Denny to Braco Uprating (BDUP)

ESO Driven EJP
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SP Energy Networks
RIIO-T3 Business Plan

SP Energy Networks

DENNY – BRACO WEST UPRATING (BDUP)			
Name of Scheme	Denny – Braco West 275kV Circuit Upgrade to 400kV Operation		
Investment Driver	NESO Driven Works - Applicable Works		
NESO Review	NESO Reviewed: No		
BPDT/Scheme Reference Number	SPT200476		
Outputs	Circuit breaker CB (Air Insulated Busbar) (OD) 400kV – 1 unit		
Cost	Total Cost: £3.09m		
Delivery Year	2029		
Applicable Reporting Tables	5.1 Meta Data, 6.1 Scheme C&V Load Actuals, 11.10 Contractor Indirects		
Historic Funding interactions	None		
Interactive Projects	BDUP is a joint project with SSEN-T for whom it is an ASTI project.		
Spend Apportionment	**ET2**	**ET3**	**ET4**
	£0.01m	£3.08m	£0

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1. Executive Summary

This engineering justification paper (EJP) sets out the need case for the installation of a new 400kV bay, dismantling of new 275kV oversailing busbars and minor OHL works to uprate the existing 275kV Braco-Denny (southern section of Beauly – Denny circuit) to 400kV operation.

The existing Braco-Denny circuit is joint between SP Transmission (SPT) and SSEN-T across the B4 boundary. This project is the works within SPT's area required to complete SSEN-T's Accelerated Strategic Transmission Investment (ASTI) project BDUP to increase capacity of the B4 boundary.

Works and outages will be coordinated throughout delivery of this project, with the SPT to be completed in May 2029.

The SPT costs associated with this project is £3.09m (2023/24 prices).

This EJP is submitted for Ofgem's assessment of needs and cost for approval of baseline allowance within RIIO-T3 plan.

2. Introduction

This Engineering Justification Paper (EJP) lays out SP Transmission's (SPT) plans to uprate the Denny - Braco West 275kV circuit to 400kV (SPT-RI-1560) and seeks RIIO-T3 baseline funding for the project. These works complete the southern end of SSEN-T's ASTI project (BDUP) to uprate the second circuit from Beauly to Denny from 275kV to 400kV. The primary purpose of the project is to facilitate increased power transfer into the SPT network from new renewable developments across the north of Scotland. These works are programmed for 2029, during the RIIO-T3 period.

The circuit (ZW route) currently terminates at Denny North 275kV and will be transferred to Denny North 400kV. This upgrade was anticipated at the time of building Denny North 400kV Substation with a spare bay included in the design. This means the cost is minimised as the substation will not need to be extended. The associated cost is estimated to be £3.67m.

The initial needs case for this project came from the connection of [redacted]e and other generation connections in the north of Scotland with SSEN-T defining the upgrading of the circuit to 400kV as enabling works. As well as being required for generation connections the project also serves as strategic reinforcement of the major system boundary B4. This voltage upgrade will increase the power flow capacity between SPT and SSEN-T's licence areas which the annual Future Energy Scenarios (FES) scenarios released by the National Energy System Operator (NESO) have as required for reaching Net Zero.

SPT were given a hold[1] decision in NOA7 for BDUP as it was judged as being required for 2030 as wider system reinforcement. The driver for the timeline of the project is therefore the 2029 energisation date given to [redacted]. Several other generation connections within the SSEN-T network area have subsequently contracted that also have energisation dates of 2029. The project is being submitted now as a needs case for RIIO-T3 to allow for works to be planned in line with the work being undertaken by SSEN-T.

The exact date and duration of the outages will be dictated by SSEN-T, their associated works which are more extensive, and close coordination will be required. Outage planning will also require co-ordination with other projects including DLUP, DWUP, DWNO, LWUP and connections in the area that also involve outages on circuits affecting the B4 boundary.

3. Background

3.1 Key Project Drivers

3.1.1 Broader Policy Context

In 2019, the UK parliament passed legislation to introduce a binding target to reach Net Zero greenhouse gas emissions by 2050. Additionally, the Scottish Parliament has committed Scotland to Net Zero by 2045. The timely connection of low carbon generation, such as onshore and offshore wind, will be vital to reaching these Net Zero targets.

The UK Government announced in October 2020 its commitment to make the UK a world leader in green energy and boosted the UK Government's previous 30GW target for offshore wind to 40GW by 2030. The current Scottish Government ambition is 20GW of onshore wind[2] and 11GW of

[1] Project is required after its EISD in line with NOA 2021/22 methodology.
[2] Onshore wind: policy statement 2022 - gov.scot (www.gov.scot)

offshore wind in Scotland by 2030. Further commitments, by the UK Government in October 2021, to decarbonise the power system by 2035, as well as British Energy Security Strategy[3] published April 2022 (which raises the UK Government ambition to 50GW of offshore wind by 2030), further support the requirement for investment in the existing electricity transmission system to enable the timely connection and integration of the required renewable generation sources.

On 9th September 2021, the former Department for Business, Energy & Industrial Strategy (BEIS) announced a £265m[4] budget per year for the Contracts for Difference (CfD) Allocation Round 4, which launched on 13th December 2021 and concluded on 7th July 2022. For the first time since 2015, established technologies, including onshore wind, were able to bid. Given lowering technology costs and a favourable subsidy regime, this will support a considerable number of onshore renewables projects to successfully transition from project inception and development through to energisation[5]. The results of the CfD Allocation Round 6 were announced on 3rd September 2024, with annual auction rounds now expected[6].

Furthermore, on the 4th November 2024, NESO published the 'Clean Power 2030' paper, in response to the government and OFGEM on how to achieve a clean power system; where demand is met by clean sources (primarily renewables) with gas fired generation only to be used to ensure security of supply (primarily during periods of low wind). This publication further enhanced the need for us to continue to invest in our wider transmission network to ensure that targets around 2030 are met.

