Transmission Owner Reinforcement Instruction (TORI) Quarterly Update Report October to December



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





Contents

| SPI-RI-003 - Denny-Stratnaven 400kv Reinforcement ENSG Central Scheme | 7 |
|---|------------|
| SPT-RI-004 - Denny-Kincardine 400kV Reinforcement (East Coast Phase 1 Reinforcement and Re-Profiling) | |
| SPT-RI-028 - North Argyll Reinforcement: Dalmally Windyhill 275kV Reconfiguration | 9 |
| SPT-RI-124 - 400kV GIS substation in Torness Area | 11 |
| SPT-RI-126 - East Coast HVDC Link | 12 |
| SPT-RI-130 - Strathaven – Smeaton | 13 |
| SPT-RI-131 - ZT route Overhead Line Uprating Works (Branxton – Eccles) | 14 |
| SPT-RI-143 - Kilmarnock South Transformer Reinforcement | 15 |
| SPT-RI-146 - Maybole to Coylton 132kV Overhead Line Uprating | 16 |
| SPT-RI-151b - Galashiels to Eccles 132kV Overhead Line Rebuilding | 17 |
| SPT-RI-158 - New Cumnock 132kV Substation Extension | 18 |
| SPT-RI-173 - Glenglass Extension and Glenmuckloch Collector | 19 |
| SPT-RI-176 - New Cumnock Overload Protection Scheme | 20 |
| SPT-RI-177 - Glenglass Overload Protection Scheme | 21 |
| SPT-RI-185 - Galashiels to Eccles 132kV Overload Protection Scheme | 22 |
| SPT-RI-191 - Gretna-Ewe Hill 132kV Reinforcement | 23 |
| SPT-RI-198 - Newton Stewart 132kV Substation Works | 24 |
| SPT-RI-200 - East Coast Phase 2 Reinforcement | 25 |
| SPT-RI-204 - Wishaw-Smeaton-Torness-Eccles Overload Protection Scheme | 26 |
| SPT-RI-205 - Arecleoch Ext Tee to Chirmorie/Stranoch Wind Farm 132kV Circuit | 27 |
| SPT-RI-206 - Mark Hill SGT3 240MVA | 28 |
| SPT-RI-211 - Holm Hill Switching Station to Lorg Wind Farm Junction 132kV Circuit | 2 9 |
| SPT-RI-213 - New Cumnock 275/132kV Transformer SGT2B | 30 |
| SPT-RI-214 - ZS Route Overhead Line Uprating Works (Smeaton – Fallago) | 31 |
| SPT-RI-215 - Wishaw 400kV GIS Substation Reconfiguration | 32 |
| SPT-RI-221 - Kendoon to Glenlee 132kV reinforcements | 33 |
| SPT-RI-222 - Glenlee to Tongland 132kV Modernisation | 34 |
| SPT-RI-223 - Glenlee to Newton Stewart Reconductoring | 35 |
| SPT-RI-224 - Coylton SGT1(2) Reinforcement | 36 |
| SPT-RI-226 - 275/132kV Elvanfoot Transformer | 37 |
| SPT-RI-227 - Chapelcross - Harker 132kV Uprating | 38 |



