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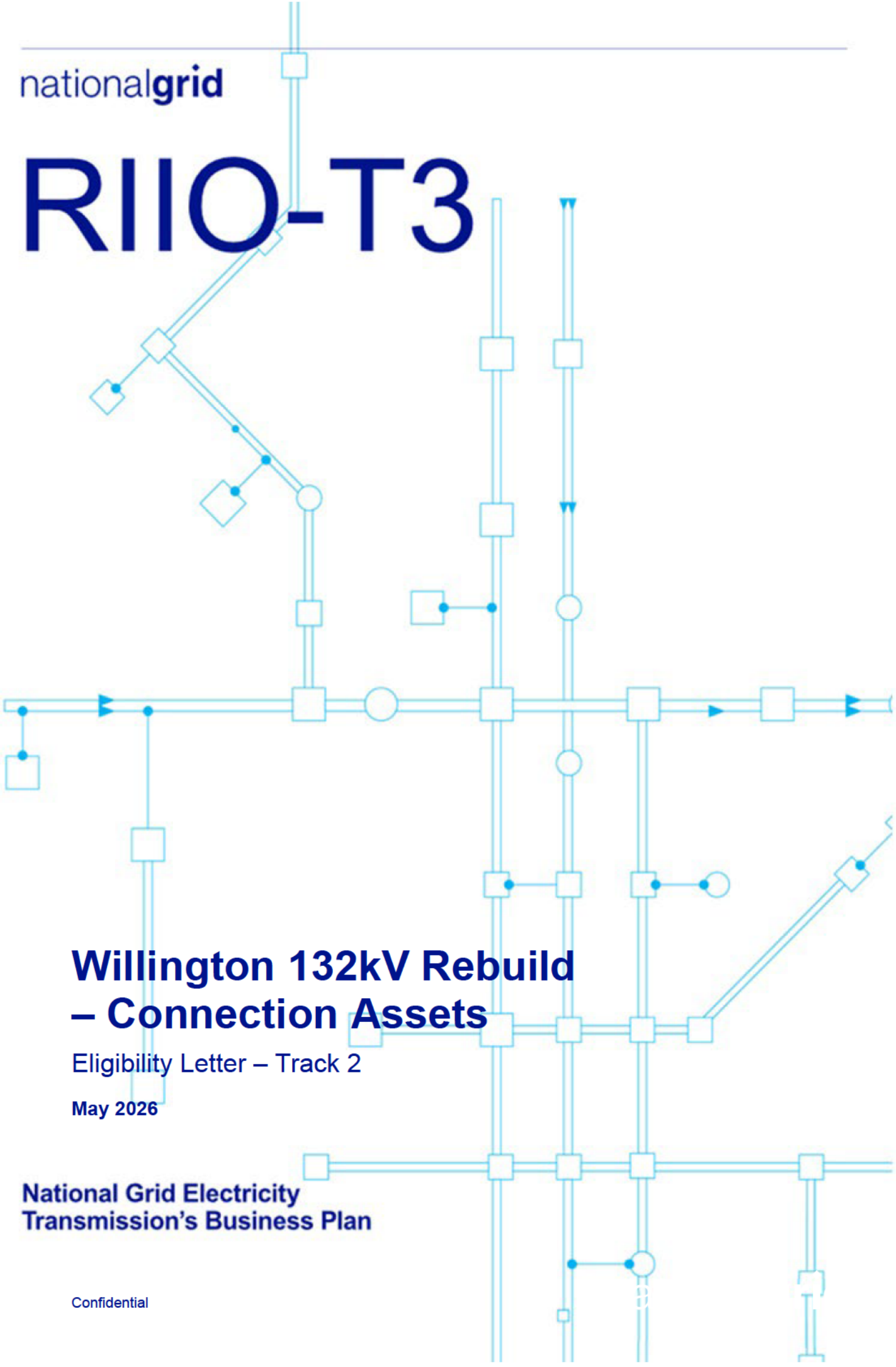


Willington 132kV Rebuild – Connection Assets

Eligibility Letter – Track 2

May 2026

National Grid Electricity Transmission's Business Plan

Confidential

Summary table

Field	Description
Name of Project	Willington 132kV Rebuild – Connection Assets
TO's preferred re-opener track	Load Re-opener Track 2 Eligibility Letter (EL)
RRP References	-
BPDT / Project Reference Number	[redacted]
Load Board Reference	[redacted]
Investment Driver	**NGET connection assets required to enable [redacted] Willington 132kV substation rebuild:** this is a load-driven connection assets project, triggered by [redacted] need to rebuild the Willington 132kV substation to address fault-level and capacity constraints. NGET is required to transfer and reconnect the existing SGT circuits into the new arrangement while preserving efficient provision for future network growth.
PASE alignment	The preferred solution is **PASE compliant** as a variant option, [redacted]
Outputs	New 1600mm² copper XLPE cable connections between the existing Willington 400/132kV SGTs [redacted] arranged under Option E-6 to avoid cable crossings, reuse the SGT7 trough, and maintain future SGT5 connection capability.
Short list of strategic options considered	• **Option E-4**: Northern SGT6 routing and re-use of existing SGT7 trough • **Option E-6**: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough
Preferred solution and explanatory narrative on the rationale	The preferred solution for this project is **Option E-6**: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough Option E-6 is the preferred solution because, despite only a marginal £0.9m NPV difference to E-4, it better meets the investment need by eliminating cable crossings, enabling more direct routing, reusing existing infrastructure, avoiding land purchase, and therefore reducing delivery complexity, risk, civils, consenting uncertainty and overall consumer cost.
Expected Forecast Costs	• **Estimated capital cost:** [redacted] (23/24 prices inc. R&C)
Delivery Year	[redacted] Dates are subject to procurement, contractor programme [redacted]
Applicable Reporting Tables	BPDT 10.5 ET Pipeline log
Historic Funding interactions	[redacted]
Interactive Projects	[redacted]


Spend
Apportionment

1. Executive Summary

1.1 Project Summary

The rebuild of the Willington 132kV substation is a key enabler for the expansion of the 400kV infrastructure at Willington East. By relocating the existing 400/132kV SGT circuits into a new 132kV compound, the project frees up critical space for future development of the 400kV site.

This scheme also facilitates the connection of the new Chesterfield–Willington (EDN2) ASTI scheme.

The rebuild enhances fault level resilience, which benefits both NGET and [redacted] by enabling safe and timely customer connections along with the connection of embedded generation/demand.

1.2 Submission Purpose

We are seeking Ofgem's confirmation that the **Willington 132kV Rebuild – Connection Assets** project is eligible for assessment under the Load Re-opener. We are also seeking confirmation that Track 2 EL is the appropriate route for this project, approval of Pre-Construction Funding (PCF) and approval for the indicative needs case and preferred solution.

Note:

- **Funding mechanism:** This submission is borderline between LRR and LR UIOLI. In the absence of clear guidance in Licence and guidance document, we are progressing with a LR combined Eligibility Letter submission, but as the project cost matures, we will proceed using the appropriate regulatory mechanism as set out in the licence.

1.3 Need

The investment is required because [redacted] due to its aging infrastructure which is no longer suitable for future network requirements. This requires NGET to transfer its existing 400/132kV Super Grid Transformer connections [redacted]

NGET's existing 400/132kV Super Grid Transformers currently feed into [redacted] 132kV network. As a result [redacted] requires NGET to transfer its existing SGT connections into the new [redacted]. NGET's scope is to replace and reconfigure the 132kV connection assets needed to transfer the four existing 400/132kV SGT circuits into [redacted] while preserving provision for a future SGT5 connection.

For this submission, "connection assets" refers to the NGET-owned scope required to connect the existing Willington 400/132kV SGT circuits into the [redacted] This includes the new SGT bays, 132kV cable systems and routes, associated civil works, protection and control modifications, earthing, auxiliary supplies and transfer sequencing, together with provision for a future SGT5 connection.

1.4 Optioneering to date

We undertook a structured, multi-factor optioneering process to identify a proportionate and deliverable solution in the interests of consumers. We first considered a range of strategic options, being do-minimum, market-based, whole-system, reuse or extension of existing assets, and new-build. From these, we built a longlist of 6 options, from which 2 progressed for detailed analysis. These detailed options all focused on the reconfiguration of the SGT bay order and installation of new 132kV cable connections from the existing 400/132kV SGTs at NGET's Willington 400kV substation [redacted]

Option E-6: Alternative bay arrangement with southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough is the preferred NGET connection-asset solution for transferring the existing Willington SGT circuits into NGED's rebuilt 132kV substation. It delivers new 132kV cable routes and associated connection infrastructure for SGT1, SGT2, SGT6 and SGT7, based on a revised SGT bay arrangement of SGT6–SGT7–SGT1–SGT2. This arrangement removes cable crossings, reuses the existing SGT7 trough route where possible, avoids the protected greenfield area, avoids the need for a northern fence extension or additional land purchase, and preserves provision for a future SGT5 teed-off connection.