3.1.2 Future Energy Scenarios

Each year, NESO produces a set of Future Energy Scenarios (FES) for use by the Transmission Owners (TOs) as network investment planning backgrounds. Through application of the criteria set out in the NETS SQSS, the FES provide an indication of the capacity requirements of the system based upon the potential future connection of generation and changing demand profiles.

The north to south power transfer requirements on all of the northern transmission system boundaries increase significantly over the coming years due to the connection of new renewable generation throughout Scotland as part of the energy transition to meet legislated Net Zero targets. This trend is clearly demonstrated by the transfer requirements on the boundary between the SSEN-T and SPT areas (Boundary B4). Figure 1 indicates the FES 2023 and FES 2024 required transfer capability on the B4 boundary. Existing capability is already exceeded, broadly consistent with all Scotland and North England boundaries, driven by generation developments under the Connect and Manage regime, with the difference becoming extremely pronounced by the mid to late 2020s in all scenarios.

[3] British energy security strategy - GOV.UK (www.gov.uk)
[4] Biggest ever renewable energy support scheme backed by additional £265 million - GOV.UK (www.gov.uk)
[5] BEIS Electricity Generation Costs (2020) - GOV.UK (www.gov.uk)
[6] Total Capacity of CFD Round 6 across the UK was 9.65GW

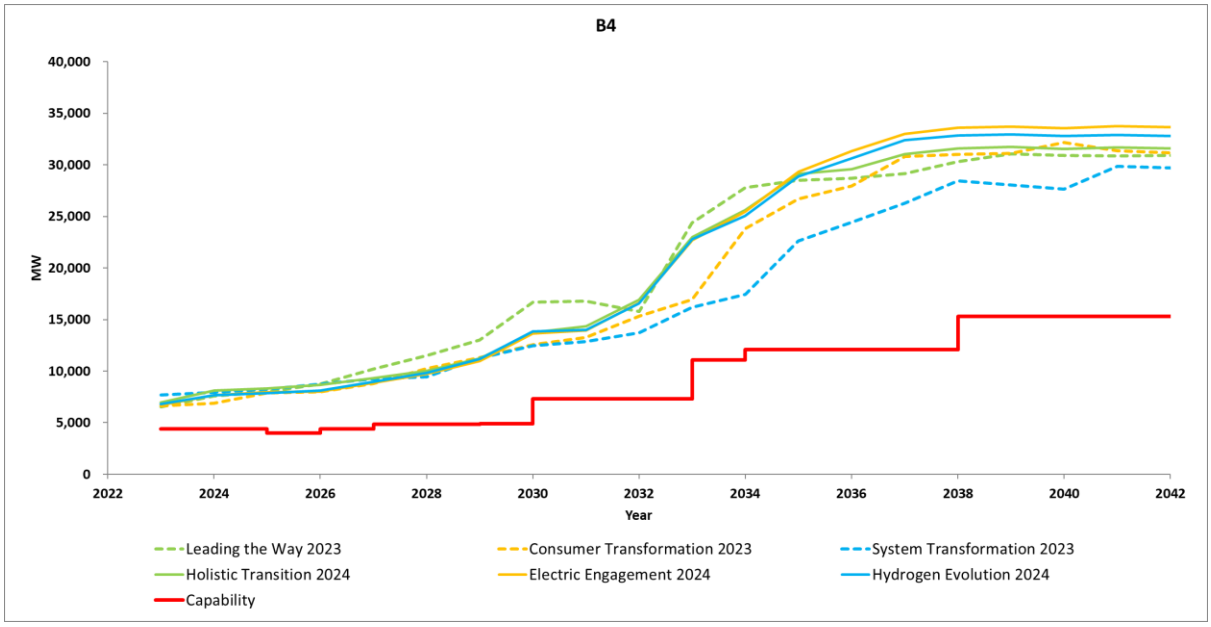


Figure 1: Required Transfer and Base Capability for Boundary B4

The current capability of transmission network boundary B4 is approximately 3.4GW. Figure 1 above shows a required transfer of up to 17GW by 2030 and up to approximately 30GW by 2035. This increase in boundary flow is predominantly driven by the connection of renewable generation across the north of Scotland. This highlights that in order to maintain an efficient and economic transmission system whilst economically integrating additional renewable generation, significant system reinforcement is required in an unprecedented timeframe.

3.1.3 Network Options Assessment

The Network Options Assessment (NOA) process (ref. Standard Licence Condition C27) demonstrates the need to make significant investment in the capability of the existing transmission system throughout Scotland to accommodate significant growth in renewable generation. This is required to maintain and operate an economic and efficient transmission system. It is critical that the network is ready to accommodate the scale of projected renewable capacity growth, required to support legislated Net Zero targets, whilst also enabling significant constraint savings.

The 2021/22 NOA Refresh Report, published in July 2022, supports the proposal in this paper to uprate the existing Beauly to Denny 275kV circuit to 400kV operation (ref. NOA7 code BDUP), assigning the project an optimal delivery date of 2030.

3.1.4 Contracted Generation Connections

Several renewable developments contracted for a connection within SSEN-T's area are dependent on increased capacity along the ZW route to enable their connection.

These works were initially triggered by SSEN-T following [redacted] facility seeking to increase their contracted capacity from 612MW to 1296MW (identified as SPT-RI-1560 Denny – Braco West uprating). This project has a connection date of 2029 driving the timeline of the works.

Additional generation projects, listed in Table 1, have the uprating of the Beauly to Denny second circuit to 400kV as enabling works, detailed within SPT-RI-1560.

As an affected TO, SPT has a responsibility to work with SSEN-T enable these connections. Additionally, as this is a strategic boundary B4 reinforcement the works will assist in preparing the network for Net Zero and wider decarbonisation targets.

Table 1: Contracted Generation with TOR I1560 as Enabling Works

[redacted]			
Total		**6833.4**	

3.2 ZW Route

ZW route consists of two overhead line circuits, one at 275kV and one at 400kV. The 400kV circuit connects Denny North 400kV Substation to SSEN-T's Melgarve 400kV Substation and the 275kV circuit runs from Denny North 275kV Substation to SSEN-T's Braco West 275kV Substation.

Figure 2 provides a geographic indication of ZW route in the context of key transmission boundaries in the SPT area.

