Electricity Transmission Licence Conditions.
[3] Under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable) of the Electricity Transmission Licence Conditions.

customers require this investment as enabling works.[4] Without this investment, the site could not continue to operate safely and in line with the required security standards, and the customers that depend on it could not connect.

Asset health is a secondary driver: some assets require intervention because of their condition.

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 and D-4** following a high-level assessment against balanced scorecard criteria (see table, below). Options A-C were rejected because they could not meet the need on a lasting basis or would impose high constraint costs on consumers. Options D-2 and D-3 were rejected due to their engineering complexity and outage requirements, which would push completion to 2035. Option E-1 was rejected due to its long lead time and highest overall cost.

Table 1: Summary of longlist options assessment

Option	Details	Shortlist?	Preferred?
A	Do nothing counterfactual option	No – does not meet network requirements	
B	Market-based solution	No – incompatible with consumer interests	
C	Non-transmission, whole systems solutions	No – cannot provide a lasting, compliant reduction in fault level	
D-1	In-situ replacement of existing assets with units rated for 63kA	✓	✓
D-2	In-situ replacement of V-string arrangements with new double busbar design	No – extensive outages and civil works push completion to 2035	
D-3	Phased OHL transfer via single circuit transposition, partial offline rebuild	No – pushes completion to 2035	
D-4	Phased OHL transfer via multiple circuit transposition, partial offline rebuild	✓	
E-1	Complete GIS offline build	No – longest lead time and highest cost	

4. Qualitative Trade-offs Between the Shortlisted Options

The table below sets out how the two shortlisted options compare against the balanced scorecard criteria used in our qualitative assessment. Both options rely on securing network outages to complete the works.

[4] The customer connection pipeline has been refined through a process known as 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.

Table 2: Qualitative trade-offs between the shortlisted options

Criteria	Option D-1: In-situ replacement	Option D-4: Phased OHL transfer
Engineering	**Neutral.** Delivers the required 63kA rating. Works must be carefully managed within a live substation and new equipment integrated with retained structures.	**Benefit.** Delivers the required 63kA rating. Temporarily moving circuits to spare bays shortens outages, reducing the impact on system operation.
Environmental	**Benefit.** Maximises reuse of existing foundations and support structures, reducing demolition, waste and embodied carbon. Works are localised, limiting ground disturbance.	**Detractor.** A larger scope of works, including overhead line diversions, temporary towers and cabling, increases material use, waste and carbon emissions.
Deliverability	**Benefit.** Delivered within the existing substation footprint with fewer third-party interfaces. It has the shortest programme, enabling completion in 2033; outage planning is needed.	**Detractor.** A broader and more complex scope, more interfaces with system operation and a temporary cable route outside the substation boundary increase delivery risk. Completion is pushed to 2034.
Economic / consumer value	**Benefit.** Lower capital cost, as it avoids widespread demolition and rebuild. It targets works only where they are needed.	**Detractor.** Higher capital cost, driven by circuit diversions, temporary towers, additional foundations and cabling at each stage.
Consenting / stakeholder	**Benefit.** All works fall within the existing substation boundary under permitted development. The smaller scope reduces the likelihood of stakeholder objections.	**Detractor.** Overhead line works and a broader construction footprint increase interfaces with external parties and system operators, adding consenting and engagement complexity.

5. Quantitative Trade-offs Between the Shortlisted Options

The table below expresses the position of Option D-4 relative to Option D-1. The cost-book estimates reflect our view at the time of optioneering and allow a like-for-like comparison of the shortlisted options. To 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	Option D-1	Option D-4
Cost-book estimate	1	1.47
Total capital cost over the 50-year appraisal period, including replacement	1	1.47
Net present value (cost)*	1	1.52
Undiscounted carbon and losses costs	1	1.46

**Lower is better*

Option D-1 is around 32% more economical than D-4 on the initial cost-book estimate. Option D-4 has around 1.5 times the net present cost of D-1 and around 46% higher carbon costs, reflecting its additional circuit diversion, temporary tower and cabling works.

6. Preferred Solution

Based on a qualitative and quantitative assessment of the shortlisted options, **Option D-1 is the preferred option** because:

- It offers the **best value for consumers**, with the lowest upfront and whole-life cost of the shortlisted options. By replacing only the equipment needed to reach 63kA, it avoids replacing assets that still have significant useful life.
- It is the **quickest to deliver**, completing in 2033 compared with 2034 for Option D-4. Works are contained within the existing substation, with fewer interfaces and lower delivery risk. This has the best impact on customer connections and end consumers, allowing the benefits of the investment to be realised as early as possible.
- It is **futureproofed**. The new circuit breakers will be specified to a higher capability than current standards require, giving additional headroom for future network growth without further replacement. It also ensures future developments at Walpole are not constrained by the remaining original equipment.
- It **removes a critical constraint** at a strategically important node in East Anglia, enabling new generation to connect and reducing constraint costs for consumers. It is also expected to address asset health needs for a number of assets through a single coordinated programme, reducing the need for future outages.

Engineering Acceleration Opportunity:

Additionally, we have developed an interim engineering solution to operate between 2030 and 2033. This will allow acceleration of customer connections, such that some will be able to connect from 2030 (rather than having to wait for this investment to complete in 2033). We developed this intervention in light of the high volume of generation that this investment enables, to improve connection customer outcomes and maximise consumer benefit.

This additional solution does not remove the need for the full 63kA uprating by 2033 – nor does it impact the design or selection of Option D-1 as our preferred solution. This instead provides a targeted interim intervention to manage forecast fault levels and reduce the impact on customer connection dates and constraint costs.