Transmission Owner Reinforcement Instruction (TORI)
Quarterly Update Report
July 2023 – December 2023

View of the 275kV WA Overhead Line between Coylton and New Cumnock substations

SP ENERGY NETWORKS

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SPT TORI Quarterly Report Q3 2023

Please note below in relation to all Transmission Owner Reinforcement Instruction projects.

In light of the present COVID-19 pandemic, we are continuing to assess all projects to ensure where staff can safely work in compliance with government guidelines, they are so doing. Any impact on timescales will be communicated once information is known and confirmed.

SPT-RI-001(a) V1.5	Beauly Denny 400kV Reinforcement
OVERVIEW OF WORKS Construction of a 400,000 volt double circuit overhead transmission line from Denny North to the SP Transmission/SHE Transmission boundary, forming part of a Supergrid connection from Denny North substation in the SP Transmission area to Beauly substation in the SHE Transmission area (via Braco, Errochty, Fort Augustus and Fasnakyle). One circuit on the new overhead line will operate at 400,000 volts, while the other will operate at 275,000 volts. This connection will replace that part of the existing Bonnybridge to Braco 132kV double circuit overhead line within the SP Transmission area Construction of Denny North 400,000/ 275,000/ 132,000 volt substation.	
Programme	Completion: - July 2016 DENN-BONN 132kV infeed Beauly to Denny 275kV/400kV circuit energised Nov 2015 132kV wirescape rationalisation works completed December 2019. Visual mitigation works ongoing, expected completion by the end of 2023.
Progress	Design & Consenting Complete Detailed Engineering Complete Tendering Complete Construction New 275kV circuit energised 9th November 2015 New 400kV circuit energised 19th November 2015SGT3 circuit energised August 2016. Both 132kV Wirescape cable cable circuits installed and energised (October 19). 132kV OHL dismantling works complete.1st phase of visual mitigation concluded. 2nd Phase of visual mitigation concluded. 3rd Phase of visual mitigation underway, expected to complete by the end of 2023. Link to related info http://www.spenergynetworks.co.uk/pages/beauly_denny_overhead_line_upgrade.asp

SPT-RI-003 V2.4	Denny-Strathaven 400kV Reinforcement ENSG Central Scheme
OVERVIEW OF WORKS Construct a new 400,000 Volt double circuit overhead line from Bonnybridge to Newarthill and reconfigure associated sites to establish a fourth north to south double circuit Supergrid route through the Scottish central belt. One side of the new overhead line will operate at 400,000 Volts, the other at 275,000 Volts. This reinforcement will establish Denny-Bonnybridge, Bonnybridge-Wishaw, Wishaw-Strathaven No.2 and Wishaw-Torness 400,000 Volt circuits, and a Denny-Newarthill-Easterhouse 275,000 Volt circuit. This will continue to be updated following the outcome of the annual NOA process.	
Programme	Completion: - October 2028
Progress	Design Ongoing subject to Network Options Assessment (NOA) Process and potential Ofgem Medium Sized Investment Project (MSIP) Consenting Overhead line routing underway with potential route corridor identified. First round of public consultations completed in June 2021, routing work is ongoing. Detailed Engineering Still to commence - Subject to Network Options Assessment (NOA) Process Tendering Communications Consultant contract awarded. Construction Still to commence - Subject to Network Options Assessment (NOA) Process Commissioning/Close Out Still to commence - Subject to Network Options Assessment (NOA) Process Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-004 V2.4	Denny-Kincardine 400kV Reinforcement (East Coast Phase 1 Reinforcement and Re-Profiling)

OVERVIEW OF WORKS

SP Transmission works associated with SHE Transmission East Coast Phase 1 Reinforcement (reference SHET-RI-009) and SHE Transmission East Coast Re-Profiling (reference SHET-RI-097), comprising:

- Uprating of the existing Kincardine-Tealing/ Kintore (XL)1 overhead line route from 275kV 50oC operation to 275kV 65oC operation between Kincardine and the SP Transmission/ SHE Transmission border;
- Protection and control works at Kincardine 275kV Substation associated with the development of the SHE Transmission Alyth 275kV Substation;
- Increasing the maximum operating temperature of the Longannet-Mossmorran-Westfield-Tealing 275kV overhead line routes to 65oC, and replacing the associated 275kV cable sections at Longannet to match the increased overhead line rating; and
- Terminate the existing Windyhill-Lambhill-Longannet 275kV circuit in Denny North 275kV Substation, creating Windyhill-Lambhill-Denny North and Denny North-Longannet No.2 275kV circuits.

This will continue to be updated following the outcome of the annual NOA process.

Programme	Completion: - Under Review
Progress	Design Early Engineering Design complete, detailed design ongoing Consenting Identification of impacted landowners complete. Environmental surveys have commenced and are progressing. Works classed as Permitted Development, Planning consenting process ongoing. Detailed Engineering Ongoing Tendering Still to commence Tendering to terminate the existing Windyhill-Lambhill-Longannet 275kV circuit in Denny North 275kV Substation has commenced. Construction Still to commence Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-028 V2.12	North Argyll Reinforcement: Dalmally Windyhill 275kV Reconfiguration
OVERVIEW OF WORKS As part of its non-load related asset modernisation programme, SPT will replace and reconfigure Dalmally 275kV substation to a double busbar arrangement (Scope 1). As part of its non-load related asset modernisation programme, SPT will uprate the overhead line conductor between Dalmally and Windyhill (Scope 2). As part of a joint SPT/ SHE Transmission project to reinforce the transmission network in north Argyll and accommodate proposed renewable generation schemes, SPT will extend Dalmally 275kV Substation and install two new double busbar bays to provide SHE Transmission with two 275kV points of connection at Dalmally 275kV Substation (Scope 3).	
Programme	Completion: - Scope 1 Complete Scope 2 Complete October 2019 for wiring. Clearance works and Foundations Dec 2022. Scope 3 Programme Under Review
Progress	Design Scope 1: Complete Scope 2: Complete for reconductoring works / design evaluation in progress for remaining clearance infringements. Foundations complete Scope 3: In progress Consenting Scope 1: Not required Scope 2: Wiring Complete / further consent is required for access road construction in National Park to resolve remaining clearance infringements and remaining foundations. Scope 3: Not commenced Detailed Engineering Scope 1: Complete Scope 2: Complete / to complete for remaining clearance infringements. Scope 3: Not commenced Tendering Scope 1: Complete Scope 2: Tenders pending clarification how to address the clearance infringements works Scope 3: Not commenced Construction Scope 1: Complete

	Scope 2: Complete (excluding clearance infringements works and remaining foundations) Scope 3: Not commenced Commissioning/Close Out Scope 1: Complete Scope 2: October 2019 completion (excluding clearance infringements works & foundations works) Scope 3: Not commenced

SPT-RI-124 V2.7	400kV GIS substation in Torness Area
OVERVIEW OF WORKS A new 400kV double busbar substation, utilising Gas Insulated Switchgear (GIS), will be established in the vicinity of Torness. This new substation, known for the purposes of this TO Reinforcement Instruction as 'Branxton 400kV Substation', and associated plant and apparatus, will provide Transmission Interface Points to which transmission connection system assets will connect.	
Programme	Completion: - October 2027
Progress	**Design** Preferred location identified for substation, enabling, access and earthwork designs underway to provide sufficient detail to inform planning application. **Consenting** Pre-application consultation complete as part of planning application for Branxton Substation, revised planning application anticipated Q2 2023 **Detailed Engineering** Enabling, access and earthworks detailed design underway. Tendering GIS equipment tender expected to complete Q2 2023. Enabling package initiated Q2 2023 Construction Still to be commenced, anticipated Q1 2024 Commissioning/Close Out Still to be commenced. Commissioning phase scheduled to commence Q1 2027 and continue in stages through to Q1 2028 Reinstatement phase anticipated until Q4 2028 Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp https://www.spenergynetworks.co.uk/pages/branxton_consultation.aspx

SPT-RI-125 V2.3	Thornton Bridge Torness Cables
OVERVIEW OF WORKS Following an outage of the Smeaton / Fallago 400kV circuit or the Smeaton SGT2 transformer, the existing 400kV cable between Torness / Crystal Rig may become overloaded. To prevent an overload on the Torness / Crystal Rig 400kV cable circuit, it is proposed that this Thornton Bridge / Torness 400kV cable will be uprated.	
Programme	Completion: - TORI needs case under review
Progress	Design Early engineering design phase complete Consenting Identifying affected landowners and enabling initial discussions Detailed Engineering Ongoing Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-126 V2.2	East Coast HVDC Link
OVERVIEW OF WORKS Development, design construction and commissioning of a 2GW 525kV HVDC link between the Torness area in East Lothian Scotland, and Hawthorn Pit in North-East England. Link consisting of 2 x HVDC 400kvAC/ 525kvDC converter station terminals and installation of an approximate 200km of offshore and onshore cabling. Completion of associated AC onshore connections North & South and network reinforcement works with NGETs 400kv Network. Under the LOTI approval process the Final Needs Case has been submitted and approved on with the Project Assessment submission due late Q2/early Q3 2023	
Programme	Link Operational date: - December 2027 (trial operation thereafter)
Progress	**Concept Design** All Concept designs and technology requirements necessary for LOTI needs case approval process and tendering activities have been completed. Project now in contract tendering stage. **Consenting** All consenting applications have been submitted to relevant authorities. Consents for Converter works in NGET area approved. ~~Decision on~~ SPT onshore outline planning application; submitted 29th July 2022 has been recommended for approval by ELC and is at planning committee on 2nd May 2023 , Marine licenses submitted to MMO and MSLOT and under review with determination expected May 2023. Land acquisition discussions well advanced. **Detailed Engineering** All detailed engineering forms part of the contracted works for both Converter and cables and will be progressed following contract awards. **Tendering** All works are currently tendered and tender assessments and discussions ongoing. **Construction** Main construction works including in tendered works with progression of limited enabling works planned in advance. **Commissioning/Close Out** Link to be operational by dec 2027 with trial operation period thereafter (durations under review). Non-operation works e.g. landscaping and reinstatement will continue into 2028 Link to related info

	Project Overview - SP Energy Networks download (nationalgrid.com)

SPT-RI-130 V2.3	**Strathaven – Smeaton**
OVERVIEW OF WORKS The overhead line conductor system on the existing 11.6km 400,000 Volt double circuit route from Strathaven to Wishaw (XH route) will be replaced with a conductor system of increased thermal rating. The overhead line conductor system on the existing 61.8km 400,000 Volt double circuit route from Wishaw to Smeaton (XJ route) will be replaced with a conductor system of increased thermal rating. The existing XH and XJ overhead line routes are equipped with twin 400mm^2 ACSR (Zebra) conductor operating at 50^{o}C. The replacement conductor system is subject to ongoing consideration. These works will not modify the prevailing circuit configuration.	
Programme	Completion: - February 2028
Progress	Design Due to changes in contracted background, design review is required. Design review to be arranged. Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-143 V2.2	Maybole to Coylton 132kV Overhead Line Uprating
OVERVIEW OF WORKS Contracted renewable generation in South West Scotland has reached a level where the thermal uprating of Kilmarnock South 275kV substation is required to ensure compliance with NETS SQSS. The existing switchgear in Kilmarnock South 275kV substation is rated at 2000Amps/952MVA and this will need to be replaced with higher rated switchgear to ensure thermal limits are not exceeded at the 275kV substation. It is proposed to replace the switchgear with 3150Amp/1500MVA rated equipment to provide sufficient capacity for the generation in South West Scotland. Furthermore, there are two 400/275kV 1000MVA auto wind transformers at the 400kV substation and to comply with NETS SQSS a third transformer is required to ensure that for N-1 conditions there are no restriction on generation in South West Scotland.	
Programme	Completion: Final two circuit transfers programme under review.
Progress	Design Complete Consenting Complete Detailed Engineering Complete. Tendering All main contracts now placed Construction Circuit transfers to the new GIS are ongoing. Commissioning/Close Out Both the 275kV GIS switchboards commissioned and 6 circuits have been transferred onto the new switchboard. The final two circuit transfers are delayed from 2020. Link to related info https://www.spenergynetworks.co.uk/pages/kilmarnock_south_substation.aspx

SPT-RI-146 V2.0	Maybole to Coylton 132kV Overhead Line Uprating

OVERVIEW OF WORKS

Contracted renewable generation at Maybole GSP has reached a level where the thermal uprating of the 132kV circuit between Maybole and Coylton is required to facilitate this generation.