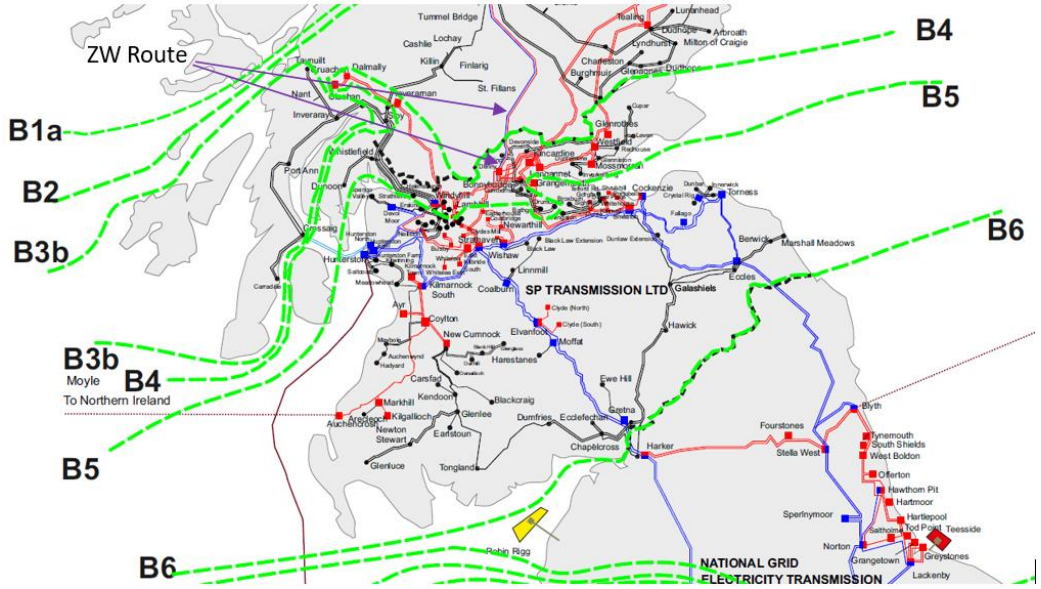


Figure 2: Main Network Boundaries Across SP Transmission Area and ZW Route

Constructed in 2015 utilising L12X Type steel lattice towers and comprising a twin All Aluminium Alloy Conductor (AAAC) 700mm^2 'Araucaria' phase conductor rated to 90°C, ZW route forms a strategic north to south power corridor between north and central Scotland, across the B4 boundary. Within the SPT area both the overhead line and Denny North substation were initially designed and constructed for the uprating of the 275kV circuit to 400kV operation.

The circuit ratings at both 275kV and 400kV are listed in Table 2.

Table 2 Table 2: Rating of ZW Route second circuit before and after uprating to 400kV

Table 3: System Requirements and Design Parameters of Denny - Braco West Uprating

System Design Table	Circuit/Project	Do Nothing Option 1	Option 2 Uprate Beauly-Denny 275kV circuit
Thermal and Fault Design	Existing Voltage (if applicable)	275kV	275kV
	New Voltage	N/A	400kV
	Existing Continuous Rating (if applicable)	1430MVA @90°C in Summer	1430MVA @90°C in Summer
	New Continuous Rating	N/A	2090MVA @90°C in Summer
	Existing Fault Rating (if applicable)	40/40 kA rms	40/40 kA rms
	New Fault Rating	N/A	55/50 kA rms
ESO Dispatchable Services	Existing MVAR Rating (if applicable)	N/A	N/A
	New MVAR Rating (if applicable)	N/A	N/A

	Existing GVA Rating (if applicable)	N/A	N/A
	New GVA Rating	N/A	N/A
System Requirements	Present Demand (if applicable)	N/A	N/A
	2050 Future Demand	N/A	N/A
	Present Generation (if applicable)	N/A	N/A
	Future Generation Count	9 connections: work is required to enable their connection so they could not connect under this option	9 connections
	Future Generation Capacity	N/A	6833.4MW
Initial Design Considerations	Limiting Factor	Thermal capacity	N/A
	AIS/ GIS	AIS	AIS
	Busbar Design	Double busbar	Double busbar
	Cable/ OHL/ Mixed	OHL	OHL
	SI	N/A	275kV circuit breaker available for future developments

Table 4: Health of Existing Assets Associated with the Project

Asset	Present health	Future health (8 years)	Future Health (20 years)	Criticality	Main Health Drivers	Comments
Primary Plant						
Denny 275kV CB L30	P1	P1	P3	R2	Upgrading	This breaker is contracted to be reused in position to provide connection to a new collector substation in the area.
Wound Plant						
-	-	-	-	-	-	-
Routes						
ZW OHL – BRCW - DENN	P1	P1	P2	R2	N/A	The conductor is suitable for 400kV meaning the route will not require reconductoring for this uprating. The good health of this asset supports its continued use.
ZW001 – ZW053 Towers – BRCW - DENN	P1	P2	P4	R2	N/A	No tower works required as constructed to 400kV operation.
ZW054 - ZW061 Towers - BRCW-DENN	P6	P7	P10	R2	N/A	No tower works required as constructed to 400kV operation.

ZW Fittings - BRCW-DENN	P1	P2	P4	R2	Upgrading	Minor fittings upgrades required on 6 towers only.
Secondary Plant						
-	-	-	-	-	-	-
Civils						
-	-	-	-	-	-	-

4. Assessment of Options

4.1 Existing Network at Denny North

Denny North 275kV and 400kV substations were established to provide greater interconnection with SSEN-T via the Beauly to Denny circuits, with the 400kV circuit being the first 400kV circuit between SPT and SSEN-T. This circuit was designed with the goal of increasing the transfer capability of the B4 boundary. Denny North also assists with the control of east – west power flow within SPT making it a key strategic site.

Denny North 400kV Substation currently has one circuit to Beauly via Melgarve 400kV substation and a connection to Denny North 275kV via SGT1[7]. The substation was also constructed with provision for a spare 400kV bay for a future connection. Figure 3 illustrates the planned layout of Denny North post installation of the 2nd 400/275kV SGT, with the current 275kV circuit to Braco West oversailing the spare 400kV bay.