Table 1: Summary of optioneering longlist

Option Number	Option Name	Option Description
A	Do nothing	The network is kept in its current state, and no new connections are facilitated.
B	Market based solution	Increased customer demand is accommodated through the procurement and use of ancillary services only.
C	Whole systems solution	The required customer connection is accommodated by a DNO.
D	Make use of existing assets	Facilitating the requested connection by utilising the existing connection assets
E	New build	Facilitating the required SGT transfers through new connection assets, including new 132kV cable systems and associated bay/interface works.

1.5 Cost Estimates

Based on the latest Cost Book (2023/24 prices inc. risk & contingency) and early project estimates, the preferred option E-6, has an estimated total cost of [redacted] including risk and contingency. Pre-Construction Funding [redacted] is requested at this stage to progress surveys, planning and land activities, FEED and detailed design, enabling works, security works and mobilisation activities required to mature the project ahead of later re-opener stages.

The cost for other shortlisted option is:

- Option E-4: [redacted] (23/24 prices)

1.6 Indicative Delivery Program

[redacted]

2. Introduction

2.1 Willington 132kV Rebuild – Connection Assets

This paper presents an Eligibility Letter application under the 'Load Re-opener and Price Control Deliverable' Special Condition (3.18 of the RIIO-ET3 Licence) for the Willington 132kV Connection Assets project. The investment is required because National Grid Electricity Distribution is rebuilding its Willington 132kV substation, which requires NGET to transfer its existing 400/132kV Super Grid Transformer connections into the [redacted]

[redacted]

NGET's scope is to commission and populate the NGET SGT connection bays within NGED's new 132kV substation and transfer the four existing 400/132kV SGT circuits into those bays. This includes the associated 132kV cable routes and systems, plant, civil works, protection and control modifications, earthing, auxiliary supplies, transfer sequencing and provision for a future SGT5 teed-off connection.

This paper seeks the following approvals from Ofgem:

- Approval of the investment need and our preferred option (E-6): which is the southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough;
- Confirmation of the proposed Track 2 EL of the re-opener process, because Willington 132kV Connection Assets project is PASE compliant, and
- Pre-Construction Funding (PCF) under Special Condition 3.15 (Pre-Construction Funding Re-opener, Price Control Deliverable).

The investment will deliver the revised NGET SGT connection arrangement for SGT1, SGT2, SGT6 and SGT7 into [redacted] including new 132kV cable routes and systems, associated civil, protection, control, earthing, auxiliary and sequencing works, and provision for a future SGT5 teed-off connection.

2.2 Eligibility, Track & PASE

This project is load-driven because the investment is required to accommodate increased fault level requirements, improve network resilience, enable timely connection of new customers across Derbyshire, and provide capacity for future system growth, including the future EDN2 connection and a potential fifth SGT connection.

The project interfaces with [redacted] with the NGET scope principally driven by the need to transfer and reconnect existing SGT circuits in a way that both maintains and enhances network capability to meet forecast load and connection requirements.

We are submitting this project under Track 2 EL, as the preferred solution is aligned to PASE.

2.2.1 Pre-Construction Funding Request

Under Special Condition 3.15 of the Electricity Transmission licence, this investment qualifies for allowances equal to [redacted] of its total forecasted cost [redacted] at the time of this Load Re-opener Eligibility Letter submission).

Based on our current forecast we have provided below breakdown of costs [redacted] as part of this submission. This equates to [redacted] of the "latest total forecast costs project costs"

Table 2 below summarises the activities covered by the application of these PCF allowances based on our current progress of PCF and EEW spend. This position will be updated as we continue to mature this investment and ultimately reconciled at Project Assessment stage of the re-opener.

We confirm that no PCF activity included in this submission has been funded through baseline allowances, other reopeners, or alternative licence mechanisms.

[redacted]

2.3 Background

2.3.1 Chronology of Investment

In [redacted] submitted a modification application proposing a rebuild of the Willington 132kV substation to address increasing fault levels and future network requirements. The proposed solution is a new [redacted] constructed offline within the former 275kV compound.

Between [redacted], further connection activity and forecast growth at Willington reinforced the need for a new 132kV arrangement and provision for a future fifth SGT connection. The delivery model was subsequently updated from [redacted] to NGET-delivered connection assets.

In [redacted] the former Willington 275kV site was transferred into [redacted] ownership, enabling NGET and [redacted] to progress the scheme through detailed design and governance. The NGET scope is now focused on transferring the existing SGT1, SGT2, SGT6 and SGT7 circuits into [redacted] with provision for a future SGT5 connection.

[redacted]

2.3.2 Regional & Network Context

Willington is a strategically important transmission–distribution interface in Derbyshire, providing bulk supply from NGET's network into the [redacted] and serving a mix of urban and rural demand alongside growing distributed generation activity. In recent years, rising network utilisation and wider system changes linked to electrification and decarbonisation have driven up fault levels towards the operational limits of the existing switchgear, reducing headroom and limiting resilience under fault conditions.

Wider network evidence indicates emerging regional constraints across the 132 kV network. Network studies show that, from 2028, Willington GSP (SGT1 and SGT7) would be overloaded in an N-1 event in the baseline case, with the risk increasing under higher growth scenarios. Studies also show overload risks at the downstream Derby BSP 132/33 kV transformers, indicating a broader need for capacity and resilience interventions across the region. These studies therefore highlight the case for timely reinforcement and for maintaining optionality and extendibility at Willington as demand and connection volumes evolve.

The existing transmission network surrounding the Willington 400kV NGET substation is described as a mature transmission corridor comprising established grid supply points, overhead line routes, and substations operating at 400 kV, 275 kV, and interface voltages, with current transfer limits defined by boundary capability, asset ratings, fault level, and operability constraints. Present performance is assessed using up-to-date power flow, short-circuit, and dynamic studies, alongside asset condition evidence, outage dependencies, and known connection commitments.

Looking ahead, a phased reinforcement strategy is planned that accommodates forecast demand and generation connections. This optimises headroom and enhances resilience, including options such as substation extensions, bay additions, circuit uprates, reactive power and control enhancements, and targeted protection and automation upgrades. The plan is aligned with national planning outputs and connection pipelines, coordination is undertaken with distribution networks and customers to confirm timing and scope, and delivery is staged to minimise outage risk while maintaining compliance with security and operability standards.

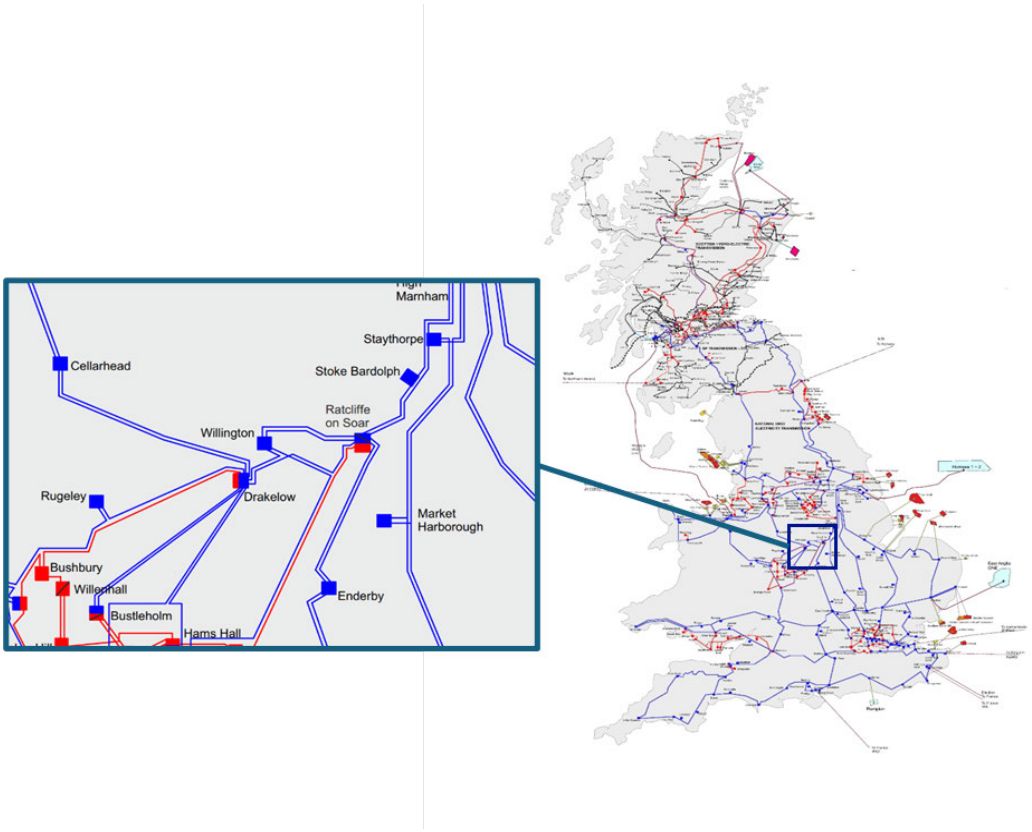


Figure 2 – Location of the Willington site on NGET's network (Blue denotes the 400kV transmission network, while red denotes the 275kV transmission network)