| SPT-RI-229 - Moffat SGT3 | 39 |
|--|----|
| SPT-RI-230 - Gretna to Faw Side WF Tee 132kV Reinforcement | 40 |
| SPT-RI-231 - Elvanfoot to Harker 400kV Circuit Uprating | 41 |
| SPT-RI-232 - Hopsrig Substation Transformer 132-33kV | 42 |
| SPT-RI-233 - Gretna to Jun V 132kV Circuit Reinforcement (AL Route) | 43 |
| SPT-RI-236 - Glenmuckloch to ZV Route Reinforcements | 44 |
| SPT-RI-237 - Enoch Hill Collector 132/33 kV substation and associated 132 kV circuit | 45 |
| SPT-RI-246 - Denny SGT2 | 46 |
| SPT-RI-251 - Coalburn to Douglas North 132kV Cable Reinforcement | 47 |
| SPT-RI-252 - Fife 132kV Fault Level Reinforcement | 48 |
| SPT-RI-260 - Leven GSP GT1(2) OLP Scheme and LMS Outstation | 49 |
| SPT-RI-263 - Coalburn SGT4 | 50 |
| SPT-RI-267 - Eccles 400kV Shunt Compensation | 51 |
| SPT-RI-274 - Glenshimmeroch Collector Substation | 52 |
| SPT-RI-275 - Mark Hill 132kV Bus | 53 |
| SPT-RI-282 - Markhill SGT4 | 54 |
| SPT-RI-284 - GEMS | 55 |
| SPT-RI-286 - Bonnybridge SGT1(2) Auto Changeover Scheme | 56 |
| SPT-RI-288 - Hawick - Galashiels 132kV Reconfiguration | 57 |
| SPT-RI-292 - Lorg to Shepherds Rig tee | 58 |
| SPT-RI-293 - Carrick 275kV substation | 59 |
| SPT-RI-294 - Ewe Hill – Hopsrig collector substations 132kV circuit | 60 |
| SPT-RI-295 - Newton Stewart GSP GT1(2) OLP & LMS | 61 |
| SPT-RI-296 - Glenshimmeroch Collector Substation 132kV OHL Uprating | 62 |
| SPT-RI-298 - Chapelcross to Gretna OHL Reinforcement | 63 |
| SPT-RI-300 - Douglas North Collector 132/33kV Transformer | 64 |
| SPT-RI-301 - Mark Hill to Arecleoch Ext Tee 132kV Circuit | 65 |
| SPT-RI-302 - Glenglass 132kV substation | 66 |
| SPT-RI-306 - Moffat 132kV Fault Level Mitigation Bus Section Circuit Breaker | 67 |
| SPT-RI-1507 - Holmhill 132kV Substation | 68 |
| SPT-RI-1551 - Spango Valley GSP GT1(2) | 69 |
| SPT-RI-1560 - Denny-Braco West Uprating | 70 |
| SPT-RI-1566 - Hunterston East to Ayrshire 400kV Switchgear/Cable | 71 |
| SPT-RI-1659 - Bathgate to Bonnybridge 132kV No.1 and No.2 Cable Uprating | 72 |



| SPT-RI-1741 - Neilston Supergrid Transformers Auto Changeover Scheme | 73 |
|---|-----|
| SPT-RI-1742 - Cockenzie load management scheme (Cat 2) | 74 |
| SPT-RI-1745 - Kincardine to Fife Grid 275kV switchgear and cable works | 75 |
| SPT-RI-1791 – Cockenzie to Eccles (ZA Route) Uprating | 76 |
| SPT-RI-1796 - Cousland 400kV GIS Substation | 77 |
| SPT-RI-1851 - Benbrack 132kV OHL & SS Works | 78 |
| SPT-RI-1854 - Kilmarnock South 400kV GIS Bus Coupler | 79 |
| SPT-RI-1857 - Hunterston East to Highview Hunterston 400kV Switchgear and Cable | |
| SPT-RI-1876 - Elvanfoot Grid Transformer | 81 |
| SPT-RI-1968 - Neilston 275kV Uprating to 40kA | 82 |
| SPT-RI-2058 - Coalburn North 400kV SS | 83 |
| SPT-RI 2060, SPT-RI-2061, SPT-RI-2139, SPT-RI-3060 - Redshaw 400kV and 132kV Substation, Redshaw 400/132kV SGT2 Redshaw 132kV "B" Board & | 84 |
| SPT-RI-2073 - TKUP Longannet - Tealing 400kV | 85 |
| SPT-RI-2079 - Gala North 400kV Substation | 86 |
| SPT-RI-2080 - Gala North 132kV Substation | 87 |
| (Previously Dunlaw Extension to Gala Reinforcements) | 87 |
| SPT-RI-2083 - DWUP Kincardine North to Wishaw 400kV reinforcement | 88 |
| SPT-RI-2084 - LCU2 Eastern B5 400kV Reinforcement | 89 |
| SPT-RI-2085 - DLUP Windyhill - Lambhill - Denny North 400kV reinforcement | 90 |
| SPT-RI-2094 - Quantans Hill to Holm Hill 132kV Circuit | 91 |
| SPT-RI-2095 - Kincardine North 400kV Substation | 92 |
| SPT-RI-2132 - Broxburn GSP 132/33kV Grid T1 & T2 (LMS) | 93 |
| SPT-RI-2148 - Windyhill SGT Auto-Close Scheme | 94 |
| SPT-RI-2153 – Hawick 132/33kV GSP Grid T1 LMS | 95 |
| SPT-RI-2159 - Hopsrig substation Grid T1A transformer | 96 |
| SPT-RI-2164 - Whiteminhill to Mark Hill 275kV circuit | 97 |
| SPT-RI-2243 - Glenshimmeroch 132/33kV SS Transformer | 98 |
| SPT-RI-2249 - Kilmarnock South 275kV Fault Level Uprating | 99 |
| SPT-RI-2275 - Glenrothes GSP SGT1(2) LMS | 100 |
| SPT-RI-2301 - New Cumnock-Clawfin Collector | 101 |
| SPT-RI-2311 - G Route Modernisation | 102 |
| SPT-RI-2317 - Dalmally to Windyhill Reinforcement | 103 |