[7] An additional 400/275kV 1000MVA supergrid transformer (SGT2) will be installed in 2025 via project DNEU

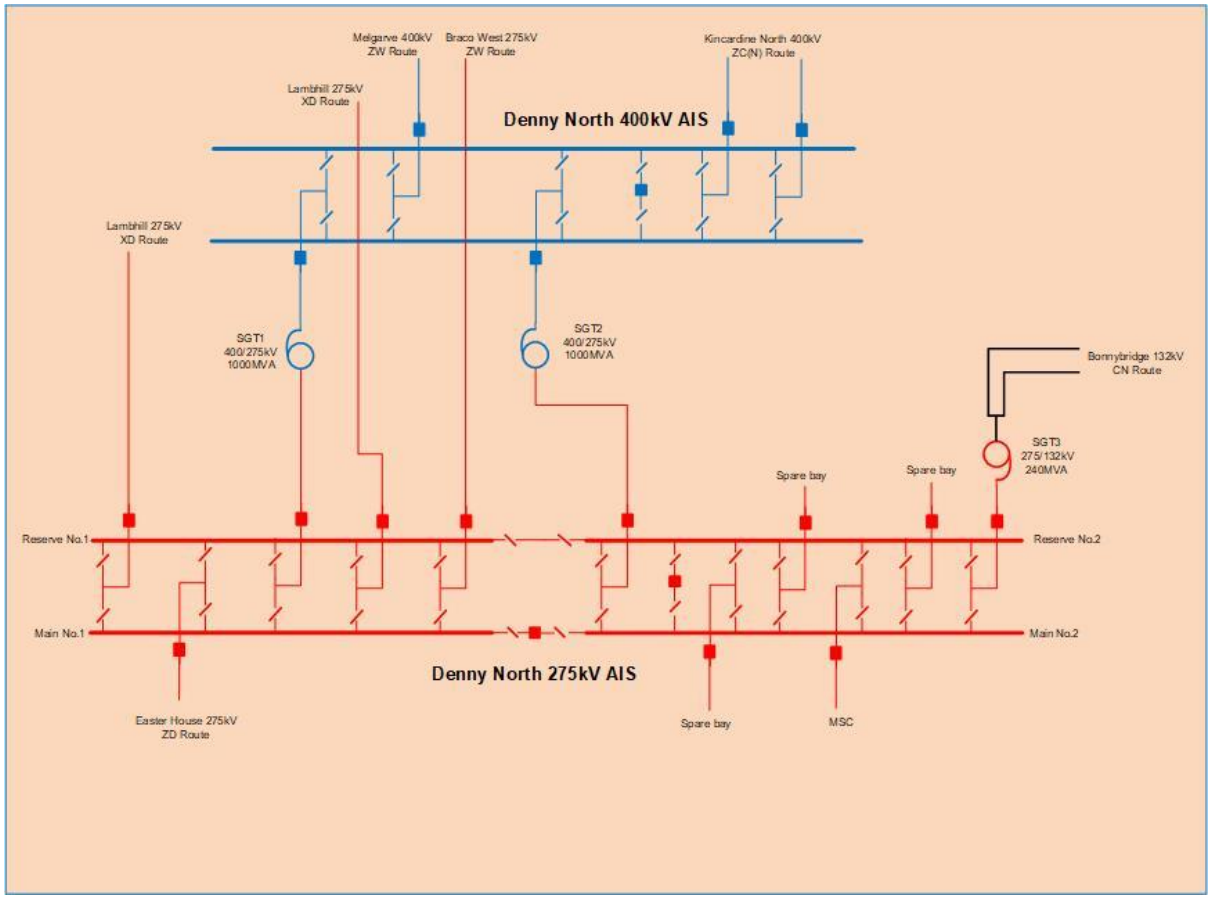


Figure 3: Denny North 275kV and 400kV Substations Single Line Diagram before TORI 1560

4.2 Planned Network Configuration – HND/NOA Projects

Following the NESO's publication of the Holistic Network Design (HND) and NOA 7 Refresh in July 2022 the following projects were highlighted for progression within SPT's network area.

Table 5: SPT Projects Highlighted for Progression in HND and NOA7

NOA7R Code	Description	NOA7 EISD
DNEU	Installation of a new 400/275kV 1000MVA Supergrid transformer (SGT2) at Denny North 400kV substation.	**2025**
DWUP	Establish a 400kV single circuit corridor south from Kincardine North, on existing overhead line (OHL) routes, to Clyde's Mill substation.	**2026**
E2DC	Establish a High Voltage Direct Current (HVDC) subsea link from a new Branxton 400kV Substation (near Torness) to Hawthorn Pit in the northeast of England. Branxton will facilitate the connection of offshore renewable developments as well as the reinforcement of capacity between Scotland and England.	**2027**
LWUP	Establish a new 400kV substation north of Kincardine and connect to Denny North at 400kV, integrating load and non-load related investment drivers and enabling significant reinforcement of transfer capacity through central Scotland.	**2027**
VSRE	Replace existing OHL conductor on the strategic east-west Strathaven - Smeaton (XH/XJ route) corridor with modern high temperature low sag (HTLS) conductor.	***2027***
DWNO	Establish a new 400kV OHL from Bonnybridge substation to an existing OHL north of Glenmavis, together with associated substation works, conductor replacement and voltage uprating on existing OHL routes.	**2028**