The two 132kV circuits between Maybole and Coylton are on a mixture of double circuit tower lines, single circuit tower lines, single circuit wood pole overhead lines and incorporates three 132kV underground cable sections (~1km total). The total route length is 22.5km and consists of CD Route (13km double circuit), CG Route (5km single circuit), N Route (5km single circuit) and X Route (4.5km double circuit).

The existing overhead line circuits are single 175mm ACSR with a pre-fault summer rating of 89MVA.

To accommodate the generation at Maybole GSP it is proposed that the existing Maybole to Coylton 132kV overhead line circuits are reconductored using LARK HTLS conductor. This gives a summer pre-fault continuous rating of 227MVA. In addition, the three 132kV underground cable sections on the circuit (~1.2km in total), will be replaced with 1600mm^2 Al XLPE cable to match the new rating of the overhead line.

Needs case and requirement for this TORI under review.

Programme	Completion: - SP Transmission are reviewing the future needs case with this reinforcement due to changes in the generation background.
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced, Commissioning/Close Out Still to be commenced

SPT-RI-151b V2.0	Galashiels to Eccles 132kV Overhead Line Rebuilding

OVERVIEW OF WORKS

The existing two 132kV circuits between Galashiels and Eccles are on a mixture of double circuit tower lines single circuit tower lines and two 132kV underground cable sections (for the overhead line termination at each end). (The circuits are made up of part of P Route and AT Route U Route overhead lines). The Galashiels to Eccles No.1 and No.2 132kv overhead lines are single 175mm^2 ACSR, with a pre-fault summer rating of 89MVA, each with a total circuit length of 30.58km and 30.14km respectively.

In order to provide GBSQSS compliant connections for additional generation requiring to export from Hawick/Galashiels to Eccles, it is proposed to construct a new 132kV double circuit tower line between Galashiels and Eccles and remove the existing U and AT Routes. The new double circuit, utilising UPAS conductor, will provide the following minimum circuit ratings:

	Winter		Autumn		Summer	
	Amps	MVA	Amps	MVA	Amps	MVA
Pre-Fault Continuous	885	203	845	193	770	176
Post-Fault Continuous	1060	241	1000	230	915	210

Programme	Commissioning: - September 2028 Completion (including decommissioning): April 2029
Progress	Design Early engineering design phase. Surveys of current OHL to be undertaken. Consenting Public consultation took place September 2021. Detailed Engineering – Design Freeze- 1st preliminary completed in April-2023. Tendering – Still to Commenced. Environmental scoping report submission to ECU completed in Mar-2023. Construction – Still to commence, anticipated start date Q2 2025 Commissioning/Close Out – Still to commence, commissioning date September 2028

	Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-155 V2.3	Coalburn –Linnmill No.1 132kV Underground Cable Reinforcement
OVERVIEW OF WORKS There are two 132kV circuits from Coalburn 132kV substation which supply Linnmill 132/33kV Grid Supply Point (GSP). From Coalburn. Each Linnmill 132kV circuit has an initial 3.2km 300mm Cu underground cable section (rated at 123MVA summer continuous and 141MVA cyclic). These connect to a 132kV tower line with each circuit having a 302MVA summer pre- fault continuous rating (ex 275kV circuit). Contracted renewable generation at Linnmill GSP has reached a level where the thermal uprating of the 132kV underground cable section, on the Coalburn to Linnmill GSP No.1 132kV circuit, is required to ensure compliance with the NETS SQSS. (Blacklaw Extension wind farm (69MW) is contracted to connect to the Coalburn to Linnmill No.1 circuit, resulting in this circuits thermal limit being reached before the No.2 circuit). It is proposed to replace the 3.2km 132kV underground cable section, on the Coalburn to Linnmill No.1 132kV circuit, with a 2000mm Cu XLPE cable having a continuous summer rating of 1285A (293MVA).	
Programme	Completion: - Completed
Progress	Design - Complete . Consenting - Complete Tendering - Complete . Construction - Complete Commissioning/Close Out Complete

SPT-RI-158 V2.5	New Cumnock 132kV Substation Extension

OVERVIEW OF WORKS

Contracted renewable generation in South West Scotland has reached a level where the thermal rating of the New Cumnock 275kV substation supergrid 275/132kV transformers, which currently planned to connect to 132kV Board A, is exceeded. There is also a fault level issue triggered by the current contracted generation on the New Cumnock 132kV Board A. To mitigate these issues, it is proposed to separate Board A into Boards A and C whereas Board B remains. Cabling and transformer connections for Boards A and B will also be reconfigured as follows:

- Board A: 3 × 275/132kV SGT1A, SGT2A and SGT3A 240MVA auto wind transformers, providing a total firm capacity of 720MVA
- Board B: 3 × 275/132kV SGT1B, SGT2B and SGT3B 240MVA auto wind transformers, providing a total firm capacity of 720MVA
- Board C: 2 × 275/132kV SGT1C and SGT3C 360MVA auto wind transformers, providing a total firm capacity of 720MVA

This will provide sufficient transformer capacity for the current overall contracted generation into New Cumnock (the contracted generation position in South West Scotland as indicated in December 2017).

Programme	Completion: March 2023
Progress	Design Revised design carried out for change to Gas Insulated Switchgear (GIS), in order to reduce the platform size and feasibility of enabling works. Also, re-designed civil solution for platform extension – now utilising deep soil mixing methodology. Consenting Planning application (local) submission consented in October 2020, for original Air Insulated Switchgear (AIS) design. Revision to application submitted in Apr 22. Further detail to the planning application was submitted in Feb 23. Now approved by East Ayrshire Council. Detailed Engineering Electrical design has been revised to GIS electrical layout and civil design to hybrid deep soil mixing and raft/piling. Tendering Contract awarded and supplier engaged for 2 number 360 MVA transformers with manufacturing of these units ongoing. GIS contract awarded and platform enabling works contract awarded. Civil tender issued to the market.

	Construction Platform site works to commence June 2023. Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-173 V2.8	Glenglass Extension and Glenmuckloch Collector
OVERVIEW OF WORKS To enable the connection of generation around the Glenmuckloch area, the 132kV network need to be extended from Glenglass substation to Glenmuckloch. To achieve this, it is proposed to build a new 132kV double circuit between Glenglass and Glenmuckloch. The project will mainly entail the extension of the proposed GIS substation at Glenglass to add two new bays to which the 132kV double circuit will connect, then construct around 10km of steel lattice towers to Glenmuckloch and at Glenmuckloch establish a 132kV double busbar collector substation to terminate the OHL double circuit.	
Programme	Completion: June 2027
Progress	Design Early Engineering design phase complete. Consenting Public Consultation on overhead line route complete. Scoping Opinion received from Consents Unit. Landowner discussions underway. Detailed Engineering Underway. Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/glenmuckloch_pumped_storage_hydro_and_wind_farm_connections.aspx

SPT-RI-176 V2.6	New Cumnock Overload Protection Scheme
OVERVIEW OF WORKS To utilise the non-firm capacity at New Cumnock and the 132kV network in South West Scotland an overload protection scheme is required at New Cumnock substation to monitor the loading on the 275kV circuits from Coylton, supergrid transformers and 132kV circuits at New Cumnock to prevent any overloading on the transmission system. The scheme at New Cumnock will communicate with remote systems at Dunhill, Blackhill, Glenglass and Kendoon substations to trigger tripping signals to generators connected at these substations.	
Programme	Completion: - March 2025
Progress	Design Early engineering design phase - complete Consenting No consents required. Detailed Engineering Complete Tendering Completed – all major Contracts awarded. Construction Panel manufacturing & FAT complete and panels delivered to site. Wiring and installation Completed. Commissioning/Close Out Commissioning of Board A complete. Commissioning of Board C to commence following commissioning of TORI 158 work In Q2 2025. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-177 V2.4	Glenglass Overload Protection Scheme
OVERVIEW OF WORKS To utilise the non-firm capacity at New Cumnock, Glenglass and the 132kV network in South West Scotland an overload protection scheme is required at Glenglass substation to monitor loading at Glenglass and receive intertrip signals from New Cumnock to prevent any overloading on the transmission system. On the receipt of a local overload signal or a remote intertrip signal from New Cumnock, the scheme will trip generators in a pre-determined sequence by opening the relevant circuit breaker. Stage 1 The transformer overload protection was completed in September 2021 along with Twentyshilling WF Stage 2 The 132kV OHL overload protection will be delivered in [Under Review], currently aligned with the connection of Sandy Knowe wind farm.	
Programme	Stage 1: September 2021 Stage 2: Under Review
Progress	Design Engineering design phase complete Consenting No consents required Detailed Engineering Completed Tendering Completed Construction Stage 1 completed Stage 2 Completed Commissioning/Close Out Stage 1 completed Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-185 V1.5	Galashiels to Eccles 132kV Overload Protection Scheme

OVERVIEW OF WORKS

It is proposed to install an Energy Management (Overload Protection) Scheme at Galashiels 132kV substation to monitor the following circuits:

1) Galashiels to Eccles No.1 132kV Circuit
2) Galashiels to Eccles No.2 132kV Circuit

Installation of an LMS Outstation at Hawick 132/33kV substations in order to receive a trip signal from Galashiels. If the seasonal pre-fault rating of these circuits is exceeded a trip signal will be issued to SPD at Hawick 132/33kV substation to disconnect appropriate SPD generation to remove the overload.