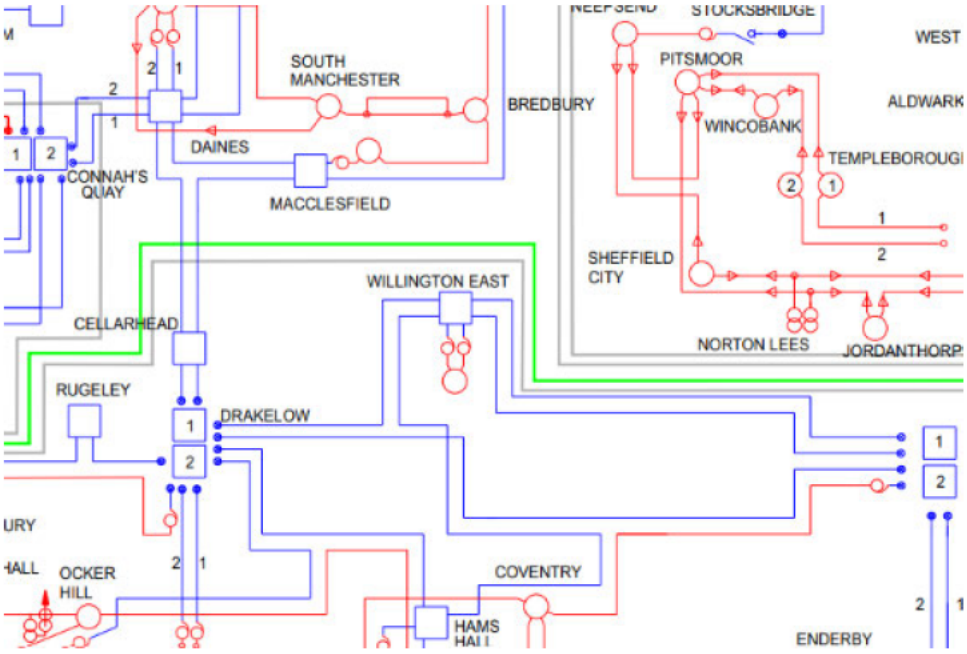


Figure 3 – Picasso Diagram of NGET's 400kV Willington substation

2.3.2.1 Interactive Projects

There are two key interactive projects to highlight:

- EDN2 ASTI: New OHL Chesterfield to Willington
- Willington 400kV extension –EJP

The Willington 132kV connection assets project is a critical enabling dependency for both the EDN2 Chesterfield–Willington ASTI scheme and the planned 400kV extension at NGET's Willington East substation.

To enable future expansion of the Willington 400kV network, [redacted] because the current 132kV infrastructure is not suitable for future network requirements, including higher fault levels. As NGET's existing 400/132kV transformers feed into NGED's 132kV network, their 132kV connections [redacted] through new SGT connection bays and cable routes.

The timing of the 132kV rebuild has therefore been carefully coordinated with the wider 400kV upgrade programme to avoid programme conflicts, access constraints or abortive works. This coordinated approach allows [redacted] substation while ensuring NGET's associated connection works support the timely delivery of wider transmission reinforcements, including programmes such as EDN2 and ACL.

Transferring the existing SGT connections into the new 132kV layout also helps release space and reduce interface constraints around the existing site, supporting future expansion of the 400kV network.

2.3.3 Site Background

The Willington East 275kV and 132kV substations were originally constructed in the 1960s to support Willington Power Station, which ceased operation in 1999. Following the subsequent decommissioning of the adjacent 275kV substation, a 400kV site was constructed, with the remaining assets now operating as a Grid Supply Point at 400kV and a Bulk Supply Point at 132kV, serving a wide area of Derbyshire. [redacted]

The existing 132kV substation sits adjacent to the former 275kV compound and interfaces with multiple 132kV circuits, including Derby, Derby South, Spondon and Burton. It is supplied by four

NGET 400/132kV Super Grid Transformers: SGT1, SGT2, SGT6 and SGT7. To address emerging fault level and capacity constraints while maintaining continuity of supply, the preferred site configuration provides for a [redacted] This enables the orderly transfer of the existing SGT circuits into new connection bays while the current 132kV arrangement remains operational.

3. Drivers & Needs Case

The project is driven by [redacted], which is required to address ageing infrastructure, future fault level requirements, resilience needs and new customer connections.

This creates a need for NGET to modify its transmission-distribution interface at Willington, because the existing 400/132kV SGT circuits must be transferred from the current 132kV arrangement [redacted]

NGET's scope is to deliver the required connection assets, which includes the SGT connection bays for SGT1, SGT2, SGT6 and SGT7, new 132kV cable routes and systems, associated plant, civil works, protection and control modifications, earthing, auxiliary supplies and transfer sequencing, together with provision for a future SGT5 teed-off connection.

Table 3: Summary of the drivers

Type	Description	Date
Load	**NGET connection assets required to enable NGED's Willington 132kV substation rebuild:** this is a load-driven connection assets project, triggered by [redacted] need to rebuild the Willington 132kV substation to address fault-level and capacity constraints. NGET is required to transfer and reconnect the existing SGT circuits into the new arrangement while preserving efficient provision for future network growth.	[redacted]

3.1 Customer

Under the proposed ownership model, the new 132kV substation infrastructure will be constructed and owned by [redacted] NGET will retain ownership of, and operational responsibility for, the transmission interface, including the supergrid transformer (SGT) bays. Following commissioning, existing NGET circuits will be transferred from the current substation into the [redacted] infrastructure. This arrangement represents a change from the current configuration, under which the 132kV substation is wholly NGET-owned.

[redacted]

Table 4 below provides our latest view of the [redacted] for this project.

Table 4 – Details of customers with contracted connections

Customer name	Project name	Technology Type	Output (MW/MVA)	Voltage	ACL
DNO					
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

The location of the contracted customer connection (NGED) relative to the existing NGET 400kV substation are shown in figure 4 above.

3.2 Asset Health

There are asset health/non-load drivers for interventions at this substation alongside the predominant load-related drivers for investment. These asset health issues are not the primary driver for this Load Re-opener submission, but they are relevant to timing and efficient coordination because the affected assets sit within the existing 132kV arrangement that will be superseded by the NGED rebuild and NGET connection-asset works.

A summary of the current asset health position at the Willington 132kV substation is presented in Table 5. This reflects NGET's most recent (2025/26) assured view of asset condition at the site and is included to provide context for the proposed load-related investment. As to be expected given the intervening period driven by general aging and usage deterioration, asset health conditions have evolved since the RIIO-T3 submission, which was based on 2023/24 asset condition data.

Whilst the majority of assets within the Willington 132kV substation have acceptable asset risk, when constructing our T3 non-load intervention plan, a small number of lead and non-lead assets on the site were found to meet the criteria for an asset health intervention[2], with Medium-High to Very-High Risk Classifications.

These assets have been excluded from our RIIO-T3 non-load submission on the basis that they would be addressed by this substation replacement scheme. We therefore do not have specific RIIO-T3 funding for any non-load related interventions at this substation.

In the interim, where there are higher-risk assets at the site, we will continue to assess and manage the risks until the project is delivered. Depending on the project scope and timeline, it may be necessary to undertake some asset interventions and ad hoc civil and building repairs ahead of the site scheme to maintain asset integrity and safety.

[2] In accordance with the decision-making framework set out in 'NGET_RIIO3_NGETQ10_Asset Health Decision Making', submitted as part of our RIIO-T3 Draft Determination response.

4. Optioneering

We follow a structured, multi-factor optioneering process to select the most economic and efficient solution, in the interest of consumers. In line with the Electricity Transmission Design Principles, our optioneering process takes into account engineering, environmental, deliverability, economic and stakeholder factors. We start by assessing the most suitable strategic options.