EHRE	Replace existing OHL conductor on the southern (Elvanfoot - Harker) section of the strategic north-south Strathaven - Harker (ZV route) corridor with modern high temperature low sag (HTLS) conductor.	**2028**
BDUP[8]	Uprate the Beauly - Denny OHL route to double circuit 400kV operation.	**2029**
DLUP	Establish a new 400kV substation at Windyhill and a 400kV single circuit corridor, on existing overhead line routes, between Windyhill, Lambhill and Denny North.	**2029**
VERE	Replace existing OHL conductor on the northern (Strathaven - Elvanfoot) section of the strategic north-south Strathaven - Harker (ZV route) corridor with high temperature low sag (HTLS) conductor.	**2030**
TGDC	Creation of a second new High Voltage Direct Current (HVDC) Eastern subsea link from the SPT area, to south of the Humber estuary, in the northeast of England, together with associated onshore works.	**2031**
TKUP	Establish new 400kV substations at Mossmorran, Westfield and Glenrothes to establish a 400kV double circuit corridor, on existing overhead line routes, between Kincardine North and the SSEN Transmission Tealing substation. Scope includes further works within the SSEN-T area.	**2032**

The recommended wider network reinforcement projects LWUP and DLUP will establish further network connectivity from Denny North 400kV substation to Kincardine North and Windyhill/Lambhill. LWUP, DLUP and additionally DWUP and DWNO are strategic boundary B5 reinforcement projects that are coordinated with and complementary to the BDUP project.

4.3 Overview of Options

4.3.1 Option 1 – Do Nothing

A 'Do Nothing' or 'Delay' option is not credible in relation to this project and would be inconsistent with SPT's various statutory duties and licence obligations, including Licence Conditions D3 and D4A, which require SPT to comply with the NETS SQSS and to offer to enter into an agreement with the system operator upon receipt of an application for connection, such offers being in accordance with the STC and associated Construction Planning Assumptions provided by NGESO. The proposed works are identified as Enabling Works in the connection agreements relating to the projects in Table 1.

4.3.2 Option 2 – Denny – Braco West 275kV Circuit Upgrade to 400kV Operation

As discussed in Section 3.1.4 upon [redacted]s application to increase their capacity SSEN-T proposed the upgrading of the 275kV Beauly to Denny circuit to 400kV. The project was identified within the HND as 'Required for 2030' and SSEN-T have been awarded ASTI funding for their portion of the project, which is significantly more extensive than SPT's portion of the works. SPT's works will coordinate with SSEN-T's works but are essential to uprate the 275kV circuit to 400kV operation.

Within the SPT area, Denny North 400kV Substation was initially designed and constructed for the uprating of the 275kV circuit to 400kV operation, therefore currently has a spare bay to accommodate the connection. It is proposed to transfer the circuit to the 400kV substation terminating it within the aforementioned spare feeder bay.

The works entail disconnecting the existing 275kV bay where the current Denny-Braco West 275kV circuit terminates. This would include removal of the oversail crossing the 400kV substation. A new 400kV circuit breaker would be installed within the spare feeder bay at Denny North 400kV

8 Subject reinforcement project.

substation to connect the uprated circuit. The overhead line is rated for 400kV meaning there are minimal works required to enable 400kV operation.

The proposed layout of Denny North after these works can be seen in Figure 4.

As part of SSEN-T's works the circuit will connect into SSEN-T's new Cambushinnie 400kV Substation, near Braco West, instead of Braco West 275kV Substation.

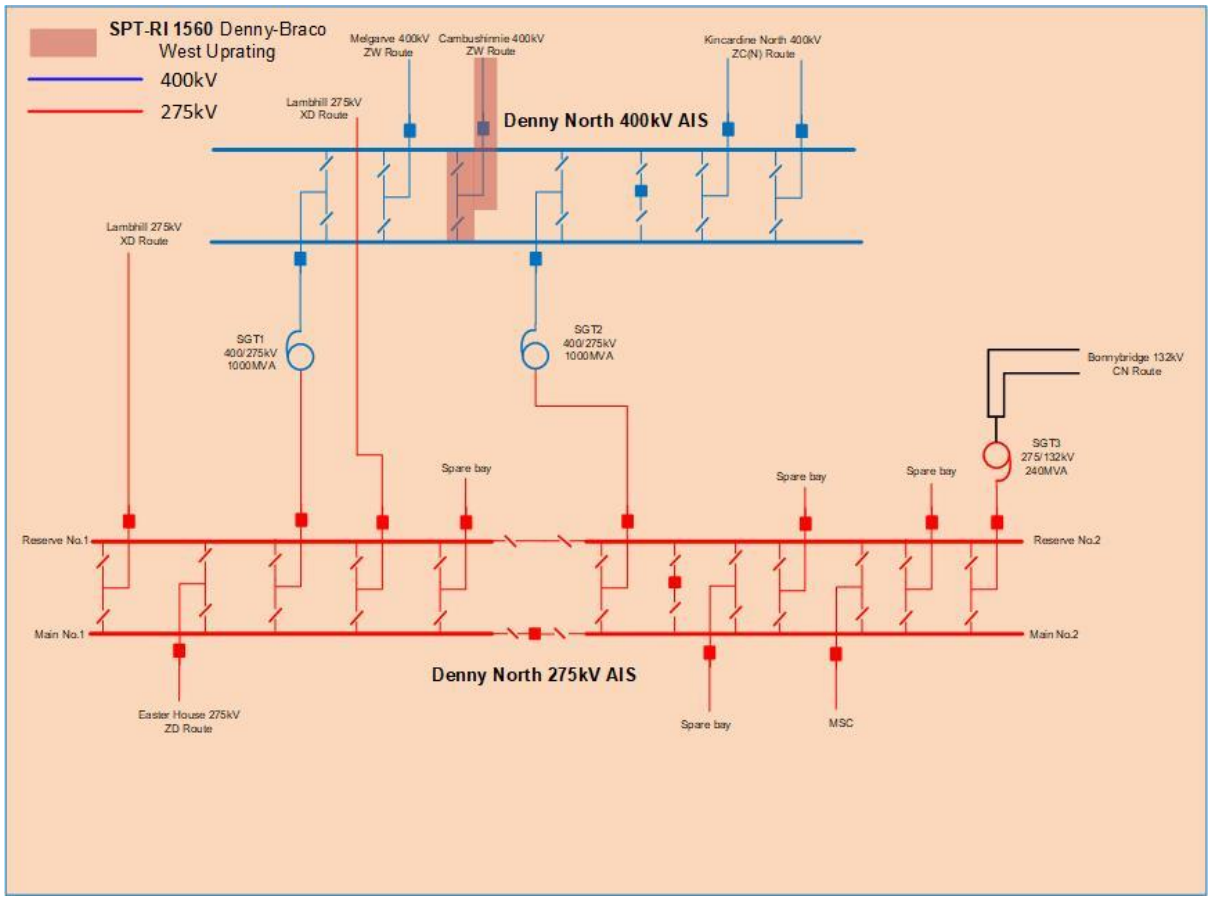


Figure 4: Denny North 275kV and 400kV Substations Single Line Diagram after proposed works