Programme	Completion: October 2025
Progress	Design Still to be commenced. Consenting Still to be commenced. Detailed Engineering Still to be commenced. Tendering Still to be commenced. Construction Still to be commenced. Commissioning/Close Out Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-191 V2.3	Gretna-Ewe Hill 132kV Reinforcement
OVERVIEW OF WORKS The thermal capacity of the 132kV circuit between Gretna 132kV substation and Ewe Hill Wind Farm 132kV Collector Substation (works detailed in SPT-RI-017), will be increased by re-conductoring the 132kV overhead line conductor (~16km), and installing an additional 800mm2 Al XLPE 132kV underground cable in parallel with the existing cable (~0.3km),. This is to accommodate additional generation connecting at the Ewe Hill Wind Farm 132kV Collector Substation. With the Dealanach Offer being signed, the 'Eagle' High Temperature Low Sag (HTLS) conductor will likely be used.	
Programme	Completion: - October 2024
Progress	Design Early design in progress. Consenting All required servitudes have been concluded. Detailed Engineering Still to be commenced Tendering HTLS Conductor to be included in OHL supplier contract. Tender in progress. Construction Still to be commenced Commissioning/Close Out The programme is currently being reviewed the ascertain the potential for a Oct 2024 completion. Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-196 V2.5	Clyde South 33kV Works and Overload Protection Scheme
OVERVIEW OF WORKS At Clyde South substation, the following will be installed: A containerised substation Transformer 33kV incomer circuit breaker (to form a part of a 3-panel board with a 33kV feeder circuit breaker for Whitelaw Brae 'A' Wind Farm and a 33kV feeder circuit breaker for Crookedstane Wind Farm, both of which will be contained within the relevant wind farm TOCOs) 0.05km 2x500mm2 Cu XPLE cable from the LV side of SGT1A to the new incomer circuit breaker At Clyde South 275/33kV substation, an overload protection scheme will be installed on the Clyde SGT1A and SGT1B transformers.	
Programme	Completion: - No longer required, following the termination of Crookedstane Windfarm (TOCO 264)
Progress	Note: Requirement for this reinforcement under review. Design Early design well progressed. Earthing study, drainage survey and GPR survey complete Ecological survey on cable route complete. Consenting Negotiation of land rights continues. Detailed Engineering Commenced Tendering Not commenced Construction Not commenced Commissioning/Close Out Not commenced Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-198 V2.2	Newton Stewart 132kV Substation Works
OVERVIEW OF WORKS At Newton Stewart 132/33kV substation, a second 132/33kV transformer will be installed as part of a separate project to accommodate contracted generation on a firm basis. To enable the transformer installation, substation works are required involving a new 132kV line isolator to connect the second grid transformer onto the existing T2 33kV circuit breaker.	
Programme	Completion: - Programme Under Review
Progress	Design Early design in progress. Consenting Still to be commenced. Detailed Engineering Still to be commenced. Tendering Still to be commenced. Construction Still to be commenced. Commissioning/Close Out. Still to be commenced. Link to related info http://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.asp

SPT-RI-200 V2.3	East Coast Phase 2 Reinforcement
OVERVIEW OF WORKS SP Transmission works associated with SHE Transmission East Coast Phase 2 400kV Reinforcement (reference SHET-RI-093), comprising: – Uprating of the existing Kincardine-Tealing/ Kintore (XL)[1] overhead line route from 275kV 50°C operation to 400kV 65°C operation between Kincardine and the SP Transmission/ SHE Transmission border; and – Installation of 2 x 400/275kV 1100MVA auto-transformers at the new Kincardine North 400kV Substation. Note the existing Kincardine-Tealing 275kV and Kincardine-Kintore 275kV circuits may be terminated in a new SHE Transmission substation at Alyth in advance of the works described in this TORI. In this event, reference to Kincardine-Tealing/ Kintore will become Kincardine-Alyth.	
Programme	Completion: - 31st October 2026
Progress	Design Concept complete, early engineering design ongoing. Consenting Impacted landowners have been identified. Environmental surveys have commenced. Detailed Engineering Detailed engineering is underway. Tendering Commenced and underway Construction Commenced July 23 Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/east_coast_400kv_reinforcement_project.aspx

SPT-RI-204 V1.4	Wishaw-Smeaton-Torness-Eccles Overload Protection Scheme
OVERVIEW OF WORKS A Category 2 overload protection scheme is proposed to be installed within the Wishaw – Smeaton 400kV network to protect the system from network overload under certain outage conditions and as part of a Category 4 Intertripping Scheme to protect the Wishaw – Smeaton – Torness – Eccles 400kV Network from dead line charging conditions as defined by the Grid Code for Nerat Na Gaoithe and Fallago 2 Connections	
Programme	Completion: Under Review
Progress	Consenting Not required Detailed Engineering Complete. Tendering Contracts awarded. Construction Commenced August 2021, NNG related implementation complete. Fallago 2 related implementation yet to commence. Commissioning/Close Out Commissioning substantially complete with final operational testing to be completed in conjunction with NNG project commissioning. Fallago 2 elements of works to be undertaken Q4 2023 and made ready for interfacing in conjunction with Fallago 2 connection at later date. Link to related info

SPT-RI-205 V2.6	Arecleoch Ext Tee to Chirmorie/Stranoch Wind Farm 132kV Circuit
OVERVIEW OF WORKS A ~4.7km 132kV overhead line will be installed from the Arecleoch Extension wind farm tee to the Chirmorie/Stranoch junction. The overhead line will use standard Trident with Lark HTLS conductor which has a minimum summer pre-fault continuous rating of 227MVA.	
Programme	Completion: - May 2024
Progress	Consenting S37 Submitted for OHL, awaiting decision from ECU. Detailed Engineering In progress. Tendering OHL contract tendering on-going. Construction Pre-construction surveys in progress. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/stranoch_windfarm.aspx https://www.spenergynetworks.co.uk/pages/chirmorie_windfarm_connection_project.aspx

SPT-RI-206 V2.2	Mark Hill SGT3 240MVA
OVERVIEW OF WORKS At Mark Hill substation a 275kV switchbay will be installed to control a 275/132kV 240MVA transformer (SGT3). This will connect to a 132kV busbar (B Board) provided for the connection of renewable generation.	
Programme	Completion: - Under Review
Progress	Design Surveys for Mark Hill substation extension completed. Consenting Substation extension consented but legal consents with landowner continuing. Detailed Engineering Complete. Tendering Enabling works at BAFO stage. Construction Still to be commenced – expected Sep 2023 Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-211 V2.6	Holm Hill Switching Station to Lorg Wind Farm Junction 132kV Circuit
OVERVIEW OF WORKS Construct a new 132kV switching station, named Holm Hill, and install a 132kV OHL circuit between the new site and the tee off points to Shepherds Rig and Lorg wind farms. At an appropriate tee-off point on the New Cumnock to Kendoon 132kV circuit, install the new Holm Hill 132kV Switching Station containing one 132kV circuit breaker with two associated disconnectors. Install ~8km of 132kV wood pole overhead line with High Temperature Low Sag (HTLS) EAGLE conductor (190°C, minimum summer pre-fault rating 295MVA) to the tee point between Shepherd's Rig and Lorg wind farms.	
Programme	Completion: 30 April 2027
Progress	Design Early design in progress. OHL route design in progress. Holm Hill switching station design in progress. Consenting Consultation on the preferred route took place recently and responses are being reviewed to confirm the route to be taken forward. Consent for Holm Hill switching station in progress. Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-213 V2.0	New Cumnock 275/132kV Transformer SGT2B
OVERVIEW OF WORKS At New Cumnock substation a third 275/132 240MVA transformer will be installed to increase the capacity of the 132kV Board B.	
Programme	Completion: - Aug 2024
Progress	Design Design complete. Consenting Not Applicable (will be delivered under SPEN's Permitted Development rights). Detailed Engineering Complete barring minor elements. Tendering Contract awarded and supplier engaged for 240 MVA transformer with manufacture underway. Civil tender ongoing 132KV cable tender issued to the market. Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-214 V1.0	ZS Route Overhead Line Uprating Works (Smeaton – Fallago)
OVERVIEW OF WORKS The overhead line conductor system on the existing 31.1km 400,000 Volt circuit from Smeaton to Fallago (ZS route) will be uprated to achieve an increased thermal rating. The existing ZS overhead line route is equipped with twin 700mm2 AAAC (Araucaria) conductor operating at 75oC. The maximum operating temperature of the conductor system will be increased from 75oC to 85oC. These works will not modify the prevailing circuit configuration.	
Programme	Completion: - April 2024
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info http://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.asp

SPT-RI-215 V1.0	Wishaw 400kV GIS Substation Reconfiguration
OVERVIEW OF WORKS Terminate the existing Strathaven-Torness 400kV circuit in Wishaw 400kV Substation and install a 400kV bus section circuit breaker at Wishaw 400kV Substation.	
Programme	Completion: - April 2024
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-218 V2.1	Coalburn 132kV Bus Coupler Auto-Close Scheme
OVERVIEW OF WORKS An auto-close scheme will be installed, at Coalburn 132kV substation, on the 132kV bus-coupler Circuit Breaker (CB) which couples the Main 1 and Reserve 132kV busbars (CB 1030). Following installation of the auto-close scheme, the bus coupler CB 1030 will be normally open to split the 132kV busbars into two discrete sections (Main 1 and Main2/Reserve), supplied by different supergrid transformers. This will maintain the 132kV fault level within design limits on each section of 132kV busbar, and allow additional generation to connect.	
Programme	Completion: - Complete
Progress	Design Complete Consenting Not Applicable Detailed Engineering Complete Tendering Complete. Construction Complete. Commissioning/Close Out Complete. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-221 V2.1	Kendoon to Glenlee 132kV reinforcements
OVERVIEW OF WORKS The works in this reinforcement entails the extension of the L7 high capacity (twin UPAS) 132kV double circuit that runs between New Cumnock substation and the Margree Tee off in South West Scotland to Glenlee substation. This will enable the increase of transfer capability from the Galloway group to the wider supergrid system at New Cumnock. The transfer capability of the group is currently limited by the single 132kV Lynx circuit between Kendoon and Tongland. At Glenlee the substation will need to be extended to modify the configuration of the substation from a four to a six mesh corner arrangement to allow the termination of the new high capacity double circuit overhead line from New Cumnock. One side of the circuit will also be turned into Kendoon to maintain connectivity at the substation.	
Programme	Completion: - August 2026
Progress	Design OHL tender design is ongoing. Glenlee elements complete. Consenting Glenlee Planning approval received August 2020. Conditions have been discharged fully. OHL Section 37 Planning Consent application was rejected by the Council committee on 14 Apr 2021. Project is progressing with public inquiry (PLI) option. Planning team have formally notified the matter to Michael Matheson MSP. Proceedings ongoing. Land agreement with Drax concluded. Detailed Engineering Underway Tendering <u>Glenlee:</u> Civil Works Award – September 2023 Balance of Plant (BoP) Award – TBC <u>Kendoon:</u> Civil Works – TBC Balance of Plant (BoP) – TBC Works at Kendoon under review due to Sec 37 delay. OHL (Combined purchase with TORI 222) – 2024 - Delayed due

	to Sec 37 PLI. <u>Construction</u> • Pre-enabling works by NRS have been completed and the Contractor demobilised from site 04 Jun 2021. • Enabling works by George Leslie have commenced 31 May 2021. Paused pending Drax legal consents and recommenced August 2022. Expect completion July 2023. Commissioning / Close Out Currently scheduled for August 2026 - delays due to Sec 37 PLI. Link to related info https://www.spenergynetworks.co.uk/pages/dumfries_galloway_strategic_reinforcement.aspx

SPT-RI-222 V2.2	Glenlee to Tongland 132kV Modernisation
OVERVIEW OF WORKS The works in this modernisation entails the construction of a new L4 (single POPLAR) 132kV double circuit from Glenlee to Tongland. This will enable the increase of transfer capability from Tongland to the wider supergrid system at New Cumnock and increase the local boundary capabilities of the 132kV system. The transfer capability of Tongland is currently limited by the single 132kV Lynx circuit between Glenlee and Dumfries and this scheme will remove this limitation.	
Programme	Completion: - August 2027
Progress	Design Tender design in progress Consenting OHL Section 37 Planning Consent application was rejected by the Council committee on 14 Apr 2021. Project is progressing with public inquiry (PLI) option. Planning team have formally notified the matter to Michael Matheson MSP. Proceedings ongoing. Detailed Engineering Underway. Tendering <u>Tongland*:</u> Civil Works – On hold pending Public Inquiry outcome. Balance of Plant (BoP) – On hold pending Public Inquiry outcome. OHL* (Combined purchase with TORI 221) – 2024 - Delayed due to Sec 37 public inquiry (PLI). 132kV OHL Trident Wood Poles* (combined purchase with TORI 221) Contract award – 2024 - Delayed due to Sec 37 PLI. Conductor Supply / OPGW* – 2024 - Delayed due to Sec 37 PLI. Construction Still to be commenced Commissioning/Close Out Scheduled for August 2027 – delays due to Sec 37 PLI.