4.1 Strategic Options

In line with our standard optioneering process, we considered the following broad strategic options:

Table 6: Strategic Options Summary Table

Option Number	Option Name	Option Description
A	Do nothing	The network is kept in its current state, and no new connections are facilitated.
B	Market based solution	Increased customer demand is accommodated through the procurement and use of ancillary services only.
C	Whole systems solution	The required customer connection is accommodated by a DNO.
D	Make use of existing assets	Facilitating the requested connection by utilising the existing cable
E	New build	Facilitating the requested connection by installing new cable

We discounted Options A, B and C early in our optioneering process due to licence and contractual obligations and the inability to facilitate connection requests. The "do nothing" option would impact a critical [redacted] who would not be able to supply their existing and future connections. As detailed below, our initial high-level assessment concluded that the drivers could be effectively met by making use of existing assets. A descriptive rationale is explained in Section 4.3, Table 7.

4.2 Siting

A standalone siting study was not undertaken for the Willington 132kV connection assets because the scope and location of the works are fixed by [redacted] proposed rebuild of the Willington GSP and the need to interface directly with the existing NGET 400/132kV SGTs and wider 132kV network. The NGET reopener scope is therefore limited to transferring and reconnecting the existing SGT circuits into NGED's new 132kV substation, with the works necessarily located between the existing transmission assets and the rebuilt distribution substation. As there is no credible alternative site that would avoid or reduce the need for the investment, a separate siting study would not have influenced the strategic decision or identified a materially different lower-cost solution, and was therefore not considered proportionate for consumers.

Optioneering has instead focused on cable routing, bay arrangements and constructability within the fixed Willington site. Several route options were developed, varying in their use of existing troughs, alignment strategies and bay layouts to minimise cable crossings, avoid OHL towers and reduce ecological impact. Options E-1, E-2 and E-5 follow [redacted] proposed bay arrangement, while Options E-3, E-4 and E-6 adopt an alternative SGT bay sequence to remove cable crossings. A key routing constraint is the presence of the Derby 1 and Derby 2 cable circuits along the northern fence line, which affects the proposed SGT6 route in Options E-1 to E-4 and the SGT7 route in Options E-1 and E-3. This constraint would need to be addressed either by removing the Derby circuits before installation or by extending the northern fence line by at least 2 metres to create sufficient space for the new cable routes.

4.3 Long List of Options Considered

Table 7 – Longlist table

Options	Technical Description	Relevant Diagrams or Layout References	Consenting Risks & Environmental Impact	Rationale for taking/ or not taking forward the option to shortlisted assessment.
Option A: Do nothing **Rejected**	The network is kept in its current state, and no new connections are facilitated.	N/A	• N/A	• **Contractual and Licence compliance:** Compliant customer connection not delivered, and it would be against our contractual and license obligations. The "do nothing" option would impact a critical customer [redacted] who would not be able to supply their existing and future connections
Option B: Market-based solution **Rejected**	Increased customer demand is accommodated through the procurement and use of ancillary services only.	N/A	• N/A	• **Contractual and Licence compliance:** Compliant customer connection not delivered, and the option does not comply with our licence obligations to provide connections.
Option C: Non-transmission, whole systems solution **Rejected**	The required customer connection is accommodated by a DNO.	N/A	• N/A	• **Contractual and Licence compliance:** Compliant customer connection not delivered. • **Engineering**: The existing Willington 132kV arrangements are constrained by rising fault levels and insufficient future capacity, so [redacted] to connect additional customers securely and provide for future growth.
Option D: Re-use existing cables **Rejected**	Re-use of existing 132kV-side cables from the 400/132kV transformers at Willington to the corresponding transformer bays in the rebuilt	Not included due to not being a feasible option	• Minimal local and visual impact by minimising cable run	• **Environmental impact:** Oil-filled cables increase environmental risk. • **Cable rating:** Existing cables lack required rating/flexibility and create life mismatch. • **Economic/consumer value**: Reuse requires costly extensions, joints and oil-to-XLPE interfaces. • **Asset health**: Reuse misaligns ageing cable condition with new assets. • **Deliverability**: Retention adds joints, outages, thermal uncertainty and reliability risk.

	132kV AIS substation.			
Option E-1: Northern SGT6/SGT7 routing and southern SGT1/SGT2 routes **Rejected**	SGT1 and SGT2 are routed from the south/east into the proposed 132kV substation, while SGT6 and SGT7 are routed in parallel along the north of the existing 132kV substation, resulting in multiple cable crossings.	[redacted]	Avoids the protected greenfield area, which is positive environmentally; however, the northern routing corridor conflicts with Derby 1 and Derby 2 and would require either prior removal of those circuits or a northern fence extension / additional land, creating consenting and stakeholder risk. Construction is also close to existing OHL towers.	• **Engineering:** Crossings, longer routes and OHL proximity reduce efficiency. • **Environmental**: Avoids protected greenfield and limits southern encroachment. • **Deliverability**: Northern constraints, land/fence extension and OHL interfaces add risk. • **Economic / Consumer Value**: Extra land, civils and cable length increase cost. • **Consenting / Stakeholder**: Land/fence needs and Derby relocation dependency add complexity.
Option E-2: Northern SGT6 routing and re-use of existing SGT7 trough **Rejected**	SGT1 and SGT2 are routed from the south as in Option E-1, SGT6 remains on the northern perimeter, and SGT7 is routed via the existing SGT7 trough along the east/south of the site.		Avoids the protected greenfield area and makes beneficial re-use of the existing SGT7 trough, reducing some civil works; however, SGT6 still requires the constrained northern route, so land/fence extension risk remains.	• **Engineering:** SGT7 trough re-use helps, but crossings and northern SGT6 constraints remain. • **Environmental**: Avoids protected greenfield and reduces civils through re-use. • **Deliverability**: Northern mitigation and future 400kV interface risks remain. • **Economic / Consumer Value**: Trough savings are offset by crossings, longer routes and land/civils needs. • **Consenting / Stakeholder**: Land/fence extension remains a key drawback.
Option E-3: dual northern SGT6/SGT7 routing **Rejected**	Uses alternative bay arrangement to remove crossings, with SGT1 and SGT2 routed from the south/east and both SGT6 and SGT7 routed in parallel along the northern perimeter		Avoids the protected greenfield area and achieves the shortest overall cable routes, which is environmentally and technically attractive; however, both SGT6 and SGT7 depend on the constrained northern perimeter and therefore require Derby 1 / Derby 2 removal or a northern fence extension / additional land.	• **Engineering:** No cable crossings and shortest routes improve technical efficiency. • **Environmental:** Avoids protected greenfield areas and reduces disturbance through shorter routes. • **Deliverability:** Requires northern corridor mitigation, revised outage/bay sequencing, and manages OHL proximity risk. • **Economic / Consumer Value:** Technical benefits are partly offset by additional land and civils costs.

	of the existing 132kV substation.	[redacted]		• **Consenting / Stakeholder:** Northern land/fence extension remains a material issue.
Option E-4: Northern SGT6 routing and re-use of existing SGT7 trough **Progressed**	Uses alternative bay arrangement to eliminate crossings; SGT1 and SGT2 are routed from the south/east, SGT6 remains on the northern perimeter, and SGT7 is routed through the existing SGT7 trough along the east/south of the site.		Avoids the protected greenfield area and reuses the existing SGT7 trough, reducing some environmental and civil impact; however, SGT6 still requires northern routing, so northern land/fence extension risk remains.	• **Engineering:** No crossings, efficient routing and SGT7 trough re-use. • **Environmental**: Avoids greenfield impact and reduces civils. • **Deliverability**: Better than E-3, but SGT6 retains northern corridor risk. • **Economic / Consumer Value**: Improved by trough re-use but weakened by northern land/civils needs. • **Consenting / Stakeholder**: Northern extension and Derby interface remain unresolved. • **Overall**: Viable option with strong safety, technical and environmental performance.
Option E-5: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough **Rejected**	SGT1 and SGT2 are routed from the south as in E-1/E-2, SGT7 uses the existing trough, and SGT6 is rerouted around the east/south of the site rather than along the northern perimeter, avoiding the need for a northern extension.		Avoids the protected greenfield area, reuses the existing trough and does not require additional land purchase or northern fence extension, which materially reduces consenting risk. However, it still contains multiple cable crossings and longer/more complex routing than the preferred option	• **Engineering:** Retains crossings and is less technically efficient. • **Environmental:** Avoids greenfield, northern land take and reuses SGT7 trough. • **Deliverability:** Easier on land, but crossings create operability drawbacks. • **Economic / Consumer Value:** Avoids northern land/civils, but not whole-life optimal. • **Consenting / Stakeholder:** Stronger, with no northern land extension. • **Overall:** Land benefits are outweighed by crossing and future-proofing disadvantages.

