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Bodelwyddan – Connah's Quay OHL

Eligibility Letter Summary

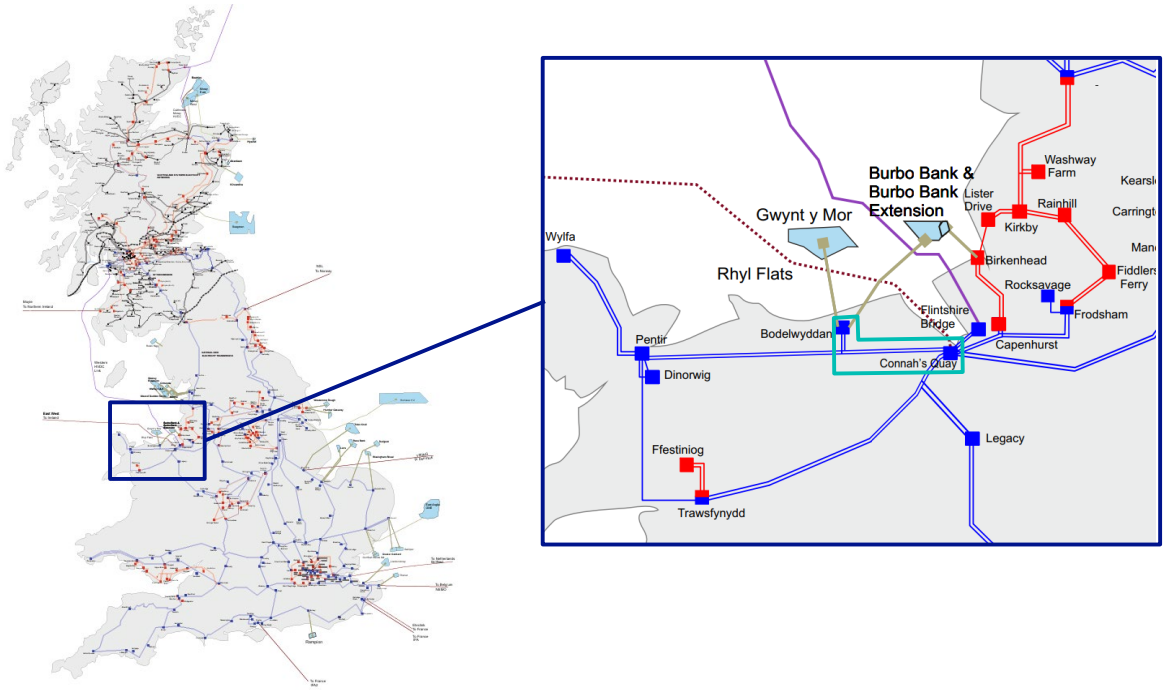
National Grid Electricity Transmission
Eligibility Letter

October 2026

1. Background

This investment will uprate the Bodelwyddan – Connah's Quay 4ZB overhead line circuit in North Wales by reconductoring the existing route, strengthening tower steelwork and foundations and renewing associated overhead line fittings, enabling the connection of customers.

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. A pipeline of 4,265MW of Gate 2 Phase 1 customers by 2030, and a further 2,790MW of Gate 2 Phase 2 customers by 2035, is directly dependent on reinforcement of this circuit.[1] Our power system assessments, based on assumptions stemming from the then ESO's 2023 Transmission Works Review, indicated a threshold that the uprating would need to meet by 2028, which informed our optioneering. Revised assumptions from NESO stemming from Connections Reform uphold the need, although they indicate the uprating would now be required by 2030 at the latest.

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 **19 longlist options** within six strategic option categories: do nothing, market-based, non-transmission whole-system, making use of existing assets, reconductoring, and a new overhead line.

From the longlist, we **shortlisted options E-1 and E-4** following a high-level assessment against balanced scorecard criteria (see table, below): reconductor using conductor A or conductor D. Options were discounted from the longlist where they could not meet the required rating, were not technically registered at the point of the investment decision, presented insufficient cost or supply-chain confidence, or introduced material operability concerns.