4.4 Option Assessment

Option 1 'Do Nothing' is not credible in relation to this project and would be inconsistent with SPT's various statutory duties and licence obligations, including Licence Conditions D3 and D4A, which require SPT to comply with the NETS SQSS and to offer to enter into an agreement with the system operator upon receipt of an application for connection, such offers being in accordance with the STC and associated Construction Planning Assumptions provided by NGESO.

There are a number of customers contingent on Option 2 as described and additionally the NESO has identified Option 2 as being Required for 2030 via their NOA 7 Refresh publication. Option 2 is a strategic B4 reinforcement increasing the transfer capability of the SSEN-T/SPT interface and is closely coordinated with and complementary to other strategic B5 reinforcing schemes namely LWUP, DWUP, DWNO and DLUP.

5. Proposed Works

The preferred option to be progressed in Option 2, as described in section 4.3.2, which is SPT's part of uprating the Beauly – Denny 275kV circuit to 400kV. Denny North 400kV and 275kV substations were constructed to accommodate the uprating of the existing circuit, therefore works required are minimal, albeit essential for the completion of the BDUP ASTI project.

Within the dedicated 400kV spare bay at Denny North, a new AIS circuit breaker will be installed and connecting to the existing circuit, which will be uprated to 400kV. Note this circuit was constructed and consented originally to 400kV operation, therefore no further works are required. The oversail which currently links the circuit to the 275kV circuit breaker will be dismantled.

The outputs of this project will be:

- 400kV CB (Air Insulated Busbar) – 1

Diagrams showing each proposed stage of works can be found in Appendix 1.

The anticipated outages for these works will include:

(i) DENN 400kV MBB – 4 weeks for decommissioning of old circuit and removal of old post insulators in location of the new bay at DENN4 – 2029
(ii) DENN-BRCW - 18 weeks to install and commission the new 400kV AIS CB bay at Denny North 400kV Substation and terminate the uprated circuit into that bay - 2029
(ii) DENN 400kV MBB – 5 weeks for connection of the new bay at DENN4 - 2029
(iii) DENN 400kV RBB – 5 weeks for connection of the new bay at DENN4 - 2029

It is worth noting the works in the SSEN-T area are more extensive than in SPT's area and outages will require to be tied into their timescales. SSEN-T and SPT are currently working together to ensure all BDUP works align as well as working with other outages both TOs have planned.

6. Cost

The costs detailed below indicate anticipated expenditure on the various aspects of the proposed project and are the incremental costs versus doing nothing. The cost associated with SPT's section of BDUP is £3.09m. The expenditure incidence is summarised below:

Table 6: Estimated Incidence of Expenditure

Energisation Year	Yr 2026:	RIIO-T2 Total:	Yr 2027:	Yr 2028:	Yr 2029:	Yr 2030:	RIIO-T3 Total:	Total
2029	0.01	**0.01**	0.32	1.15	1.21	0.39	**3.08**	**3.09**

The indicative primary assets outputs are identified in below:

Table 7: Indicative Primary Asset Outputs

Asset Heading	Asset Category	Asset Sub-Category Primary	Asset Sub-Category Secondary	Voltage/Rating	Intervention	Volume Measure	Units	Volume
Assets	Overhead Line Fittings	Fittings	Asset associated	400kV	Refurb Minor	Refurb Volumes	Each	-6
Assets	Overhead Tower Line	275kV OHL (Tower Line) Conductor	Asset associated	Rating <=1400 MVA	Replacement	Disposal	km	-0.05
Assets	Overhead Tower Line	400kV OHL (Tower Line) Conductor	Asset associated	Rating <=2550 MVA	Replacement	Addition	km	0.05
Assets	Circuit Breaker	CB (Air Insulated Busbar)	Asset associated	400kV	Addition	Addition	Each	1
Assets	Other switchgear	Disconnector (AIB)	Asset associated	400kV	Addition	Addition	Each	1
Assets	Other switchgear	Earth Switch (AIB)	Asset associated	400kV	Addition	Addition	Each	1
Assets	Instrument Transformers	Voltage Transformer (VT)	Asset associated	400kV	Addition	Addition	Each	1
Assets	Instrument Transformers	Current Transformer (CT)	Asset associated	400kV	Addition	Addition	Each	1
Assets	Circuit Breaker	Other Switchgear	Asset associated	400kV	Addition	Addition	Each	1
Assets	Circuit Breaker	Other Switchgear	Asset associated	275kV	Disposal	Disposal	Each	-21
Assets	Other switchgear	Disconnector (AIB)	Asset associated	275kV	Disposal	Disposal	Each	1
Assets	Other switchgear	Busbar (AIB)	Asset associated	400kV	Addition	Addition	metre	1

Assets	Other switchgear	Busbar (AIB)	Asset associated	275kV	Replacement	Disposal	metre	-1
Civils	Circuit Breaker	CB (Air Insulated Busbars) (OD)	Asset associated	400kV	Addition	Addition	Each	1
Civils	Other switchgear	Disconnector AIS (OD)	Asset associated	400kV	Addition	Addition	Each	1
Civils	Busbars	Busbars	Asset associated	0	Addition	Addition	Each	1
Protection	Protection & Control	Feeder Protection	Asset associated	400kV	Addition	Addition	Each	1
Other	Other (Direct)	0	Asset associated	0	Addition	Addition	0	0
Other	Risk	0	Asset associated	0	Addition	Addition	0	0

7. Deliverability

We have applied SPT project management approach to ensure that this project work is delivered safely, and in line with the agreed time, cost and quality commitments. We have a proven track record of delivering essential transmission network upgrade projects and will draw upon this knowledge and experience to effectively manage these works. We have assigned a dedicated Project Manager to the works at every stage who is responsible for overall delivery of the scope and is the primary point of contact for all stakeholders.