Option E-6: Alternative bay arrangement with southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough **Progressed**	Uses the alternative bay arrangement; SGT1 and SGT2 are routed from the south/east with no cable crossings, SGT7 reuses the existing trough, and SGT6 is routed around the east/south of the site, eliminating the need for northern routing		Avoids the protected greenfield area, reuses the existing trough, does not require northern fence extension or additional land, and reduces civils relative to the other options. Residual construction constraints remain around existing site features and future 400kV development interfaces, but these are less material than in the alternatives	• **Engineering:** No crossings, direct routes and infrastructure re-use. • **Environmental:** Avoids protected greenfield and reduces civils. • **Deliverability:** Avoids northern corridor and land constraints. • **Economic / Consumer Value:** Lowest complexity, reduced civils and no land purchase. • **Consenting / Stakeholder:** Avoids northern extension issues. • **Overall:** Preferred option with strongest safety, constructability and SGT5 readiness.

Based on the rationale explained in Section 4.3, we have discounted Options A – D because they will not allow us to facilitate the connection requests and consequently, we will not meet our contractual and licence obligations.

Options E-1, E-2, E-3 and E-5 were not taken forward to detailed assessment because while each offered some benefits, they all retained avoidable cable crossings and/or routing, land and delivery constraints, making them less efficient, less deliverable and weaker in consumer value terms than the leading alternative bay arrangement.

Options E-4 and E-6 were taken forward to shortlist because they represented the strongest remaining solutions after initial screening, either by reducing land and consenting risk relative Option E3, eliminating cable crossings and reusing existing infrastructure while remaining technically credible (E4), or delivering the most balanced overall outcome across engineering, constructability, environmental impact and consumer value (E6).

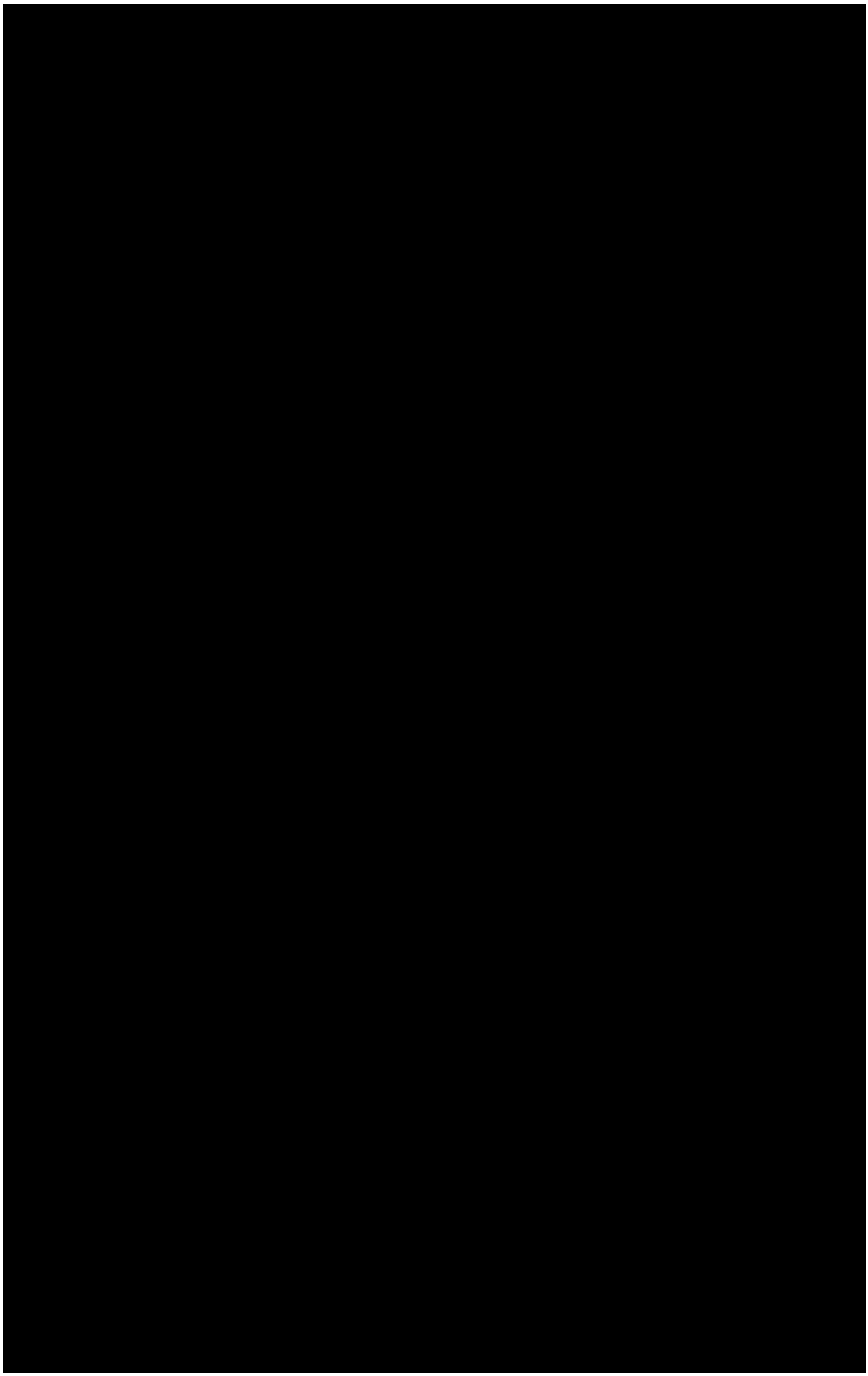
4.3.1 Influence of stakeholders on shortlisting

[redacted]

4.4 Shortlisted Options

4.4.1 Option E-4: Northern SGT6 routing and re-use of existing SGT7 trough

[redacted]



4.5 Detailed Qualitative Assessment

	Optioneering Categories				
Option	Engineering	Environmental	Deliverability	Economic/Consumer Value	Consenting /Stakeholder
Option E-4: Northern SGT6 routing and re-use of existing SGT7 trough	• Adopts alternative bay arrangement; described as delivering no cable crossings. • Reuses existing SGT7 trough for SGT7 routing. • SGT1 cable circuit is outside the substation boundary; routes run close to OHL towers.	• Routes avoid the protected greenfield area.	• Change in bay arrangement may require programme change due to outage sequence and bay position changes. • Northern routing constraint from Derby 1 and Derby 2 circuits for SGT6; requires removal or north fence extension. • Construction around OHL towers required.	• Land purchase and additional civils required for north fence extension. • Reuse of existing SGT7 trough reduces new civils for that circuit, subject to serviceability.	• Additional land acquisition and boundary change required to the north for fence extension.
	Strong Benefit	**Benefit**	**Detractor**	**Detractor**	**Strong Detractor**
Option E-6: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough	• Adopts alternative bay arrangement; described as delivering no cable crossings. • Reuses existing SGT7 trough for SGT7 routing. • No northern extension required under this routing approach (SGT6/SGT7 route strategy avoids north-perimeter constraint). • SGT1 cable circuit is outside the substation boundary; routes run close to OHL towers.	Routes avoid the protected greenfield area.	• Change in bay arrangement may require programme change due to outage sequence and bay position changes. Construction around OHL towers required.	• No additional land purchase required; avoids costs associated with northern fence extension. • Reuse of existing SGT7 trough reduces new civils, subject to serviceability.	No additional land purchase required and remains within existing site boundary assumptions for the rebuild.
	Strong Benefit	**Benefit**	**Detractor**	**Benefit**	**Strong Benefit**

Based on the qualitative assessment above, our preferred design is Option E-6 because it offers a better balance of deliverability, futureproofing and consumer value, while avoiding the need for a northern substation extension by routing SGT circuits along the east of the 400 kV substation. In addition, Option E-6 is qualitatively stronger overall because it routes both SGT6 and SGT7 to the east and south of the site, avoiding the constrained northern corridor required for SGT6 in Option E-4 and thereby reducing land, consenting, civil and delivery risk while retaining the same technical benefits.

4.5.1 PASE non-compliance

The preferred solution for the Willington 132kV Rebuild – Connection Assets is PASE compliant [redacted]

4.6 Detailed Quantitative Analysis of Shortlisted Options

4.6.1 Cost Estimates of Shortlisted Options

To assess the shortlisted options, cost estimates have been created for quantitative economic comparison. All capex costs are derived from NGET's latest Cost Book (23/34 prices). Estimating Units Lines (EULs) have been used to generate cost estimates based on the scope of work and the new assets to be acquired for each option. For each EUL, we have applied a [redacted] based on historic project analysis across a range of completed projects, to account for unforeseen circumstances and incorporate estimating risk that crystallises during implementation.

[redacted]

Option E-6 is lower cost than Option E-4, as E-4 requires additional land works and electrical fencing, due to the cable route taken.

4.6.1.1 Cost Drivers

The project's cost estimates are based on current market conditions, with ongoing work to refine requirements. The baseline funding request is supported by high-cost confidence and robust EUL (Estimating Units Lines) assessments.