Table 1: Summary of longlist options assessment

Option	Details	Shortlist?	Preferred?
A	Do nothing counterfactual option	No – cannot provide required uprating	
B	Market-based solution	No – cannot provide required uprating	
C	Non-transmission, whole systems	No – cannot provide required uprating	
D-1	Hotwiring	No – cannot provide required uprating	
D-2	Dynamic line rating	No – cannot provide required uprating	
D-3	Quad booster	No – cannot provide required uprating	
D-4	Series reactors	No – cannot provide required uprating	
E-1	Reconductor to Conductor A	✓	✓
E-2	Reconductor to Conductor B	No – does not meet rating threshold	
E-3	Reconductor to Conductor C	No – type registration removed or not available during optioneering in 2023-24	
E-4	Reconductor to Conductor D	✓	
E-5	Reconductor to Conductor E	No – type registration removed or not available during optioneering in 2023-24, high indicative cost estimates, and low manufacturing maturity	
E-6	Reconductor to Conductor F	No – not a preferred conductor system for L6 tower types due to additional complexities in installation	
E-7	Reconductor to Conductor G	No – does not meet rating threshold	
E-8	Reconductor to Conductor H	No – does not meet rating threshold	
E-9	Reconductor to Conductor I	No – type registration removed or not available during optioneering in 2023-24	
E-10	Reconductor to Conductor J	No – does not meet rating threshold	
E-11	Reconductor to Conductor K	No – type registration removed or not available during optioneering in 2023-24	
F	New Overhead Line Circuit	No – cannot provide required uprating in time and costly to consumers	

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.

Table 2: Qualitative trade-offs between the shortlisted options

Criteria	Option E-1: Conductor A	Option E-4: Conductor D
Engineering	**Benefit.** Meets the uprating requirement threshold and provides future headroom against the required network capacity. Compared with E-4, it has lower electrical losses, simpler maintenance and readily available spares.	**Detractor.** Meets the uprating requirement threshold but with limited headroom to support future network growth. Compared with E-1, it has higher losses, more complex maintenance, and limited futureproofing that risks early asset write-offs.
Environmental	**No significant difference between the options in the qualitative assessment.** In the cost benefit analysis (CBA), it has lower monetised carbon and losses costs, when compared to Option E-4.	**No significant difference between the options in the qualitative assessment.** In the CBA, it has higher monetised carbon and losses costs, when compared to Option E-1.
Deliverability	**Benefit.** A relatively simple installation method that avoids the additional core testing required for Conductor D.	**Strong detractor.** The installation method involves additional technical complexities, which lengthen the programme and increase outage durations.
Economic / consumer value	**Benefit.** Lower cost-book estimate and a longer useful economic life, so no replacement falls within the 50-year appraisal period.	**Detractor.** Higher initial capital cost and a shorter useful economic life, which brings a full replacement within the appraisal period.
Consenting / stakeholder	**Neutral.** Delivered under permitted development rights on the existing route. Fitting renewal and tower strengthening are combined into one programme, reducing repeat outages and disruption to landowners.	**Neutral.** Also delivered under permitted development rights, but the lower thermal rating makes a future return to the route more likely, with repeat impacts on landowners and communities.

5. Quantitative Trade-offs Between the Shortlisted Options

The table below expresses the position of Option E-4 relative to Option E-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 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 E-1: Conductor A	Option E-4: Conductor D
Cost-book estimate	1	1.15
Total capital cost over the 50-year appraisal period, including replacement	1	2.29
Net present value (cost)*	1	1.4
Undiscounted carbon and losses costs	1	2.07
Useful economic life	1	0.57

**Lower is better*

Option E-1 is around 13% more economical than E-4 on the initial cost-book estimate. The gap widens considerably over the whole life, because the shorter economic life of Conductor D brings a full replacement within the 50-year appraisal period, making Option E-4 roughly 2.3 times the total capital cost. Option E-4 also carries about twice the undiscounted carbon and losses cost.

6. Preferred Solution

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

- It provides the **greatest thermal capability and future headroom**, providing materially greater capacity and future headroom than Option E-4.
- It offers **better consumer value**, with lower electrical losses, a lower cost-book estimate (a ratio of 1.15x) and a longer useful economic life than the alternative shortlisted option, giving the higher net present value (a ratio of 1.40x on net cost).
- It aligns with **PASE principles for L6 tower reconductoring**, benefits from established operational and maintenance experience across the NGET network, and allows fitting renewal and tower strengthening to be delivered within the same coordinated programme, reducing future outages and mobilisation costs.