| SPT-RI-2320 - ZV Route Extension to Wyseby 400kV Substation | |
|---|-----|
| SPT-RI-2321 - Cruachan to Dalmally 275kV OHL Circuit Uprate | 105 |
| SPT-RI-2447 - Westfield 132kV GIS Substation | 106 |
| SPT-RI-2454 - Currie-Broxburn Second Intertrip | 107 |
| SPT-RI-2510 - Saltcoats A GT OLP | 108 |
| SPT-RI-2511 - Dalmarnock Loss of Main TORO 2511 | 109 |
| SPT-RI-2537 - Strathaven 400kV Compound Extension | 110 |
| SPT-RI-2608 - Mossmorran 132 to Halbeath Tee Uprating | 111 |
| SPT-RI-2621 - Redhouse Overload Protection Scheme GT1 (3) | 112 |
| SPT-RI-2622 - Westfield GT1(2) Overload Protection Scheme | 113 |
| SPT-RI-2691 - Windyhill, Strathleven, Helensburgh, Sloy Load Management Scheme | 114 |
| SPT-RI-2709 - CE Route Reconductoring and KILW-HUER Cable Replacement | 115 |
| SPT-RI-2710 - BU Route OHL Reconductor | 116 |
| SPT-RI-2732 - Busbar Extension and XZ032 Terminal Tower Modifications | 117 |
| SPT-RI-2792 - Glenmuckloch to Lethans Collector 132kV Circuit | 118 |
| SPT-RI-2814 - Devonside 132kV GIS Substation | 119 |
| SPT-RI-2815 - Denny North 275/132kV Super Grid Transformer | 120 |
| SPT-RI-2825 - Kelloe Mains 400kV Substation | 121 |
| SPT-RI-2826 - Hagshaw Tee to Bankend Rig III Collector Substation | 122 |
| SPT-RI-2827 - Redshaw to Hagshaw Tee 132kV Circuit | 123 |
| SPT-RI-2828 - Broxburn GSP Loss of Mains Signals | 124 |
| SPT-RI-2832 - New Hunterston East 132kV GIS Substation | 125 |
| SPT-RI-2833 - Devol Moor 400kV GIS substation | 126 |
| SPT-RI-2905 - Mossmorran, Glenniston, Westfield, Redhouse 132kV Circuits LMS | 127 |
| SPT-RI-2907 - Meadowmill 400/132kV substation | 128 |
| SPT-RI-2963 – Branxton to Eccles Further Uprating | 129 |
| SPT-RI-2973 - Springfield Collector 400kV Circuit and 400/132kV SGT | 130 |
| SPT-RI-3002 - Harburn 400kV Substation | 131 |
| SPT-RI-3052 - CE Route No.2 Circuit Reconductoring and HUNE-SACO-KILW Cable Replacement | 132 |
| SPT-RI-3062- Coylton to Maybole 132kV Circuit Uprating | 133 |
| SPT-RI-3063 - Coylton SGT3 and 132kV Circuit Breakers | 134 |
| SPT-RI-3102 - Glenglass to Cloud Hill 132kV circuit | 135 |
| SPT-RI-3122 – Glenlee to Tongland OHL tower & associated works | 136 |