	Link to related info https://www.spenergynetworks.co.uk/pages/dumfries_galloway_strategic_reinforcement.aspx

SPT-RI-223 V1.1	Glenlee to Newton Stewart Reconductoring
OVERVIEW OF WORKS The existing No.1 and No.2 132kV circuits between Glenlee and Newton Stewart substations are on a double circuit tower line (~ 30km, BG route). The overhead line circuits are single 175mm^2 ACSR with a pre-fault summer rating of 89MVA. To facilitate increasing levels of generation at Glenluce and Newton Stewart GSP, it is proposed to reconductor BG route with High Temperature Low Sag conductor (HTLS) to provide a minimum summer pre-fault continuous rating of 250MVA.	
Programme	Programme under review as link to Public Inquiry (TORI 221 & 222)
Progress	Design Design in progress Consenting Not Applicable for main works but link to link to Public Inquiry (TORI 221 & 222) for 5 towers requiring movement. Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/dumfries_galloway_strategic_reinforcement.aspx

SPT-RI-224 V1.0	Coylton SGT1(2) Reinforcement
OVERVIEW OF WORKS At Coylton substation, the existing SGT1 and SGT2 275/132kV 120MVA Auto-transformers will be replaced (on line) with 240MVA units.	
Programme	Completion: - Under Review
Progress	Design Complete Consenting Not Applicable Detailed Engineering SCA signed off and approved with detail engineering commenced Tendering Complete Construction Complete Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-226 V2.3	275/132kV Elvanfoot Transformer
OVERVIEW OF WORKS A new 275/132kV 360MVA transformer shall be installed at Elvanfoot substation. This will create a new 132kV busbar at Elvanfoot, to allow new generators to connect.	
Programme	Completion: December 2024
Progress	Design Design in progress Consenting Planning Application submitted to local council and conditions in process of being discharged. Detailed Engineering Commenced Tendering Transformer order placed. Tendering for Civil and BoP works ongoing Construction Enabling Works commenced August 2023 Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-227 V2.1	Chapelcross – Harker 132kV Uprating
OVERVIEW OF WORKS It is proposed to rebuild AK and T Route single circuit Chapelcross to Harker 132kV overhead line, to increase the thermal rating to a minimum summer pre-fault continuous rating of 227MVA. The current circuit is a 132kV overhead tower line, with Lynx conductor, with a pre-fault summer continuous rating of 89MVA. This project is in response to the increased level of generation in the area. The 132kV overhead line circuit between Chapelcross and Harker has split ownership, 17.5 km from Chapelcross 132kV substation following AK and T route, to tower T137A. This is owned by SPT with the remaining 8.6 km from tower T137A to Harker 132kV substation owned by NGET. Any uprating by SPT will need to be matched by NGET. The project will be to rebuild the SPT-owned 17.5km of AK and T route utilising LARK HTLS conductor on a 132kV wood pole construction. This will provide a pre-fault summer continuous rating of 227MVA. The existing AK and T route 132kV steel tower circuit will be dismantled.	
Programme	Completion: - 30 Sept 2025
Progress	Design SCA out for comment. Consenting Route corridor has been identified; 2nd round of public consultation complete. Awaiting comment on environmental scoping report – will be starting EIA in July 2023. Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-229 V2.4	Moffat SGT3
OVERVIEW OF WORKS A new 400/132kV 240MVA transformer, and associated 400kV and 132kV circuit breaker bays, shall be installed at Moffat 400/132kV substation to increase the available generation capacity at the 132kV substation.	
Programme	Completion: - August 2025
Progress	Design Design in progress Consenting Not Applicable Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info Substation Modernisation and Reinforcement - SP Energy Networks

SPT-RI-230 V2.1	Gretna to Faw Side WF Tee 132kV Reinforcement
OVERVIEW OF WORKS It is proposed to re-profile approximately 36km of the 132kV overhead line existing Gretna to Hawick circuit (AL and V Route), between Gretna and the proposed Faw Side Community Wind Farm 'T' connection. It is proposed to utilise LARK HTLS conductor. NGET own a section of AL and V Route on this circuit and will have to reinforce to match the SPT proposals.	
Programme	Completion: - October 2025
Progress	Design Early design in progress Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-231 V2.1	Elvanfoot to Harker 400kV Circuit Uprating
OVERVIEW OF WORKS In order to maintain the 4.4GW North-South boundary transfer over Boundary B6, due to the level of generation connecting on to this interconnector, it is necessary to thermally uprate the Elvanfoot – Harker 400kV double circuit, via reconductoring with twin Curlew HTLS conductor, operating at 190°C.	
Programme	Completion: - TBC subject to Network Options Assessment (NOA), project did not receive a proceed signal from NOA 5
Progress	Design Design not kicked off yet. Consenting Not Applicable Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-232 V1.4	Hopsrig Substation Transformer 132-33kV
OVERVIEW OF WORKS A new 132/33kV 90MVA transformer will be installed at Hopsrig collector substation. This will create a new 33kV busbar to allow new generators to connect.	
Programme	Completion: - October 2026
Progress	Design Preliminary Civil Design ongoing. Basic Main Plant layout has been developed for the collector substation. Consenting Planning application confirmed as Non-EIA, application submitted January 2022 and approved March 2023 Detailed Engineering Designs are underway. Tendering Some tendering has been progressed Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-233 V2.2	Gretna to Jun V 132kV Circuit Reinforcement (AL Route)

OVERVIEW OF WORKS

It is proposed to re-profile AL Route single circuit Gretna to Junction V 132kV overhead line, in order to increase the thermal rating to a minimum summer pre-fault continuous rating of 124MVA. The current circuit is a 132kV overhead tower line, with Lynx conductor, with a pre-fault summer continuous rating of 89MVA. This project is in response to the increased level of generation in the area.

The 132kV overhead line circuit between Gretna and Junction V has split ownership, 5 km from Gretna 132kV substation following AL route, to tower AL57. This is owned by SPT with the remaining section from tower AL57 to AL68 at Junction V owned by NGET. Any uprating by SPT will need to be matched by NGET.

The project will be to reconductor the SPT-owned 5km of AL route utilising Poplar conductor on the existing steel tower construction. This will provide a pre-fault summer continuous rating of 124MVA.

Programme	Completion: - October 2023
Progress	Design Early design in progress Consenting N/A Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-236 V2.2	Glenmuckloch to ZV Route Reinforcements
OVERVIEW OF WORKS The works in this TORI extends the 400kV network from the ZV route to Glenmuckloch collector substation. It is proposed to establish a new 400kV substation by turning in the ZV route into a new 400kV substation between Elvanfoot and Coalburn. From the new 400kV substation a new 400kV L8 overhead line will be established to a new 400kV substation at Glenmuckloch. Three 400/132kV 360MVA interbusing transformers will connect the 400kV to the 132kV collector substation at Glenmuckloch.	
Programme	Completion: October 2027
Progress	Design Early design in progress. High level routing options being assessed. Consenting Consenting requirements underway Detailed Engineering Still to commence Tendering Still to commence Construction Still to commence Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-237 V2.0	Enoch Hill Collector 132/33 kV substation and associated 132 kV circuit
OVERVIEW OF WORKS A 132/33kV substation will be established, adjacent to Enoch Hill wind farm, in East Ayrshire (255265E, 609695N). A new circuit by underground cable 4.4 km in length from Board C, will connect this new substation into a new 132kV bay on Board C, at New Cumnock 132kV substation. This TORI describes the works required for the installation of Enoch Hill Collector 132/33 kV Substation and its associated 132 kV circuit The 132 kV circuit is approximately 5km in length and extend from the Enoch Hill collector substation to New Cumnock.	
Programme	Completion: Dec 2023
Progress	Design Early design complete. Consenting In progress – Wayleaves being finalised. Detailed Engineering In progress Tendering In progress Construction Still to commence Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-238 V2.2	Cumberhead 132kV Collector Substation
OVERVIEW OF WORKS A collector substation is required for the connection of both Cumberhead and Dalquhandy wind farm. The collector substation will require the installation of a 132kV busbar section with two line disconnectors and short sections of underground cable (~0.5km each) to connect into the existing Coalburn to Galawhistle 132kV underground cable. From the 132kV busbar section a 132kV circuit breaker, with associated disconnectors, will be installed and connected to a 132/33kV 120MVA transformer with a shared 33kV busbar section. The works to establish this collector substation will include the construction of the substation platform as well as a control building to house SPT's protection and control equipment.	
Programme	Completion: Under review
Progress	Consenting Ful lease agreed Detailed Engineering VFC designs now issued. Tendering All major contracts are now fully awarded. Construction All Construction works completed Commissioning/Close Out Commissioning completed and energised Link to related info https://www.spenergynetworks.co.uk/pages/cumberhead_collector_substation.aspx

SPT-RI-240 V1.2	Douglas West Wind Farm 132kV Collector Substation
OVERVIEW OF WORKS At the Douglas West Wind Farm 132kV substation site, a 132kV air insulated busbar will be installed to facilitate the connection of Douglas West Wind Farm and future connections. This 132kV busbar will be looped into the proposed Coalburn to Middlemuir wind farm 132kV underground cable, utilising two new 132kV underground cable sections (~0.3km each).	
Programme	Completion: Complete
Progress	Design Complete Consenting Land for substation purchased. Planning Application granted. Detailed Engineering Complete Tendering Complete. Construction Complete. Commissioning/Close Out Complete Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-243 V2.4	Devolmoor-Erskine-Braehead Park Circuit LMS
OVERVIEW OF WORKS A Load Management Scheme (LMS) is required to manage connections in the Neilston – Devol Moor 132 kV group to prevent overloads on the Devol Moor-Erskine-Braehead Park Circuit. The overload will be managed by the LMS tripping the appropriate non-firm connections.	
Programme	Installation & Commissioning works complete
Progress	Early Design Complete Consenting Not Applicable Detailed Engineering Complete Tendering Complete Construction Complete Commissioning/Close Out Commissioning works complete, close out to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-246 V2.1	Denny SGT2
OVERVIEW OF WORKS At Denny North substation, a new 1000MVA 400/275kV supergrid transformer and associated circuit breakers will be installed. This will increase the thermal capacity of Denny North 400kV substation, and across the B4 Boundary, to facilitate the connection of generation in the SHE Transmission area.	
Programme	March 2025
Progress	Design Ongoing Consenting Not applicable, all works within Denny 400 / 275kV Substation. Detailed Engineering Detailed engineering commenced Tendering Commenced for 1000MVA Transformer Construction Still to commence Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-251 V1.2	Coalburn to Douglas North 132kV Cable Reinforcement

OVERVIEW OF WORKS

Revised proposal as part of SPT-RI-251 to install a new 132kV cable circuit between Douglas North Collector Substation and Coalburn 400/132kV substation, as well as the reinstatement of Middlemuir – Coalburn 132kV cable to its former configuration.