7.1 Delivery Schedule

A standard approach has been applied to the planning phase of these works and that will continue for the reporting and the application of processes and controls throughout the lifecycle. Table below summarises the key milestones within the delivery schedule of this project. The programme of works has been developed to align with SSEN-T project delivery.

Table 8: Summary of Key Milestones within the Project Delivery Schedule

Item	Project Milestone	Estimated Completion Date
1	ITT BoP	August 2026
2	Main plant award	May 2027
3	Site Set Up	October 2028
4	Substation Site Works Commencement	May 2029
5	Commissioning	May 2029

7.2 Risk and Mitigation

A Project Risk Register will be generated collaboratively during the initial project kick-off meeting to identify any risks, which if realised, could result in deviation from the delivery plan. Mitigation strategies will also be developed to manage the risks identified and these will be implemented by the Project Manager. The risk register shall remain a live document and will be updated regularly by the project team. Currently, the top scheme risks are:

- System access – Denny North is a key node on both B4 and B5 system boundary therefore understanding of interactions with all projects in the area and close working with outage planning teams in SPT, SSEN-T and NESO key to mitigate.
- Coordination with SSEN-T – energisation at 400kV requires coordination by both parties. Regular engagement between all teams will reduce risk materialising.

7.3 Quality Management

SPT adopts a “life cycle” approach to Quality Management in major project delivery. Our Management Systems are certified to ISO 9001, ISO 14001 and ISO 45001. Various areas applicable to these standards ensure a quality product is delivered. The significant areas detailed below:

7.4 Quality Requirements During Project Development

Any risk or opportunity that may affect the quality of the product are detailed in the Project Risk Register.
The suppliers of main equipment may also receive a Factory Acceptance Test Inspection when the asset is being built.

7.5 Quality Requirements in Tenders

Each contract that SPT issues has a standard format. Specifically in relation to quality, this will include a Contractors’ Quality Performance Requirement (CQPR). This CQPR represents a specification that details roles and responsibilities for all parties during the works, frequency and format of reporting. It will also specify the document management process to be adhered to during the delivery of the project. In addition to the CQPR, each project has a contract specific Quality Management Plan, detailing the inspection and testing regime for works as well as the records to be maintained.

7.6 Monitoring and Measuring During Project Delivery

SPT Projects undertake regular inspections on projects and contractors to monitor and measure compliance with SPT Environmental, Quality and Health and Safety requirements, as detailed in the contract specifications for the work. All inspections are visual, with the person undertaking the inspection ensuring that evidence of the inspection and any actions raised are documented.

The following inspections are completed:

- Quality Inspections (monthly)
- Environmental Inspections (monthly, with weekly review by third party Environmental Clerk of Works)
- Safety Assessments & Contractor Safety Inspection (daily, with full time Site Manager)
- Project Management Tours (monthly)

The scope of audits and Inspections is to determine compliance with:

- Procedures & Guides
- Planned arrangements for ISO 9001, 14001 & 18001
- Legal and other requirements.

7.7 Post Energisation

SPT Projects and SPT Operations within SPEN carry out a Defect Liability Period Inspection within the Contract Defect Liability Period with the aim of identifying any defects and rectifying them with the contractors.

8. Conclusion

This EJP demonstrates the need to upgrade the Denny – Braco West 275kV circuit to 400kV in 2029, within the RIIO-T3 period. This project will enable the timely and co-ordinated increase in power transfer into the SPT network from renewable developments across the north of Scotland as well as enabling the connection of specific renewable generation developments. The cost of this will be £3.67 million.

The main conclusions of this submission are:

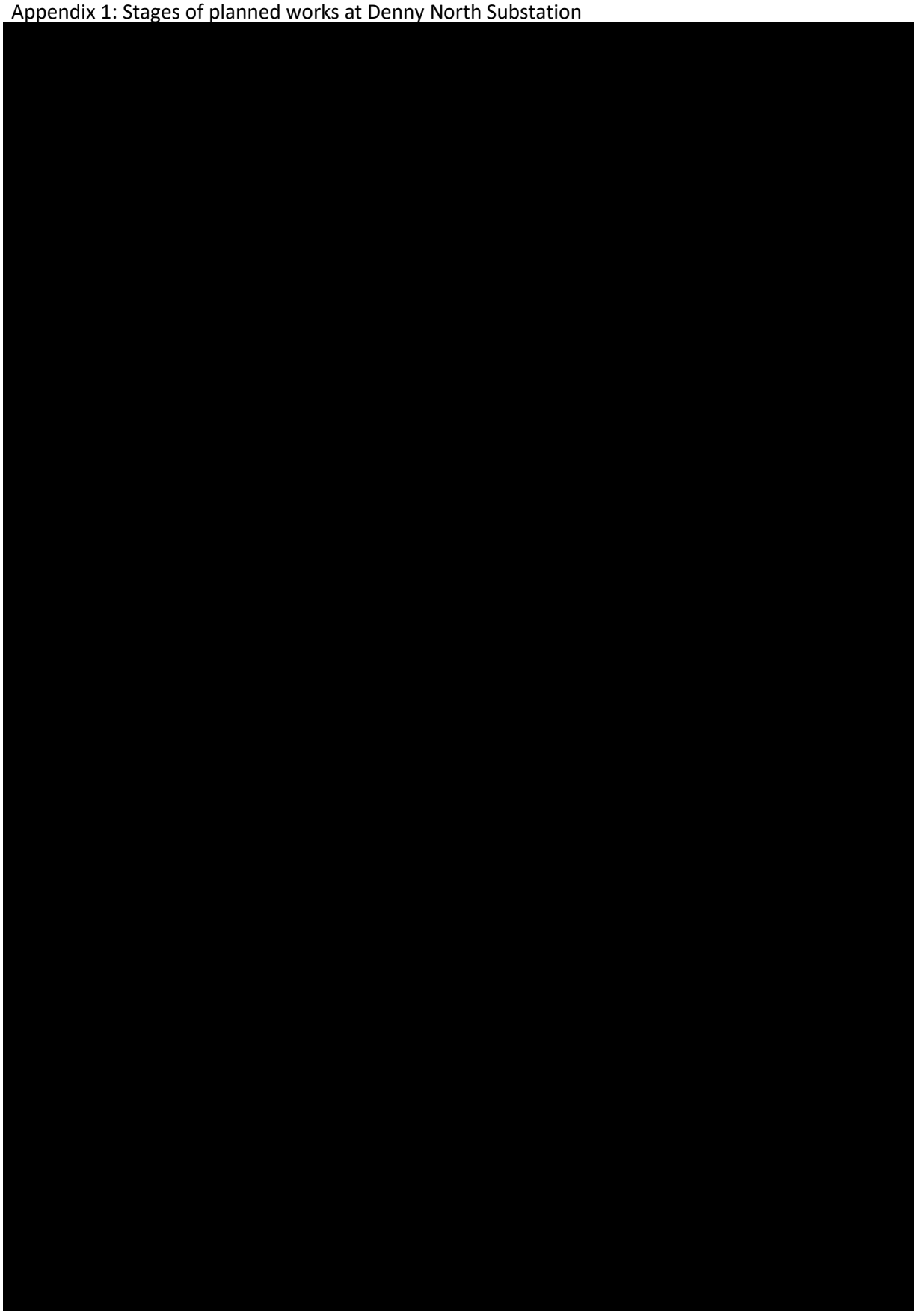
- Necessity of increase power flows to meet legislated Net Zero targets and government renewable goals.
- Requirement as enabling works for renewable generation in the SSEN-T area.