| SPT-RI-3148 - Branxton BESS Collector Substation | 137 |
|---|-----|
| SPT-RI-3185 - KILW-HUNF-HUNE No.2 Cable Replacement | 138 |
| SPT-RI-3189 - Clyde South to Whitelaw Brae 33kV Works | 139 |
| SPT-RI-3232 – Bankhead 400kV substation and 400kV OHL works | 140 |
| SPT-RI-3239 - BU Route Tower Modifications | 141 |
| SPT-RI-3263 – Erskine 132kV Bus Section Circuit Breaker | 142 |
| SPT-RI-3314 - Windyhill 132kV B Board | 143 |
| SPT-RI-3321 – Coalburn – Coalburn North Interconnector | 144 |
| SPT-RI-3345 – Torness-Innerwick-Dunbar 132kV Cable Replacement | 145 |
| SPT-RI-3406 Blacklaw 400kV Collector Substation | 146 |
| SPT-RI-3489 - Giffordland 400/132kV DBB Substation and OHL Works | 147 |
| SPT-RI-3533 Maybole to Craginmoddie Tee 132kV OHL | 148 |
| SPT-RI-3534 – Braehead Park Switchgear and YB Route Works | 149 |
| SPT-RI-3547 – Redshaw 132kV to Glentaggart/Hare Craig | 150 |
| SPT-RI-3565 Devol Moor – Auchentiber 400kV OHL and substation works | 151 |
| SPT-RI-3660 – Eccles 132kV Fault Level Mitigation | 152 |
| SPT-RI-3661 – Grange Burn 275kV Substation | 153 |
| SPT-RI-3736 - Coldstream 132kV Collector Substation | 15/ |





V2.6

<u>SPT-RI-003 - Denny-Strathaven 400kV Reinforcement ENSG Central</u> Scheme

OVERVIEW OF WORKS

The construction of a new 400kV double circuit overhead line route between the existing Bonnybridge Substation in the north and the XX Route near Glenmavis in the south, one side of which will operate at 400kV, the other at 275kV. This will establish a fourth north to south double circuit overhead line route across Boundary B5.

Thermal and voltage uprating of the ZG, XX and XR Routes will be caried out by the replacement of the existing 1965 vintage twin Zebra ACSR overhead line conductor systems with a modern conductor system.

This project will establish the following circuits: Kincardine North – Bonnybridge 400kV; Bonnybridge – Wishaw 400kV; Kincardine – Cumbernauld 275kV; and Cumbernauld – Easterhouse/ Newarthill 275kV. he Kincardine North – Clyde's Mill 400kV and Kincardine – Easterhouse 275kV circuits, established as part of the Kincardine – Wishaw (Clyde's Mill) 400kV Reinforcement (NOA ref. DWUP), will be turned into Denny North, to form Denny North – Clyde's Mill and Denny North – Easterhouse 275kV circuits.

Associated substation works will include the establishment of Bonnybridge 400/132kV Substation and Cumbernauld 275kV Grid Supply Point. It will also include the extension of the existing Wishaw 400kV GIS Substation to allow the turn in of the existing Strathaven – Torness 400kV circuit, forming Strathaven – Wishaw No.2 and Wishaw – Torness (Branxton) 400kV circuits.