Programme	under review
Progress	Design Proposed cable route has now been determined; Alternative route not possible due to issue with Hargreaves Land. Consenting CPO of the land at the bell mouth is progressing well, . The statements of reasons, CPO and schedule have all been submitted, we have been asked to provide further drawings for an updated submission. The full process is expected to be concluded in 9 – 12 months. There is additional consenting required as there is a section that Scottish Ministers own that covers the bridge and the river up to it. Detailed Engineering Cable Route and joint bay locations have been defined for the route, based on the trial hole/utility data. Tendering HDD was set to start WC27/02/23 however due to the council now requesting a bond this is now delayed Cable Civils tender is expected to go to IOC on 5th June. Cable Supply and Install is awaiting TQs being answered. At this moment the framework still hasn't been signed off. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SP ENERGY NETWORKS

SPT TORI Quarterly Report Q3 2023

SPT-RI-252 V1.0	Fife 132kV Fault Level Reinforcement
OVERVIEW OF WORKS The following works are required at Mossmorran 132kV substation remove the fault level limitations introduced by the 8 GEC FC1 Circuit Breakers (1983): • Replace CB 210 and associated disconnector/earth switch • Replace CB 280 and associated disconnector/earth switch • Replace CB 310 and associated disconnector/earth switch • Replace CB 380 and associated disconnector/earth switch • Replace CB 405 and associated disconnector/earth switch • Replace CB 415 and associated disconnector/earth switch • Replace CB 505 and associated disconnector/earth switch • Replace CB 515 and associated disconnector/earth switch In addition to the above works, the protections on each bay, including remote ends, are to be replaced in line with the new primary plant.	
Programme	Under review
Progress	Design SCA complete. Consenting N/A permitted development Detailed Engineering Nearing completion Tendering Complete Construction Outage underway to replace CB's 405, 415 & 210 Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-254 V1.0	AA Route LMS
OVERVIEW OF WORKS A Load Management Scheme (LMS) is required at Bonnybridge 132 kV substation to prevent overload conditions on both the Bonnybridge to Bathgate leg of the Bonnybridge – Bathgate – Drumcross No. 1(2) 132 kV circuit when the adjacent circuit is out of service. The overload will be removed by the LMS scheme managing the appropriate non-firm connections via appropriate LMS outstations. Note that the LMS outstations are to be detailed in separate SPT-RI documents.	
Programme	Connection date under review pending update on progress of DNO works, Mod App required.
Progress	Tendering in advance stage. Design SCA complete Consenting Not Applicable Detailed Engineering Complete. Tendering Complete Construction Complete. Commissioning/Close Out Commissioning Complete, Close out to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-255 V1.0	Drumcross GSP GT1(2)
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Drumcross 132/33 kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Connection date under review pending update on progress of DNO works, Mod App required.
Progress	Tendering in advance stage. Design SCA complete Consenting Not Applicable Detailed Engineering Complete Tendering Complete. Construction Complete Commissioning/Close Out Commissioning complete, close out to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-260 V2.0	Leven GSP GT1(2) OLP Scheme and LMS Outstation
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Leven 132/33 kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Needs case under review.
Progress	Design Underway. Consenting Not Applicable Detailed Engineering Underway Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-261 V2.0	Cupar-Leven 132 kV Circuits LMS
OVERVIEW OF WORKS A Load Management Scheme (LMS) is required to monitor circuit loadings at: Westfield 132 kV substation to monitor for overload conditions on the Westfield-Cupar-Leven 132 kV circuit. Redhouse 132 kV substation to monitor for overload conditions on the Redhouse-Cupar-Leven 132 kV circuit. IED to be installed a Cupar GSP to act an LMS outstation to complete the communications channel.	
Programme	Complete
Progress	Design Complete Consenting Not Applicable Detailed Engineering Complete Tendering Complete Construction Complete Commissioning/Close Out Complete Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-262 V1.0	Redhouse 132 kV Circuits LMS
OVERVIEW OF WORKS A Load Management Scheme (LMS) is required at Redhouse GSP to monitor circuit loadings on: The Redhouse – Glenniston 132 kV Circuit The Redhouse – Westfield 132 kV Circuit	
Programme	Programme review being undertaken to reflect change in DNO contracted background.
Progress	Design Complete. Consenting Not Applicable Detailed Engineering Complete Tendering Complete. Construction Complete. Commissioning/Close Out Commissioning complete, project close out in progress. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-263 V1.0	Coalburn SGT4

OVERVIEW OF WORKS

At Coalburn 400/132kV substation, works are required to extend the compound to facilitate the extension of the 400kV and 132kV double busbars and installation of a fourth 360MVA supergrid transformer as SGT1 with the existing 240MVA unit moving to the new substation extension as SGT4. In addition, alterations will be made to the 400kV busbars to provide a Main and Reserve busbar, and the 132kV busbars to form two separate switchboards ("A" and "B" board). Modifications will be made to the existing load management scheme on SGT1, SGT2 and SGT3 to monitor only SGT1 and SGT2 whilst an additional scheme will be installed to monitor SGT3 and SGT4.

The diverting of 2 No.132kV cable circuits into Coalburn has been allowed for to ensure that the generation is split appropriately across the "A" and "B" 132kV switchboards.

These works will provide additional capacity at Coalburn for generation connecting to the associated transmission and distribution network.

Programme	May 2024 (pending update to October 2024)
Progress	Design Preliminary design work complete. Detailed design ongoing. Consenting Planning Permission in place and land purchase complete Detailed Engineering Complete for platform enabling works and civil works in the extension area. Ongoing for BoP works and existing substation civil changes. Tendering Ongoing for BoP, P&C supply and civil works in the existing substation. Construction Bay swap and cable diversion works completed 2021. Platform works completed November 2022 with civils works in the extension ongoing. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-267 V1.0	Eccles 400kV Shunt Compensation
OVERVIEW OF WORKS In order maintain to post-fault voltages within statutory limits, the installation of voltage control in the east of the network is required. As such, dynamic shunt compensation will be installed at Eccles 400kV substation with associated switchgear.	
Programme	July 2026
Progress	Design Still to commence. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-268 V1.0	Coalburn to Douglas West 132kV cable rating enhancement
OVERVIEW OF WORKS The cable currently installed between Coalburn 132kV and Douglas West collector substation is an 800mm2 AL XLPE (~5km) with its rating limited to 144MVA. The limiting sections for the rating are: i) HDD section at Poniel water– 146MVA limit It is proposed to relay these sections with a larger capacity cable to enhance the thermal ratings on this circuit to 165MVA.	
Programme	Complete
Progress	Design Scope confirmed Consenting No consents requirements Detailed Engineering Cable design requirements complete Tendering Cable works awarded Construction Complete Commissioning/Close Out Complete Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-269 V2.2	Bathgate GSP OLP Scheme
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Bathgate 132/33kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Programme review being undertaken to reflect change in DNO contracted background.
Progress	Tendering in advance stage. Design SCA Complete. Consenting Not Applicable Detailed Engineering Complete. Tendering Complete Construction Complete Commissioning/Close Out Commissioning complete, close out to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-274 V2.6	Glenshimmeroch Collector Substation
OVERVIEW OF WORKS On the New Cumnock / Blackcraig 132kV circuit, establishment of a new collector substation named 'Glenshimmeroch collector substation'. At Glenshimmeroch collector substation, install of a 132kV circuit breaker and associated disconnectors, a 132kV busbar and a 132kV disconnector (on the Blackcraig 132kV circuit). It is also proposed to install an-auto-isolation scheme at Glenshimmeroch collector substation in order to isolate the faulted circuit and re-energise the remaining circuit(s).	
Programme	October 2027
Progress	Design Early design works underway. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-275 V2.2	Mark Hill 132kV Bus
OVERVIEW OF WORKS To increase the utilisation of the available capacity at Mark Hill substation it is proposed to create a new 132kV Board by coupling both supergrid transformers SGT2 and SGT3. To achieve this it is proposed to install a 132kV bus section breaker and share the available capacity on both transformers.	
Programme	Under Review
Progress	Design Complete Consenting Substation Extension Consented. Legal consents still outstanding. Detailed Engineering Completed. Tendering Ongoing tender for enabling works at Mark Hill S/S – at BAFO. Construction Still to be commenced – expect start on site Sep 2023. Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-281 V1.0	Glenniston 132/33kV T1(2) GSP LMS
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Glenniston 132/33 kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Under review
Progress	Design Complete Consenting Not Applicable Detailed Engineering Complete Tendering Complete Construction Still to commence. Commissioning/Close Out Commissioning complete and close out underway. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-282 V2.1	Markhill SGT4
OVERVIEW OF WORKS At Mark Hill substation extend the substation to install 275kV switchbay and a fourth supergrid transformer (SGT4). This will connect to a 132kV busbar to provide for the connection of renewable generation.	
Programme	Under Review
Progress	Design Complete. Consenting Substation Extension Consented. Awaiting land consents. Detailed Engineering Completed Tendering Ongoing enabling work tender for Mark Hill S/S - at BAFO stage. Construction Still to be commenced. Expect start on site September 2023. Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-284 V1.3	GEMS
OVERVIEW OF WORKS The Generation Export Management Scheme (GEMS) is an active network management system that protects the SP transmission network in south west Scotland against unacceptable overloads on transmission equipment under intact and depleted system conditions. The GEMS system will instruct directly connected and embedded generation to curtail their output to avoid the overloading of any transmission circuits. The order with which these generators are curtailed will be determined by the System Operator (SO) and GEMS system will receive the order list periodically from the SO.	
Programme	Stage 1 completion date updated based on changes in contracted generation – Under Review Stage 2 – GEMS will then be installed at other sites based on customers contracted connection dates
Progress	Design Functional Design ongoing Consenting Not applicable. Detailed Engineering Will commence mid-2023 Tendering Complete Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-286 V1.0	Bonnybridge SGT1(2) Auto Changeover Scheme
OVERVIEW OF WORKS An auto-changeover scheme will be installed on the Bonnybridge 275/132kV transformer SGT1 such that SGT1 will remain disconnected but on hot standby in case of a fault on Bonnybridge SGT2, Denny 275/132kV SGT3, or a double circuit fault on the Bonnybridge-Westfield 132kV circuits.	
Programme	Under review
Progress	Design Preliminary design started. Consenting Not required. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-287 V1.0	Cumbernauld GSP OLP scheme
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Cumbernauld 132/33kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Under review
Progress	Design Preliminary design/ SCA complete. Consenting Not Applicable Detailed Engineering Complete. Tendering Complete Construction Complete Commissioning/Close Out Commissioning works complete, Close out to commence Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-288 V1.0	Hawick - Galashiels 132kV Reconfiguration

OVERVIEW OF WORKS

Hawick 132/33kV substation is currently supplied via two 132kV circuits from Gretna 400/132kV substation, with a 132kV circuit to Galashiels normally open at CB 205. With the proposed connection of Faw Side wind farm (250MW) it is proposed to reconfigure Hawick 132kV substation such that Hawick can be supplied from Galashiels and establish the Hawick / Galashiels 132kV circuit No.1 and No.2. Works at Galashiels will be required to terminate the double circuit from Hawick post reconfiguration.

At Hawick, it is also proposed to install two new 132kV circuit breakers and a fourth 132kV circuit at Hawick with Poplar conductor:

	Winter		Autumn		Summer	
	Amps	MVA	Amps	MVA	Amps	MVA
Pre-Fault Continuous	615	140	590	134	540	124
Post-Fault Continuous	730	167	700	160	645	147

The existing circuit breakers at Galashiels are of 600A and 800A. It is also proposed to replace the 600A circuit breakers 120 and 620 with a standard 2000A circuit breaker.