The cost book indicates that the principal cost driver differentiating the shortlisted options is the requirement for approximately [redacted] under Option E-4. This requirement does not apply to Option E-6 and is the primary reason for the variance between the indicative cost estimates for the two options.

4.6.2 Cost Benefit Analysis

4.6.2.1 Purpose and Approach

Our Cost Benefit Analysis (CBA) evaluates the economic efficiency and consumer value of the proposed transmission investments. This analysis aligns with Ofgem's Load Re-opener Guidance and Submission Requirements.

The CBA process integrates monetised benefits such as constraint cost savings, system efficiency improvements, and consumer bill impacts, alongside a comprehensive Whole-Life Cost Analysis (WLCA) that captures capital expenditure, operational and maintenance costs, replacement cycles, carbon impacts, and future extendibility. This dual approach ensures a balanced assessment of both short-term economic benefits and long-term cost efficiency, avoiding the risk of asset stranding or future inefficiencies.

Our CBA considers:

- Robust optioneering and sensitivity testing: We have evaluated credible alternatives, including 'do nothing' and 'do minimum' scenarios, to confirm that the preferred solution delivers the optimal balance of technical performance, environmental impact, and economic benefit.
- Quantification of constraint cost reductions: Using system operator modelling outputs and historical data, we quantify expected savings from reduced system constraints, which translate into direct consumer bill benefits.
- Assessment of delay impacts: The financial consequences of potential project delays on constraint costs and consumer bills are modelled through risk-adjusted scenarios, providing a clear understanding of the value of timely delivery.
- Inclusion of socio-economic benefits: Where quantification is challenging, qualitative evidence supported by stakeholder engagement and regional development plans highlights the wider economic benefits, including job creation and inward investment.
- Consideration of non-monetised benefits: We explicitly identify benefits that are qualitative or not readily monetisable, such as enhanced system operability, resilience, and environmental improvements, ensuring full transparency of the value proposition.
- Alignment with policy and government targets including Net Zero and AI Growth Zones: The CBA reflects the influence of national and local policies, including Clean Power 2030, net zero commitments, and economic growth plans demonstrating how the investment supports the broader energy transition.

We have assessed consumer value by comparing the whole-life costs and benefits of five shortlisted connection and substation delivery options using Ofgem's RIIO-ET3 CBA template. The assessment is completed relative to a counterfactual and on a discounted basis over a 50-year appraisal period (2027–2076), consistent with the CBA methodology.

For each option considered, we have quantified:

(i) Initial CAPEX investment required

(ii) Future end of life replacement costs

The supporting CBA model quantifies the costs and benefits for this project. Using the Ofgem RIIO-ET3 CBA template spreadsheet, the CBA includes the following two shortlisted options:

- **Option E-4**: Northern SGT6 routing and re-use of existing SGT7 trough
- **Option E-6**: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough

4.6.2.2 CBA Outcome

Lifetime Cost-Benefit Analysis: The lifetime costs and benefits refer to a 50-year period starting from 2027 until 2076.

Table 9: Lifetime Cost-Benefit Analysis (2023/2024 base prices, central carbon pricing, discounted values)

Option	Initial Investment (£m)	PV of Lifetime Costs (£m)	PV of Monetised Benefits (£m)	NPV (£m)
Option E-4	[redacted]	[redacted]	[redacted]	[redacted]
Option E-6	[redacted]	[redacted]	[redacted]	[redacted]

On the basis of the discounted lifetime CBA results (Table 9), Option E-6 delivers the highest NPV [redacted] 2023/2024 base prices) and therefore represents the preferred option on consumer value grounds. Option E-4 NPV is [redacted] 2023/2024 base prices) and is therefore lower than E-6. This analysis is subject to confirmation through deliverability, consents/land, outage and risk considerations, and any CBA sensitivities set out in the assumptions below.

4.6.2.3 Assumptions of the CBA analysis

Core assumptions and sensitivities. The CBA results are based on the following high-level assumptions (with sensitivities used to test robustness where appropriate):

- Appraisal period of 50 years (2027–2076), with costs and benefits discounted and presented relative to the counterfactual.
- Cost base: 2023/2024 prices, aligned to the Ofgem RIIO-ET3 CBA template inputs (including treatment of replacement CAPEX and maintenance).
- Carbon: central base case carbon price applied for monetising construction carbon, SF6/alternative gas leakage and losses, with scenario testing for alternative carbon price trajectories.
- Benefits scope applied consistently across options; where option-specific benefits exist (e.g. constraints), the basis and evidence are documented and applied consistently.
- Key sensitivities considered (as applicable): timing/phasing, CAPEX uncertainty ranges, delivery/outage risk, and benefit parameter uncertainty (including losses and leakage assumptions).

4.6.2.4 Costs

Table 10: Summary of all additional Capex costs (2023/2024 base prices)

	Capex		
	Initial works (£m)	Future replacement (40yr) (£m)	Total costs (£m)
Option E-4	[redacted]	[redacted]	[redacted]
Option E-6	[redacted]	[redacted]	[redacted]

4.6.2.5 Benefits

The following benefits have been included within the CBA:

- SF6 / Alternative gas leakage reduction
- Carbon cost of construction reduction
- Constraint cost reduction
- Summary of all Benefits

Table 11 presents the summary of all benefits, including environmental and non-environmental benefits, considering the central base case carbon price.

Table 11: Summary of all benefits

Option	Environmental Benefits		Non-Environmental Benefits	Total Benefits (£m)
	Carbon costs of construction (£m)	Gas leakage (£m)	Transmission loss (£m)	
Option E-4	[redacted]	[redacted]	[redacted]	[redacted]
Option E-6				

4.7 Preferred Solution

We consider **Option E-6**: **Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough** is the preferred option for the Willington 132kV Rebuild – Connection Assets investment. Although its NPV differs from E-4 by £[redacted] this reflects only a relatively small design variation and does not outweigh the advantages E-6 offers in deliverability, risk reduction and overall consumer value.

Option E-6 delivers the preferred package of NGET connection assets, including:

- the revised SGT bay arrangement for SGT1, SGT2, SGT6 and SGT7;
- provision for the future SGT5 teed-off connection;
- new 132kV cable systems and routes between the existing SGT positions / joint bays and the [redacted]
- associated cable ducts, troughs, trenches and civil works;
- associated protection, control, SCS/database, earthing, auxiliary supply and sequencing works required to transfer the SGT circuits.

Option E-6 avoids cable crossings, which reduces construction complexity and outage/interface risk, while the more direct cable routing supports simpler installation and may reduce longer-term maintenance complexity. In addition, the option reuses existing infrastructure, including the SGT7 trough, which reduces capex and environmental disruption, and avoids the need for land purchase, thereby reducing both direct cost and consenting uncertainty.

Taken together, these features mean E-6 meets the investment need while offering lower civils requirements, lower delivery complexity and a stronger overall consumer value case than E-4 and other Option E variants. However, the assessment is balanced by recognising that E-6 also has some drawbacks, notably that the change from the original bay arrangement may require programme adjustments to reflect revised outage sequencing and bay positions, and that construction around the OHL towers is still required.

4.7.1 Project Benefits & Outputs

The preferred option for this project is **Option E-6: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough.**

The key outputs and benefits delivered by this option, and how they align to the pillars of our ambition for RIIO-ET3 are as follows:

Table 12: Summary of Outputs and Benefits

The output of this project consists of:

- The installation of new cable routes for SGT1, SGT2, SGT6 and SGT7 between the NGET Willington 400kV substation and the [redacted]
- The installation and population of new 132kV SGT bays, and
- The provision for a future SGT5 connection

Which will facilitate demand and connection growth on NGED's network. The delivery date for this is [redacted]

The project will deliver the following benefits:

- Increases fault level capability at Willington and provides the new 132kV SGT bay interface needed to transfer the existing four 400/132kV SGT circuits, with provision for a future fifth SGT connection.
- Enables timely connection of new customers across Derbyshire and supports wider strategic reinforcement, including the future EDN2 Chesterfield–Willington ASTI connection.
- Facilitates future development of the Willington East 400kV site by relocating the SGT circuit terminations into the new 132kV arrangement and freeing space for planned extension works.
- The scheme enables timely customer connections and avoids delays to regional capacity planning, reducing the risk of consumer detriment associated with constrained network capability and deferred reinforcement.
- Removes a key transmission–distribution constraint at Willington, reducing the risk of delayed customer connections and adverse impacts on regional capacity planning.
- The preferred option reuses existing infrastructure where efficient to do so, avoids additional land take to the north of the site, and reduces civil works relative to the alternative options.
- The chosen routing avoids the protected greenfield area and reduces environmental, consenting and construction impacts while delivering the required capability upgrade.
- The project is being developed as a coordinated whole-system solution between NGET and [redacted] NGET delivering the connection assets needed to interface with that new facility.
- The scheme has been planned to align with interacting projects, particularly EDN2 and the Willington 400kV extension, supporting coordinated sequencing, outages and site delivery

5. Delivery

A programme of works for **Option E-6: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough,** is outlined below in figure 9. This illustrates the key milestones [redacted] NGET, the two stages of contracts and the regulatory critical pathways.