This project is classed as an Accelerated Strategic Transmission Investment (ASTI) Project.

| Programme | Completion: - October 2030 |
|-----------|--|
| Progress | Design: |
| | Early engineering design complete, detailed design ongoing. |
| | Consenting: |
| | Overhead line routing underway, potential route corridor being re-confirmed following scope changes. First round of public consultations completed in June 2021. Routing and environmental survey works ongoing. |
| | Detailed Engineering: |
| | Still to commence |
| | Tendering: |
| | Communications Consultant contract awarded. |
| | Further tendering still to commence |
| | Construction: |
| | Still to commence |
| | Commissioning/Close Out: |
| | Still to commence |
| | : |



V2.4

SPT-RI-004 - 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: • Complete |
| | Tendering: |



V2.12

<u>SPT-RI-028 - North Argyll Reinforcement: Dalmally Windyhill 275kV</u> <u>Reconfiguration</u>

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 - Under Review
- 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: Under Review



| of 1 Torki Quarterly Report Q3 2024 |
|-------------------------------------|
| Scope 3: - Not commenced. |
| Link to related info: |



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 2028 |
|-----------|--|
| Progress | Design: Earthworks construction design complete. Detailed GIS layout finalised with GIS Supplier. |
| | Consenting: Planning application submitted and details of the scheme under review by the local authority and statutory consultees Determination date TBC. |
| | Detailed Engineering: Enabling- access and earthworks detailed design complete Substation civil and building design ongoing. |
| | Tendering: GIS Supply and Install Contract awarded Q4 2023. Enabling package awarded |
| | Construction: Still to be commenced, anticipated Q1 2025 pending planning determination and discharge of conditions GIS Manufacturing started. |
| | Commissioning/Close Out: Still to be commenced. Commissioning phase scheduled - Under Review |
| | Link to related info: |



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.

| Programme | Completion: - December 2027 (trial operation thereafter) Completion: - April 2029 |
|-----------|---|
| Progress | Design: |
| | Consenting: All consenting applications have been submitted to relevant authorities. Consents for Converter works in NGET area approved. SPT onshore outline planning application; submitted 29th July 2022 has been recommended for approval by ELC, Marine licenses submitted to MMO and MSLOT and under review. 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 2029. |



V2.3 <u>SPT-RI-130 - Strathaven – Smeaton</u>

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 400mm2 ACSR (Zebra) conductor operating at 50oC. The replacement conductor system is subject to ongoing consideration.

These works will not modify the prevailing circuit configuration.

| Completion: - February 2028 |
|---|
| Design: |
| 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 |
| |



<u>V2.3</u> <u>SPT-RI-131 - ZT route Overhead Line Uprating Works (Branxton – Eccles)</u>

OVERVIEW OF WORKS

The overhead line conductor system on the existing 34.3km 400,000 Volt double circuit route from Eccles to the Branxton sealing end compound (ZT route) will be uprated to achieve an increased thermal rating.

The existing ZT 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 90oC.

These works will not modify the prevailing circuit configuration.

| Programme | Completion: - April 2028 |
|-----------|---|
| Progress | Design: • Early Design and Surveys Ongoing |
| | Consenting: • Surveys ongoing |
| | Detailed Engineering: • Still to commence |
| | Tendering: • Still to commence |
| | Construction: • Still to Commence |
| | Commissioning/Close Out: • Still to commence |



V2.2 SPT-RI-143 - Kilmarnock South Transformer Reinforcement

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: - 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. |



V2.0

SPT-RI-146 - 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 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 1600mm2 Al XLPE cable to match the new rating of the overhead line.

Needs case carried out and TORI no longer required.

| Programme | Completion: - Active Termination |
|-----------|----------------------------------|
| Progress | Design: |
| | • N/A |
| | Consenting: |
| | • N/A |
| | Detailed Engineering: |
| | • N/A |
| | Tendering: |
| | • N/A |
| | Construction: |
| | • N/A |
| | Commissioning/Close Out: |
| | • N/A |
| | |



V2.0

SPT-RI-151b - 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 175mm2 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 completed.