Programme	October 2025
Progress	Design Early design works underway. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-289 V2.5	Glenmuckloch Overload Protection Scheme
OVERVIEW OF WORKS To utilise the non-firm capacity between Glenmuckloch and Glenglass a Load Management Scheme (LMS) is required. This scheme will perform the following: 1. Monitor the loading on the 132kV circuits between Glenglass and Glenmuckloch. 2. Interface with the LMS at New Cumnock and Glenglass to receive information regarding overloads on other parts of the 132kV network and New Cumnock Transformers. 3. Interface with local tripping scheme to disconnect generators connected at Glenmuckloch substation.	
Programme	Under Review
Progress	Design Still to commence. Consenting Not Applicable Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-290 V1.0	Coalburn to Linnmill No.1 Circuit CSE Compound
OVERVIEW OF WORKS It is required to establish a 132kV cable sealing end compound on the Coalburn – Linnmill No.1 circuit to create a tee off connection to facilitate the connection of Broken Cross WF. The cable sealing end compound with require busbars and downlead connections onto the Coalburn to Linnmill steel tower circuit as well as busbars connection towards the windfarm. This will require the dismantling off the existing cable sealing end basket on the existing tower.	
Programme	September 2023
Progress	Design Valid for Construction design complete. Consenting Planning Application granted. Detailed Engineering Complete Tendering All tendering complete contracts awarded Construction Construction commenced Jan 2023, ongoing. Commissioning/Close Out Commencing Sep 2023. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-292 V2.2	Lorg to Shepherds Rig tee
OVERVIEW OF WORKS Install ~10km of 132kV wood pole overhead line with UPAS conductor (75°C, minimum summer pre-fault rating 176MVA) between Lorg 132kV substation and the proposed Shepherds Rig tee connection. The will form part of the Lorg to Holmhill 132kV overhead line.	
Programme	November 2025
Progress	Design Early design in progress. OHL route design in progress. Holm Hill switching station design in progress. Consenting Consultation on the preferred route took place recently and responses are being reviewed to confirm the route to be taken forward. Consent for Holm Hill switching station in progress. Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-293 V2.3	Carrick 275kV substation
OVERVIEW OF WORKS A new 275kV substation will be installed on the Coylton-Mark Hill 275kV circuit (YY route) approximately 25km northeast of Mark Hill substation. The YY route will be turned in to the new substation with a 275kV circuit breaker on each circuit. The new circuit breakers will maintain the single-phase high-speed auto reclose capability which currently exists on the YY route.	
Programme	June 2027
Progress	Design In progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-294 V2.1	Ewe Hill – Hopsrig collector substations 132kV circuit
OVERVIEW OF WORKS An optimised solution has been identified to connect Hopsrig, Loganhead and Crossdykes Extension wind farms. This optimised solution will establish a new 132kV collector substation at Hopsrig wind farm where Hopsrig wind farm will be connected (via a 33kV PoC). At the Hopsrig collector substation, an individual PoC at 33kV will also be provided for Loganhead and Crossdykes Extension wind farms. To provide connectivity between the existing Ewe Hill collector substation and the Hopsrig collector substation, it is proposed to install a new 132kV overhead line circuit between Ewe Hill and Hopsrig collector substations. The circuit will utilise Poplar conductor operating at 90°C.	
Programme	October 2026
Progress	Design OHL route finalised Consenting OHL is confirmed as Non-EIA. Section 37 application submitted Jan 2022 and granted in April2023 Detailed Engineering Still to commence. Tendering Some OHL tendering is underway, including detailed engineering Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-295 V1.1	Newton Stewart GSP GT1(2) OLP & LMS
OVERVIEW OF WORKS An overload protection (OLP) scheme is required at Newton Stewart 132/33 kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.	
Programme	Mar 2026
Progress	Design Still to commence. Consenting Not Applicable Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-296 V2.3	Glenshimmeroch Collector Substation 132kV OHL Uprating
OVERVIEW OF WORKS It is proposed to uprate a section of the overhead line between the proposed Glenshimmeroch collector substation to the cable end on the New Cumnock 132kV circuit. This is approximately 11km. This will be achieved by replacing the existing UPAS conductor with LARK conductor on the existing wood pole system.	
Programme	October 2027
Progress	Design Still to commence. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-298 V1.0	Chapelcross to Gretna OHL Reinforcement

OVERVIEW OF WORKS

The Gretna to Chapelcross No.1 and No.2 132kV circuits require to be reinforced as the thermal capacity of the existing ACSR "Lynx" circuits are exceeded during times where the Chapelcross to Harker 132kV circuit is out of service or a Gretna to Chapelcross circuit is out of service.
The proposal is to reconductor the existing circuit with AAAC "Sycamore" conductor. This will give a summer pre-fault rating of 150MVA resulting in no overloads on the circuit.
It has been evaluated that the cable sections out of both Gretna and Chapelcross 132kV substations should be suitable to carry this increased loading therefore only the OHL conductors require to be replaced.

The table below details the pre-fault ratings of "Sycamore" conductor across the three seasonal periods.

	Winter	Spring/Autumn	Summer
	MVA	MVA	MVA
Pre-Fault Continuous	196	189	176

Programme	Oct 2027
Progress	Design Early design in progress. Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-300 V2.0	Douglas North Collector 132/33kV Transformer
OVERVIEW OF WORKS It is required to establish a 132/33kV 120MVA transformer at Douglas North Collector substation for the purposes of connecting Douglas West Ext WF and Hagshaw Hill Phase 2 WF. The 120MVA transformer to be installed will be in place of the 90MVA and 60MVA units which were included in the original contracts for the connections. The installation of a 33kV indoor circuit breaker is required given that only an indoor solution can be accommodated within the substation footprint.	
Programme	October 2024
Progress	Design Tender design complete, VFC design progressing. Consenting No Substation extension required to Douglas North Collector. Detailed Engineering Still to commence. Tendering Transformer framework order placed. Protection & Control contract placed. Civils and BoP tenders issued to market. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-301 V2.0	Mark Hill to Arecleoch Ext Tee 132kV Circuit
OVERVIEW OF WORKS At Mark Hill 132kV substation a 132kV switch bay will be installed. From this a 132kV circuit, consisting of 0.5 km of underground cable and ~7.5km of 132kV overhead line (HTLS 'Eagle' conductor), will be installed to the tee point with Arecleoch Extension wind farm.	
Programme	May 2024
Progress	Consenting S37 Submitted for OHL, awaiting decision from ECU. Detailed Engineering In progress Tendering OHL contract tendering on-going. Construction Pre-construction surveys in progress Commissioning/Close Out Still to commence Link to related info https://www.spenergynetworks.co.uk/pages/stranoch_windfarm.aspx https://www.spenergynetworks.co.uk/pages/chirmorie_windfarm_connection_project.aspx

SPT-RI-302 V1.0	Glenglass 132kV substation
OVERVIEW OF WORKS To enable the connection of generation in the Glenglass area and extend the 132kV network to Glenmuckloch a new 132kV substation is required in Glenglass. The new substation will be a double busbar 132kV GIS substation with a bus coupler and sized for eight feeder circuits. Also, to maximise the network capabilities the 132kV circuits between Glenglass and Blackhill are limited by cables at Blackhill substation. These cables will need to be uprated to match the 132kV Blackhill to Glenglass OHL ratings.	
Programme	Under Review
Progress	Design Surveys and pre-engineering studies completed. Topographical survey complete. Consenting Underway with planning applications submitted in February 2023. Detailed Engineering Completed bar minor items Tendering GIS at BAFO and earthworks at round 2 tender stage. Construction Still to commence. Expect April 2024. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-303 V1.0	East Coast B6 Onshore Reinforcement
OVERVIEW OF WORKS Installation of a new 400kV double circuit overhead line, of approximately 185km, between the Torness area (Branxton 400kV substation) in South East Scotland, and Lackenby in North East England. These works are subject to the NOA process, scope, costs and programme are subject to review and change.	
Programme	November 2036
Progress	Design Still to commence. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-304 V2.0	Smeaton 400/275kV 2nd Supergrid
OVERVIEW OF WORKS At Smeaton substation replace the existing 400/275kV 1000MVA transformer (SGT2) with a new 400/275kV 1300MVA one. This uprating is required to allow the connection of offshore generation in the east Lothian area.	
Programme	October 2031
Progress	Design Still to commence. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-305 V1.0	Branxton South 400kV GIS Substation
OVERVIEW OF WORKS A new 400kV double busbar substation, utilising Gas Insulated Switchgear (GIS), will be established along the proposed Branxton/Torness to Lackenby 400kV AC onshore reinforcements. This new substation, known for the purposes of this TO Reinforcement Instruction as 'Branxton South 400kV Substation', and associated plant and apparatus, will provide five Transmission Interface Points to which the Seagreen Phase 3 offshore transmission system assets will connect.	
Programme	November 2036
Progress	Design Still to commence. Consenting Still to commence. Detailed Engineering Still to commence. Tendering Still to commence. Construction Still to commence. Commissioning/Close Out Still to commence. Link to related info https://www.spenergynetworks.co.uk/pages/substation_modernisation_and_reinforcement.aspx

SPT-RI-306 V1.1	Moffat 132kV Fault Level Mitigation Bus Section Circuit Breaker
OVERVIEW OF WORKS At Moffat 132kV substation it is required to extend the existing compound to accommodate the connection of further generation into the site. The compound shall be extended with the existing 132kV busbars being extended into this area. The installation of a new 132kV bus section circuit breaker will be required to alleviate exceeding the fault level design limits at the site.	
Programme	August 2025
Progress	Design in progress Consenting Still to be commenced Detailed Engineering Commenced Tendering Commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info Substation Modernisation and Reinforcement - SP Energy Networks

SPT-RI-1507 V2.4	Holmhill 132kV Substation
OVERVIEW OF WORKS The TORI works entail a cable run from Tower DE68 on the New Cumnock to Glenlee circuit side (note this circuit is currently the New Cumnock to Kendoon circuit however post KTR project completion will be the New Cumnock to Glenlee circuit) to the new proposed Holmhill 132kV substation and then establishing the 132kV substation for the two circuits from Lorg and Quntans Hill to connect.	
Programme	April 2027
Progress	Design Still to be commenced Consenting Commenced. Consent for Kendoon North switching station in progress. Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1551 V2.1	Spango Valley GSP GT1(2)
OVERVIEW OF WORKS The directional overcurrent relay on Spango Valley GT1 and GT2 will inhibit reverse power flow over 46MVA. Therefore, if one transformer is out of service, the other would trip out for reverse power flow over 46MVA. Embedded generation at Spango Valley has reached 49.9MW so action is needed to avoid the transformers tripping. The LVDOC relay protecting GT1 and GT2 at Spango Valley will need to be modified or replaced to allow for reverse power flow. The modification is required to allow full reverse power flow. Works will include removal of the directional element and adding in an additional intertrip.	
Programme	April 2025
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info Substation Modernisation and Reinforcement - SP Energy Networks

SPT-RI-1560 V1.1	Denny-Braco West Uprating
OVERVIEW OF WORKS It is proposed to uprate the existing Denny-Braco West 275kV circuit to 400kV operation by transferring the circuit from its current bay in Denny 275kV substation to a new bay in Denny 400kV substation.	
Programme	October 2029
Progress	Design Early Engineering Design complete, detailed design still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-1566 V2.0	Hunterston East to Ayrshire 400kV Switchgear/Cable
OVERVIEW OF WORKS To facilitate the connection of the Hunterston Battery Storage Facility and the Ayrshire Grid Services Facility at Hunterston East 400kV GIS substation, it is proposed to extend the GIS double busbar and install a new 400kV switchbay, install approximately 900m of 400kV underground cable from the Hunterston East 400kV GIS substation to a new SPT collector substation (Ayrshire Grid 400kV collector substation). At the collector substation, a new outdoor 400kV busbar and three isolators shall be installed. (Customer will install 400kV CB)	
Programme	Under Review
Progress	Design Commenced Consenting Planning granted to developer Detailed Engineering Commenced Tendering GIS tender Dec 2022 Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1576 V1.2	Cupar GSP GT1(2) OLP Scheme and LMS Outstation

OVERVIEW OF WORKS

An overload protection (OLP) scheme is required at Cupar 132/33 kV substation to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the OLP scheme tripping the appropriate non-firm connections.