[redacted]

The Willington 132kV programme is fully aligned with [redacted] wider build programme and the Willington 400kV Extension, ensuring no delay to [redacted] and enabling the 400kV works to proceed as planned. The programme is structured for reliable delivery, with clear sequencing, built in risk buffers, and close ongoing collaboration between NGET and NGED. The scheme is dependent on the completion of [redacted] works to enable the transfer of the four existing SGT circuits, requiring coordinated planning and delivery across both parties. [redacted]

5.1 Procurement & Contracting Strategies

[redacted]

5.2 Risk & Risk Management

The preferred option presents a limited number of delivery risks, consistent with the relatively contained scope of works. Key risks and associated mitigation measures are summarised in Table 13 below. These risks have been informed by the optioneering process, SWOT analysis and Cost Benefit Analysis. A full quantitative risk assessment will be undertaken as the project progresses and mitigation measures will be refined accordingly.

Category	Risk	Mitigation Measure
Design & Technical Complexities	• **Design development risk:** Contractor design delays, limited design assurance resource, and inaccurate or incomplete "as built" information could delay completion of the design and assurance process. • **Site information risk:** The discovery of unrecorded buried services could require redesign and delay construction readiness. • **Commissioning risk:** Switchgear type registration or grid specification issues could delay commissioning and the overall ACL	• Use ECI and active programme management to control design submissions, reviews and approvals. • Complete early surveys and verify site / "as built" information, including buried services, to reduce redesign risk. • Engage assurance and suppliers early to align design approvals and type-registration requirements with the delivery programme.
Planning, Land & Consent	• **Consenting risk:** There is a risk that design development could trigger a planning application, despite the project currently being treated as Permitted Development. • **Ecology risk:** Ecology and archaeology issues could delay construction if additional mitigation or investigation is required. • **Land risk:** Land, easement and access risks could delay site access and impact the ACL date	• Minimise scope changes during design development to reduce the risk of triggering a planning application. • Progress early engagement on land access, easements and wayleaves, supported by timely environmental, ecological and archaeological surveys. • Allow sufficient programme contingency for approvals, access agreements and any required environmental mitigation.
Third Party Impact & Network Co-ordination	• **DNO Interfaces:** Interfaces with NGED and other site works could delay delivery. • **Risk management:** Risk management hazard zone (RMHZ) restrictions could constrain access and construction. • **Network Rail interdependencies:** Network Rail constraints could delay abnormal-load deliveries	• Maintain close coordination with NGED and other interfacing projects to manage access, sequencing, outages and worksite release. • Use the ECI arrangement to coordinate logistics and interfaces early, including any abnormal-load requirements and Network Rail engagement. • Plan works to minimise clashes with other site activities and proactively manage RMHZ constraints through staged access and safe system planning.

Timing of Programme & Resources		• Secure outages early and maintain close coordination with NESO and internal outage planners as the programme develops. • Build float into outage- and access-dependent activities and place long-lead item orders early through the staged contract strategy. • Maintain early visibility of SAP, commissioning and contractor resource requirements, with escalation where competing demands emerge.
Cost	• **Cost estimating:** Estimate uncertainty could increase outturn cost. • **Inflation:** Inflation could raise material and equipment costs. • **Regulatory/Law regime changes:** Change in law could create additional cost exposure.	• Refine the estimate as design matures, using early contractor input to improve confidence in scope, quantities and delivery assumptions. • Benchmark contractor costs against internal / E-hub estimates and update the cost base at key stage gates. • Maintain cost control through early long-lead procurement and staged contract governance, while monitoring inflationary and contractual risk exposure.

6. Conclusion

The purpose of this Load Re-opener submission is to seek Ofgem's confirmation that the Willington 132kV Rebuild – Connection Assets project is eligible for assessment under the Load Re-opener, that Track 2 EL is the appropriate assessment route, and the approval of Pre-Construction Funding (PCF) under Special Condition 3.15, the indicative needs case and the indicative preferred solution should be approved.

This is a load-driven connection assets project, triggered by [redacted] need to rebuild the Willington 132kV substation to address fault-level and capacity constraints, with NGET required to transfer and reconnect the existing SGT circuits into the new arrangement and efficiently preserve provision for future network growth. This scheme is a critical enabler for wider system reinforcement, including the EDN2 ASTI connection and the NGET Willington East 400kV extension.

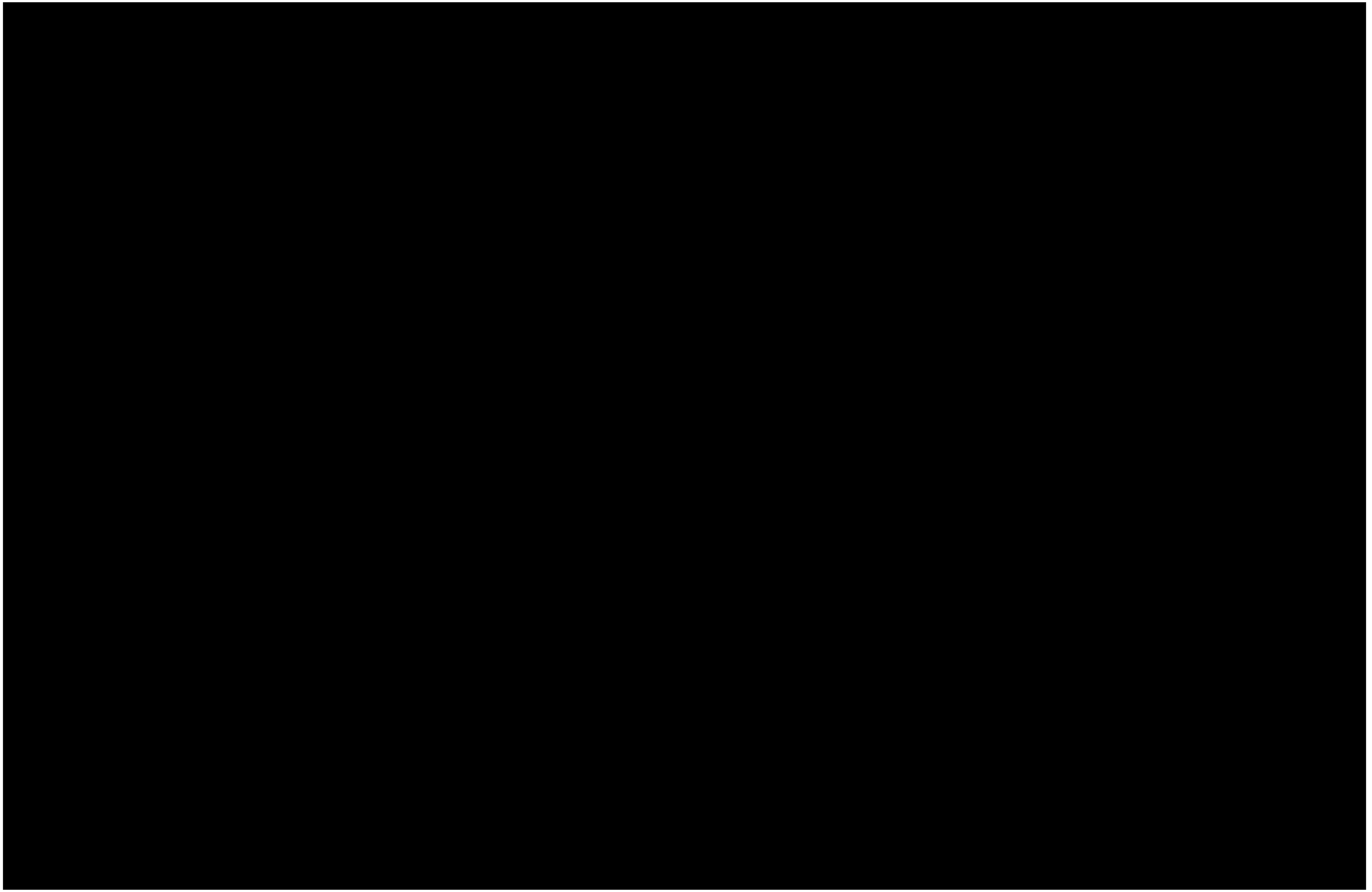
The proposed solution is **Option E-6: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough.** Option E-6 is the most economical solution overall and will enable NGET to meet the investment driver for this project, whilst also providing future proofing, through a potential fifth SGT cable route to enable future installation of an additional SGT, which is currently assumed to be required from 2034 or later depending on the outcome of ongoing network reform studies.