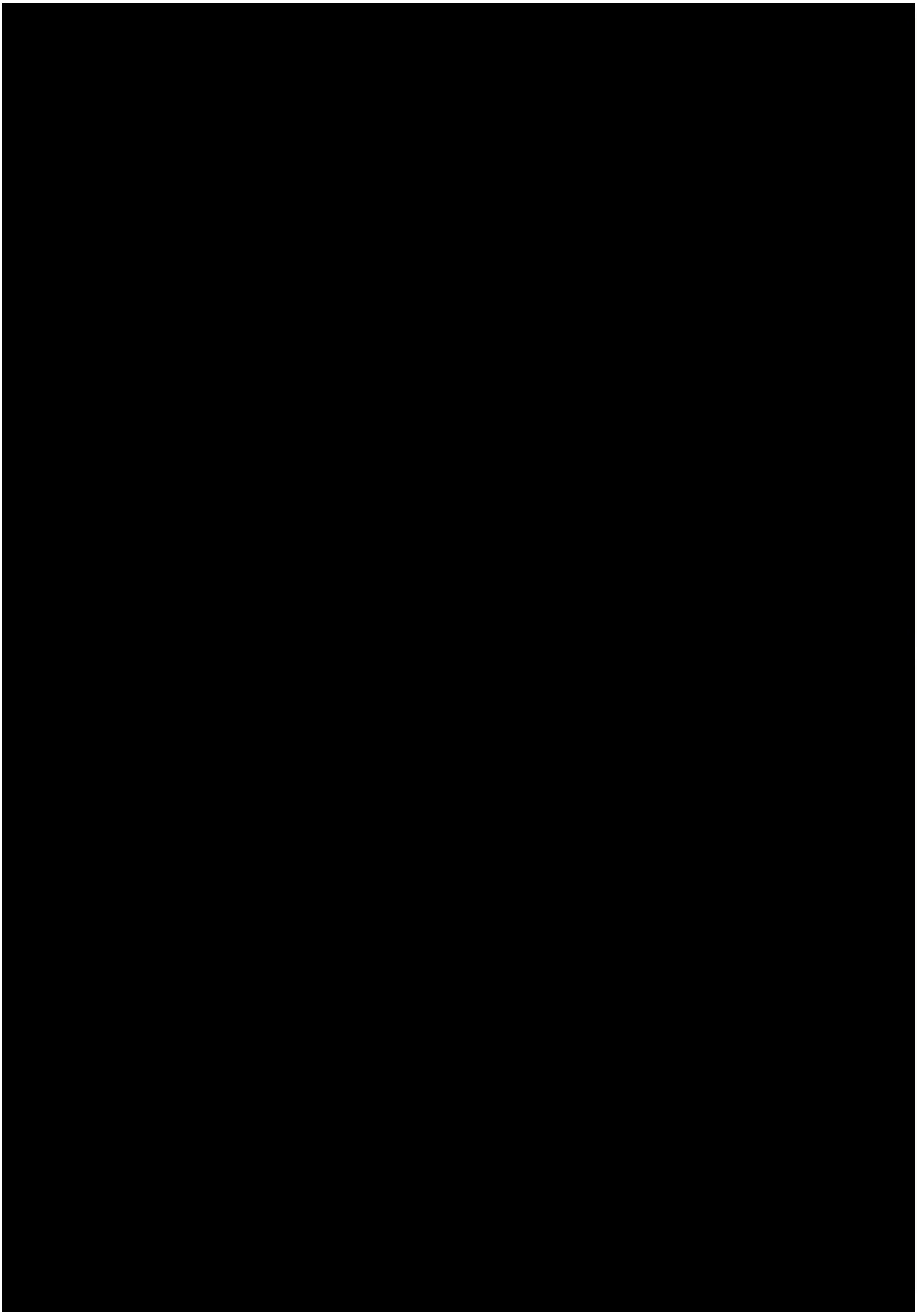
We, respectfully, request Ofgem's agreement to the following:

- The option being progressed addresses a clear customer need and represents value to UK consumers, therefore, the works should proceed based on the preferred solution (Option 2).
- Approval of need and cost for inclusion within SPT's RIIO-T3 baseline funding.

9. Appendices

Appendix 1: Stages of planned works at Denny North Substation





Appendix 2: Aerial Picture of Existing Denny North substation