A current and voltage measurement is required for each transformer so the direction, as well as magnitude, of the power flow through the transformer can be determined. This SPT OLP scheme will be required to transfer the following signals to the DNO (SPD):

- A Stage 1 Signal at 95% of the transformer rating for an export Condition *3
- A Stage 1 Signal at 95% of the transformer rating for an import Condition *4
- A Stage 2 Signal at 100% of the transformer rating for an export Condition
- A Stage 2 Signal at 100% of the transformer rating for an import Condition
- A Stage 3 Signal at 120% of the transformer rating for an export Condition
- A Stage 3 Signal at 120% of the transformer rating for an import Condition

An LMS outstation is required to interface with Load Management Schemes (LMS) on the wider network. This will allow any signals initiated by a wider network LMS to be transferred to the DNO (SPD) connected embedded generation.

Programme	Complete
Progress	Design Complete Consenting Not required Detailed Engineering Complete Tendering Complete Construction Complete Commissioning/Close Out Complete Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1577 V2.3	Cupar GSP LV Protection Modifications
OVERVIEW OF WORKS In order to remain within SPEN policy (PROT-01-107), the existing Alstom/Areva K-series LVDOC relays on the T1 and T2 and Cupar 132/33kV GSP are required to be replaced with a LVDOC relay which utilises a voltage-controlled characteristic such that reverse power flow is only limited by the rating of the transformer (including emergency ratings).	
Programme	Complete
Progress	Design Complete Consenting Not required Detailed Engineering Complete Tendering Complete Construction Complete Commissioning/Close Out Complete Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1659 V2.0	Bathgate to Bonnybridge 132kV No.1 and No.2 Cable Uprating
OVERVIEW OF WORKS The connected and contracted generation at Bathgate and Drumcross GSP have reached the level that will exceed the intact capacity of the existing 132kV cable between Bathgate / Drumcross to Bonnybridge. It is proposed to uprate these existing cable section at Bonnybridge end on both No.1 and No.2 circuits to provide a higher rating to remove the overload under an intact system.	
Programme	September 2025
Progress	Design In progress Consenting Consenting process has commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-1738 V2.0	Teviot to Harker Reinforcements
OVERVIEW OF WORKS It is proposed to construct at a location in the vicinity of Teviot wind farm site a double busbar 132kV AIS substation to which two 400/132kV 360MVA interbus supergrid transformers will be connected. A double busbar AIS 400kV substation will also be established at the wind farm site to which the interbusing transformers will be connected and two further bays will be provided to connect a double circuit OHL. From the 400kV substation a double circuit OHL of around 43km built on L8 towers and installed with twin Totara conductors will be constructed to Harker 400kV substation.	
Programme	May 2033
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-1741 V2.1	Neilston Supergrid Transformers Auto Changeover Scheme
OVERVIEW OF WORKS An auto changeover scheme is required at Neilston substation to allow the connection of synchronous compensators at Neilston 400kV. The scheme is needed for the management of fault level at Neilston 132kV substation. It is proposed that one of the three supergrids (SGT1, SGT2 or SGT3B) that serve Neilston 132kV substation to be on open standby to reduce the fault infeed to the 132kV substation and for an unplanned outage on another SGT, the one on open standby will need to be returned to service.	
Programme	July 2024
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1742 V1.0	Cockenzie load management scheme (Cat 2)
OVERVIEW OF WORKS An overload protection scheme is proposed to be installed within the Cockenzie – Smeaton – Kaimes – Eccles 275kV and 400kV network in order to protect the system in compliant with Category 2 Intertripping Scheme as defined by the Grid Code. The intertripping scheme will disconnect the generation within the area following system outage conditions as defined in Section 2.1.	
Programme	Under Review
Progress	Design SCA drafted. Consenting N/A Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1745 V2.2	Kincardine to Fife Grid 275kV switchgear and cable works
OVERVIEW OF WORKS To facilitate the connection of contracted generation from SPT's Fife Grid Services Facilities 275kV substation to Kincardine 275kV substation, it is proposed to install a new 275kV busbar, associated metering circuit breakers and disconnectors with approximately 0.9km of 275kV underground cable circuit to Kincardine (KINC) 275kV substation. At Kincardine (KINC) 275kV substation, a new 275kV GIS bay will be installed, associated disconnectors and one 275kV line isolator.	
Programme	Connection date July 2025
Progress	Design Design ongoing. Intrusive surveys for cable route planned to start Q3 2023 now that 275kV cable corridor established. Consenting S36 granted to Developer/s Jan 2022. External stakeholder consultation & compliance for design layout changes with regards planning consent by Developer/s ongoing. SPEN lease agreement consultation ongoing with landowner for collector site. Necessary Wayleave (NWL) process required for 275kV cable route. Voluntary route agreement unsuccessful. NWL expected to be established July 24. Detailed Engineering Still to be commenced. Tendering GIS tendering commenced. Award expected Q4 2023. Construction Still to be commenced. Commissioning/Close Out Still to be commenced. Link to related info *Project link TBA.*

SPT-RI-1791 V1.1	Cockenzie to Eccles (ZA route) uprating
OVERVIEW OF WORKS The project will uprate the 400kV double circuit between Cockenzie 400kV substation and Eccles 400kV substation from twin Totara to triple Totara operating at 90℃.	
Programme	October 2032
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1795 V1.1	North East Scotland to North West England
OVERVIEW OF WORKS To facilitate additional power flow over the B6 boundary between Scotland and England, given the growing level of renewable generation connecting in Scotland, this project will construct a new 400kV double circuit over the boundary from the South East of Scotland and the North West of England. Further development of the circuit landing points will be assessed, but for study and costing purposed, the existing substations Eccles in the SPT area and Harker in the NGET area has been assumed. The new towers will be of L12 construction, conductored with twin Araucaria.	
Programme	October 2033
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1796 V2.4	Cousland 400kV GIS Substation
OVERVIEW OF WORKS A new 400kV double busbar substation, utilising Gas Insulated Switchgear (GIS), will be established south of Cockenzie in the Cousland area in the vicinity of the Torness/Fallago to Smeaton/Wishaw 400kV double circuit (ZS route) and Cockenzie to Eccles 400kV double circuit (ZA Route) crossing. Both the ZA and the ZS routes will be turned into the new substation. The substation known for the purposes of this TO Reinforcement Instruction as Cousland 400kV Substation', and associated plant and apparatus, will provide a node for the connection of onshore and offshore developments in the east Lothian area.	
Programme	October 2033
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1797 V1.0	Strathaven to Elvanfoot 400kV Reinforcement
OVERVIEW OF WORKS Due to the increased level of generation connecting on to ZV Route it is necessary to thermally uprate the Strathaven to Elvanfoot 400kV OHL circuits (STHA-COAL, COAL-REDS, REDS-ELVA and STHA-REDS, REDS-ELVA). It is proposed to reconductor the double circuit with twin ACCR “Curlew HTLS” conductor operating at 190℃.	
Programme	October 2030
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-1851 V2.0	Benbrack 132kV OHL & SS Works
OVERVIEW OF WORKS A new collector substation will be established at Benbrack wind farm with a 132/33kV 120MVA transformer. An overhead line (Poplar 124MVA) will tee into the New Cumnock – Blackcraig – Glenlee 132kV circuit.	
Programme	Under Review
Progress	Design Detailed design work has been received from external design house. OHL design based on new substation platform position Consenting S37 being finalised. Detailed Engineering Civil and BoP Detailed Engineering complete Tendering OHL, Civil and P&C Tender issued to market. SCIS and Battery tender to follow. Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1854 V2.4	Kilmarnock South 400kV GIS Bus Coupler
OVERVIEW OF WORKS At Kilmarnock South 400kV GIS substation install a bus coupler to run the substation in double busbar arrangements.	
Programme	August 2025
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1857 V1.0	Hunterston East to Highview Hunterston 400kV Switchgear and Cable Works
OVERVIEW OF WORKS To facilitate the connection of the Highview Hunterston East Cryobattery and the Hunterston Synchronous Compensator at Hunterston East 400kV GIS substation, it is proposed to extend the GIS double busbar and install a new 400kV switchbay, install approximately 400m of 400kV underground cable from the Hunterston East 400kV GIS substation to a new SPT substation (Highview Hunterston East Cryobattery 400kV substation). Mod App applied to project for April 2008 connection, acceptance due March 2023	
Programme	Connection date under review pending acceptance of Mod App
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1870 V1.0	Lesmahagow GSP Overload Protection Scheme
OVERVIEW OF WORKS Installation of an overload protection scheme to be installed at Lesmahagow 132/33kV substation to monitor GT1 and GT2. In the event that either unit is out of service and the remaining in-service unit is reaching its thermal capacity a trip signal should be sent to the User to remove Little Gala WF. The scheme will operate with the following principles:	
Programme	October 2027
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1873 V1.0	Eastern HVDC Link 2
OVERVIEW OF WORKS Installation of a 2 GW HVDC subsea link between the East Lothian area in South East Scotland, and the South Humber area in North East England. Complete associated AC onshore reinforcement works at both terminals. These works are subject to NOA process, scope, costs and program are subject to review and change.	
Programme	October 2031
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-1876 V2.1	Elvanfoot Grid Transformer
OVERVIEW OF WORKS A new 90MVA transformer shall be installed at Elvanfoot substation. This will create a new 132kV busbar at Elvanfoot, to allow new generators to connect.	
Programme	Completion: December 2024
Progress	Design Design in progress Consenting Planning Application submitted to local council and conditions in process of being discharged Detailed Engineering Commenced Tendering Transformer order placed. Tendering for Civil and BoP Works ongoing Construction Enabling works commenced August 2023 Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-1968 V2.0	Neilston 275kV Uprating to 40kA
OVERVIEW OF WORKS The assessment and uprating works required to uprate Neilston 275kV from 31.5kA to 40kA.	
Programme	May 2027
Progress	Design Design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Tendering underway for Fault Level Surveying Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-2058 V2.4	Coalburn North 400kV SS
OVERVIEW OF WORKS It is proposed to construct a new 400kV substation, indicatively called Coalburn North, to connect into the Strathaven-Elvanfoot 400kV circuit. It is proposed to construct a new 400kV double busbar substation with a bus coupler circuit breaker, two feeder bays to connect onto the Strathaven-Elvanfoot 400kV circuit	
Programme	June 2026
Progress	Design Early engineering design ongoing Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2060 V2.0	Redshaw 400kV Substation

OVERVIEW OF WORKS

Due to increased generation in the local and wider areas in South Lanarkshire the requirement has been triggered for the creation of a new 400kV substation connecting into ZV Route. This will tie into the Strathaven and Coalburn circuits coming from the north, the two Elvanfoot circuits heading south and the new double circuit coming across from Glenmuckloch under SPT-RI-236.
It is proposed to build a new 400kV GIS substation, building to be sized to accommodate 15 bays. The initial GIS installed to include the following:

- • 6x 400kV feeder bays: 2x ELVA, 1x STHA, 1x COAL, 2x Glenmuckloch
- • 1x 400kV bus coupler
- • 1x 400kV bus section
- • 2x 400kV SGT bays (SGT2 not proposed but 400kV GIS bay to be installed as part of the initial build)
- • Space to be included within the building to accommodate a future bus section, future SGT3 and SGT4 400kV GIS bays and 2x future 400kV GIS feeder bays
- • Installation of a single 400/132kV 360MVA (SGT1) unit at this time