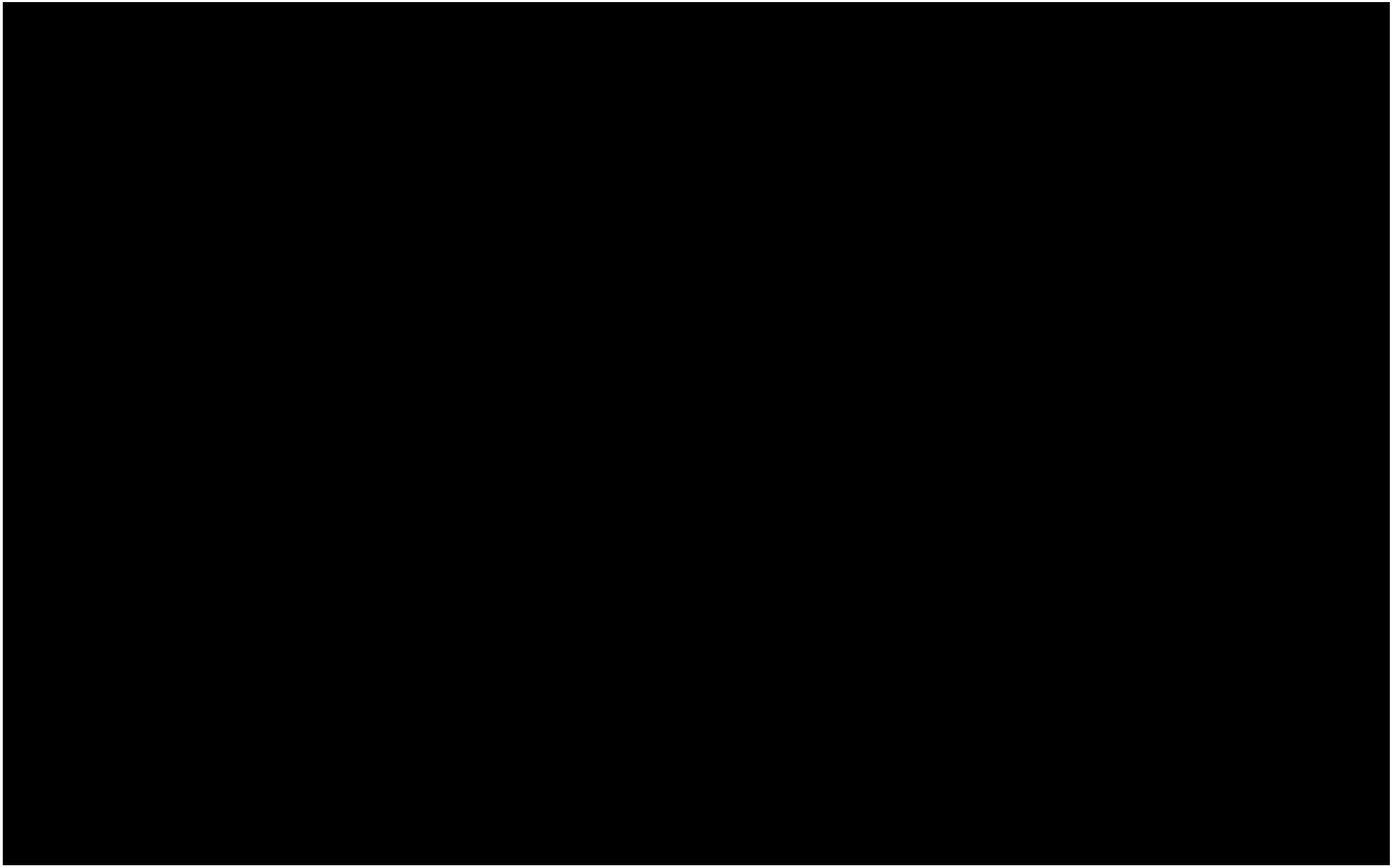
There are known uncertainties and risks associated with Option E-6 that have been captured in this Load Reopener, such as ecology, land access and cost inflation risks. To ensure our successful delivery of this project, collaboration with all stakeholders involved in the proposed investment and within the Willington site is critical.

This submission outlines a preferred solution to satisfy the investment drivers. It seeks confirmation of eligibility under Special Condition 3.18, confirmation of eligibility for PCF under Special Condition 3.15, confirmation of re-opener Track 2 EL and formal approval of the preferred option. The Price Control Deliverable (£m) associated with this investment proposal is as follows:

Table 14 – Investment Summary

Main Drivers	**NGET connection assets required to enable** [redacted] this is a load-driven connection assets project, triggered by [redacted] to address fault-level and capacity constraints. NGET is required to transfer and reconnect the existing SGT circuits into the new arrangement while preserving efficient provision for future network growth.
Selected Option	**option E-6: Southern/eastern SGT6/SGT7 routing and re-use of existing SGT7 trough**
Estimated Cost & Timing	**Estimated capital cost: £**[redacted] (23/24 prices)
Outputs	The preferred investment at Willington will facilitate demand and connection growth on [redacted] network. The investment will enable the following outputs, aligned to the pillars of our ambition for RIIO-ET3: • **Deliver the grid of tomorrow, today**: Increases capability at Willington to transfer existing SGT circuits, support future growth, and enable wider strategic reinforcement. • **Doing the right thing for consumers, communities and the environment:** Enables timely connections while minimising consumer, land, civil and environmental impacts through an efficient, reuse-led design. • **Transform the way we work:** Delivers a coordinated [redacted] solution, aligned with interfacing projects to support efficient sequencing, outages and site delivery.





Appendix C: Glossary

Abbreviation	Description
ACL	Available For Commercial Load
ACSR	Aluminium Core Steel Reinforced
AIS	Air Insulated Switchgear
APM	Advanced Procurement Mechanism
BESS	Battery Energy Storage System
BP	Business Plan
BPDT	Business Plan Data Template
CAI	Closely Associated Indirect
CBA	Cost Benefit Analysis
CPO	Compulsory Purchase Order
CSNP	Centralised Strategic Network Plan
DC	Direct Current
DCO	Development Consent Order
DC TC	Direct Current Time Constraint
DESNZ	Department for Energy Security and Net Zero
DISC	Disconnector
DLR	Docklands Light Railway
DNO	Distribution Network Operator
ECC	Estimated Cost of Construction
EEW	Early Enabling Works
EJP	Engineering Justification Paper
EoL	End-Of-Life
ESO	Energy System Operator
ET	Electricity Transmission
EU	European Union
EUL	Estimating Units Lines
ESW	Earth Switch
FEED	Front End Engineering Design
FES	Future Energy Scenarios
FY	Financial Year
G3	Green Gas for Grid
GEC	General Electric Company
GIB	Gas Insulated Busbar
GIS	Gas Insulated Switchgear
GLA	Greater London Authority

GW	Giga Watt
HDD	Horizontal Directional Drilling
HV	High Voltage
HWUP	Hackney Waltham Cross Uprating
IEC	International Electrotechnical Commission
ISS	Integrated Security System
kW	Kilo Watt
LLTI	Long Lead Time Items
LTDS	Long-Term Development Statement
LV	Low Voltage
LVAC	Low Voltage Ac
M&E	Mechanical And Electrical
MITS	Main Interconnected Transmission Systems
MSIP	Medium Sized Investment Project
MVA	Megavolt-Amperes
MW	Mega Watt
NESO	National Energy System Operator
NETS	National Electricity Transmission System
NG	National Grid
NGED	National Grid Electricity Distribution
NGET	National Grid Electricity Transmission
NOA	Network Options Assessment
NOMs	Network Output Measures
NPV	Net Present Value
OHL	Overhead Line
ORPS	Obligatory Reactive Power Service
PCD	Price Control Deliverables
PCF	Pre-Construction Funding
SF6	Sulfur Hexafluoride
SGT	Super Grid Transformer
SLD	Single Line Diagram
SPV	Special Purpose Vehicle
SSMD	Sector Specific Methodology Document
SSSI	Site of Special Scientific Interest
STC	System Operator Transmission Owner Code
SuDS	Sustainable Drainage Solutions
TBC	To Be Confirmed
tCO2e	Tonnes of Carbon Dioxide Equivalent
TCPA	Town And Country Planning Association

TCSNP	Transitional Centralised Strategic Network Plan
TWB	Through-Wall Bushing
UK	United Kingdom
UKPN	UK Power Networks
UKPN EPN	Eastern Power Networks
UKPN LPN	London Power Networks
UKPNS	UK Power Networks Services
UXO	Unexploded Ordnance
VCA	Voltage Compliance Assessment
XLPE	Cross-Linked Polythene

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com