Programme	October 2027
Progress	Design Pre-Engineering Survey under progress. Consenting Consenting requirements under review Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2061 V2.0	Redshaw 132kV Substation
OVERVIEW OF WORKS It is proposed as part of these works to create a new 132kV substation connecting into the Redshaw 400kV substation to be constructed under SPT-RI-2060. This 132kV substation will establish a collector substation in this area. It is proposed to build a new 132kV AIS substation, building to be sized to accommodate 18 bays. The initial GIS installed to include the following: • • 1 x 400kV feeder bay connecting into Redshaw 400kV S/S • • 1 x 400/132kV 360MVA transformer (SGT1) • • 1 x 132kV transformer feeder bay • • 1 x 132kV bus coupler • • 1 x 132kV bus section • • 2 x 132kV feeder bay for local connection (covered under separate contract) • • Space to be included within the building to accommodate a future bus section and bus coupler, future SGT2, SGT3 and SGT4 132kV GIS bays and up to 9 future feeder bays	
Programme	October 2027
Progress	Design Pre-Engineering Survey under progress. Consenting Consenting requirements being reviewed Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2073 V1.1	TKUP Longannet - Tealing 400kV
OVERVIEW OF WORKS Establish further 400kV infrastructure on the east coast following the East Coast 400kV onshore incremental (ECUP) reinforcement, Eastern HVDC link from Peterhead (E4DC/D2/D3) and from Torness (E2DC/D2/D3). The scope of this TORI is, at this time, aligned with the 'TKUP' option submitted to the 2021/22 Network Options Assessment (NOA) process. It is proposed to uprate and reconductor existing 275kV double circuit infrastructure south of the existing SHE Transmission/ SP Transmission boundary via Glenrothes, Westfield and Mossmorran to 400kV operation. Further scope covers uprating of Westfield and Mossmorran Substation to 400 kV and a new 400 kV Substation at Glenrothes area.	
Programme	October 2030
Progress	Design Early design works in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2083 V1.0	DWUP Kincardine North to Wishaw 400kV reinforcement
OVERVIEW OF WORKS Establish 400kV infrastructure through the centre of the network following the East Coast 400kV onshore incremental (ECUP) and the Kincardine North 400kV reinforcement projects, but in advance of the completion of the Denny to Wishaw 400kV reinforcement (DWNO). The scope of this TORI will be aligned with the 'DWUP' MSIP submitted to Ofgem in January 2023. It is proposed to reconfigure and update existing 275kV single circuit between the Kincardine and Clydesmill to 400kV operation, construct a new 400kV Substation at Clydesmill and to establish a new Kincardine North – Clydesmill 400kV circuit.	
Programme	October 2027
Progress	Design Early Engineering Design complete Consenting Identification of impacted landowners underway. Environmental surveys have commenced and are progressing. Detailed Engineering Detailed engineering has begun Tendering Tendering activities have begun Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2084 V1.0	LCU2 Eastern B5 400kV Reinforcement
OVERVIEW OF WORKS Establish an eastern 400kV corridor over the B5 transmission system boundary to accommodate the increasing generation connecting in the north of Scotland, following the East Coast 400kV onshore incremental (ECUP) reinforcement, East Coast Onshore 400kV Phase 2 Reinforcement (TKUP), Eastern HVDC link from Peterhead (E4DC/D2/D3) and from Torness (E2DC/D2/D3). The scope of this TORI is, at this time, aligned with the 'LCU2' option submitted to the 2021/22 Network Options Assessment (NOA) process. It is proposed to uprate and reconductor a 400kV single circuit corridor south from new 400 kV Kincardine North SS, on existing OHL routes, towards the Strathaven - Smeaton (XH/XJ route) corridor west of Edinburgh and Currie substation.	
Programme	October 2031
Progress	Design Early design works in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2085 V1.0	DLUP Windyhill – Lambhill – Denny North 400kV reinforcement
OVERVIEW OF WORKS Establish 400kV infrastructure on from Denny North following the East Coast 400kV onshore incremental (ECUP) reinforcement, Eastern HVDC link from Peterhead (E4DC/D2/D3) and from Torness (E2DC/D2/D3). The scope of this TORI is, at this time, aligned with the 'DLUP' option submitted to the 2021/22 Network Options Assessment (NOA) process. The project will establish a new 400kV substation at Windyhill and a 400kV single circuit corridor, on existing OHL routes, between Windyhill, Lambhill and Denny North SS.	
Programme	October 2029
Progress	Design Early design works in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2094 V1.2	Quantans Hill to Holmhill 132kV Circuit

OVERVIEW OF WORKS

At the proposed Quantans Hill wind farm site establish a 132kV substation and establish a 132kV busbar to which a 132kV line isolator is connected. Install around 6km of wood pole overhead line with HTLS conductor to connect Quantans Hill substation to Holmhill substation. At Holmhill substation install a 132kV circuit breaker to connect the OHL.
The rating of the circuit will be as follows:

	Winter		Autumn		Summer	
	Amps	MVA	Amps	MVA	Amps	MVA
Pre-Fault Continuous	1040	237	1020	234	995	227
Post-Fault Continuous	1240	285	1220	280	1180	270

Programme	October 2027
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2132 V1.3	Broxburn GSP 132/33kV Grid T1 & T2 (LMS)
OVERVIEW OF WORKS A Load Management Scheme (LMS) is required at Broxburn 132/33kV GSP in order to prevent overload conditions on the single transformer when the other transformer is out of service. The overload will be removed by the LMS tripping the appropriate non-firm connections. There are DNO (SPD) works that are required to be complete in addition to the SP Transmission works noted above.	
Programme	April 2024
Progress	Design Complete Consenting Not Applicable Detailed Engineering Commenced Tendering Commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2148 V2.2	Windyhill SGT Auto-Close Scheme
OVERVIEW OF WORKS It is required to install an auto-close scheme across the three 275/132kV supergrid transformers at Windyhill 132kV substation. This is because an SGT will need to sit on open standby to maintain the fault level rating on the switchgear. This auto-close scheme shall close back in the open standby transformer following the loss of an in-service unit. It is proposed to run SGT3 on open standby and for the loss/opening of SGT1 (CB1380) or SGT2 (CB1480) an instruction shall be issued to close the SGT3 circuit breaker (CB1080) in order to keep two SGTs in service at all times.	
Programme	July 2024
Progress	Design Ongoing feasibility design Consenting Not required Detailed Engineering Early Engineering Design Phase Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2159 V1.0	Hopsrig substation Grid T1A transformer
OVERVIEW OF WORKS**A new 60MVA transformer will be installed as part of the new Hopsrig Collector Sub Station.** Establish a 132kV connection by installing a new 132kV line disconnector. Install a new 132/33kV 60MVA transformer and a new 33kV busbar.	
Programme	November 2026
Progress	Design Preliminary Civil Design ongoing. Basic Main Plant layout has been developed for the collector substation. Consenting Planning application confirmed as Non-EIA, application submitted January 2022 and approved in March 2023 Detailed Engineering Designs are underway Tendering Some tendering has progressed Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI- 2389 V1.0	CZ2A Route Tower
OVERVIEW OF WORKS To facilitate the connection of generation into No.2 side of the CZ Route. The scope of work entails construction of a new tower (CZ2A) only.	
Programme	13 April 2029
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/lorg_longburn_wind_farms.aspx

SPT-RI-2317 V1.2	Dalmally to Windyhill Reinforcement
OVERVIEW OF WORKS **To accommodate additional generation on the Cruachan – Windyhill 275kV network, as well as the addition of Creag Dhubh 275kV substation (to be constructed by SHETL), it is proposed to uprate the existing overhead line circuits No.1 and No.2 between Dalmally and Windyhill 275kV substations from twin Totara operating at 50°C to 90°C as a minimum.**	
Programme	Completion - June 2027
Progress	Design Early Design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-2321 V1.1	Cruachan to Dalmally 275kV OHL Circuit Uprate
OVERVIEW OF WORKS To accommodate additional generation at Cruachan 275kV substation, it is proposed to uprate the existing overhead line circuits No.1 and No.2 from Cruachan to Dalmally 275kV substation from twin Totara operating at 39°C to 50°C as a minimum.	
Programme	Completion – June 2027
Progress	Design Early Design in progress Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-2454 V1.2	Currie-Broxburn Second Intertrip

OVERVIEW OF WORKS

Currently there is no main protection at Broxburn-Currie and the current protection arrangement at Broxburn/Currie is out with the current policy document (PROT-01-107). Furthermore, as the generation at Broxburn exceeds that of 50% of one grid transformer (45MVA) there is a need to install a second intertrip.

Works include the following:

- Installation of a second intertrip at Broxburn and Currie
- Removal of LVDOC at Broxburn

Programme	April 2024
Progress	Design Complete Consenting Not Applicable Detailed Engineering Commenced Tendering Commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2621 V1.1	Redhouse Overload Protection Scheme GT1 (3)
OVERVIEW OF WORKS The implementation of a load management scheme to be established at Redhouse 132/33kV GSP, to remove overload by tripping appropriate non-firm connections.	
Programme	October 2027
Progress	Design Commenced Consenting Not required Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-2622 V1.0	Westfield GT1(2) Overload Protection Scheme
OVERVIEW OF WORKS The implementation of a load management scheme to be established at Redhouse 132/33kV GSP, to remove overload by tripping appropriate non-firm connections.	
Programme	April 2025
Progress	Design Commenced Consenting Not required Detailed Engineering Commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SPT-RI-2828 V1.0	Broxburn GSP Loss of Mains Signals

OVERVIEW OF WORKS

To protect against islanding of the SPD system with Almondell Lodge BESS & Development still connected to it there is a requirement to monitor the 33kV circuit breaker position of both GT1 and GT2 (Line End Open - LEO). For the opening of the 33kV circuit breakers SPD will be sent a trip signal to trip SPD embedded generation.

Works will include the following:

- Monitor 33kV circuit breaker position of GT1 and GT2 at Broxburn 132/33kV
- For opening of the 33kV circuit breakers SPD will be sent a trip signal to trip SPD embedded generation

Programme	April 2024
Progress	Design Complete Consenting Not Applicable Detailed Engineering Commenced Tendering Commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SP ENERGY NETWORKS

SPT-RI-2832 V1.0	New Hunterston East 132kV GIS Substation
OVERVIEW OF WORKS	
Programme	Completion: - Under Review
Progress	Design & Consenting Ongoing Detailed Engineering Ongoing Tendering Ongoing 132kV switchboard tender complete. Construction Not started. Link to related info

SPT-RI-2243 V2.0	Glenshimmeroch 132/33kV SS Transformer
OVERVIEW OF WORKS To accommodate the connections at the proposed Glenshimmeroch collector substation (SPT-RI-274), a new 132/33kV 120MVA transformer will be installed, together with a new 33kV busbar.	
Programme	July 2027
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2625 V1.1	Windyhill 275kV Fault Level Uprating
OVERVIEW OF WORKS To allow additional generation connection in the area, the short circuit rating of Windyhill 275kV, post completion of the Windyhill 275kV Substation Modernisation, is required ensure specification of 40kA. It is anticipated that this will include the survey assessment and uprating where necessary of equipment and structures associated with the MSCDN bay to withstand a fault current of 40kA.	
Programme	September 2027
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info https://www.spenergynetworks.co.uk/pages/network_reinforcement_and_modernisation.aspx

SPT-RI-2905 V1.0	Mossmorran, Glenniston, Westfield, Redhouse 132kV Circuits LMS
OVERVIEW OF WORKS The implementation of a load management scheme at Mossmorran 132kV substation GSP.	
Programme	October 2026
Progress	Design Still to be commenced Consenting Still to be commenced Detailed Engineering Still to be commenced Tendering Still to be commenced Construction Still to be commenced Commissioning/Close Out Still to be commenced Link to related info

SP ENERGY NETWORKS