Consenting:

- Public consultation took place September 2021
- Environmental scoping report submission to ECU completed
- Working towards submitting S37 Application in 2025

Detailed Engineering:

• Detailed engineering in progress

Tendering:

• Still to commence

Construction:

• Still to commence

Commissioning/Close Out:

Still to commence



V2.6

SPT-RI-158 - 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: $3 \times 275/132$ kV SGT1A, SGT2A and SGT3A 240MVA auto wind transformers, providing a total firm capacity of 720MVA
- Board B: $3 \times 275/132$ kV SGT1B, SGT2B and SGT3B 240MVA auto wind transformers, providing a total firm capacity of 720MVA
- Board C: $2 \times 275/132$ kV 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: - May 2025 |
|-----------|---|
| Progress | Pesign: Revised design carried out for change to Gas Insulated Switchgear (GIS), in order to reduce the platform size and feasibility of enabling works. Also, redesigned 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. |
| | Commissioning/Close Out: • Still to be commenced. |



V2.9

SPT-RI-173 - 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.

| ign: Early Engineering design phase complete. senting: Public Consultation on overhead line route complete. Section 37 consent obtained. Landowner discussions underway. siled Engineering: Underway |
|---|
| senting: Public Consultation on overhead line route complete. Section 37 consent obtained. Landowner discussions underway. |
| Public Consultation on overhead line route complete. Section 37 consent obtained. Landowner discussions underway. |
| Section 37 consent obtained. Landowner discussions underway. **Illed Engineering:** |
| Landowner discussions underway. |
| niled Engineering: |
| |
| • Underway |
| |
| dering: |
| Still to be commenced |
| struction: |
| Still to be commenced |
| nmissioning/Close Out: |
| Still to be commenced |
| 1 |



V2.6 SPT-RI-176 - 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. |



V2.4

SPT-RI-177 - 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 | Completion: 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. Stage 2 Under Review. |



V1.6

<u>SPT-RI-185 - Galashiels to Eccles 132kV Overload Protection</u> <u>Scheme</u>

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: - September 2028 (due to delay in SPT-RI-288 – Hawick – Galashiels 132kV Reconfiguration) |
|-----------|---|
| Progress | Design: |



V2.3 SPT-RI-191 - 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 | | | | |
| | Detailed Engineering: | | | | |
| | In Progress | | | | |
| | 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 - under review. | | | | |
| İ | | | | | |



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. |



V2.3

SPT-RI-200 - 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) overhead line route from 275kV 50oC operation to 400kV 65oC 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: - Under review |
|-----------|--|
| Progress | Design: |
| | Environmental surveys have commenced. Detailed Engineering: Basic engineering nearing completion. Detailed engineering will follow tender process. |
| | Tendering: • Commenced and underway |
| | Construction: |
| | Still to commence |
| | Commissioning/Close Out: • Still to commence |



| V/4 = | SPT-RI-204 - Wishaw-Smeaton-Torness-Eccles Overload Protection |
|-------------|--|
| <u>V1.5</u> | <u>Scheme</u> |

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 Connection.

| Programme | Completion: - November 2024 |
|-----------|--|
| Progress | Design: |
| | Consenting: NA |
| | Detailed Engineering: • Complete. |
| | Tendering: • Complete. |
| | Construction: • In progress. |
| | Commissioning/Close Out: • In progress. |



| <u>V2.7</u> | SPT-RI-205 - Arecleoch Ext Tee to Chirmorie/Stranoch Wind Farm 132kV Circuit |
|-------------|---|
| | OVERVIEW OF WORKS |
| | overhead line will be installed from the Arecleoch Extension wind farm tee to the the junction. The overhead line will use standard Trident with Eagle HTLS conductor which |
| | immer pre-fault continuous rating of 227MVA. |
| Programme | Completion: - October 2026 |
| Progress | Design: |
| | Overview design complete and approved as part of S37 consent |
| | Consenting: |
| | S37 Approved. Pre-Conditions progressing, nearing completion |
| | Detailed Engineering: |
| | In progress with appointed OHL contractor |
| | Tendering: |
| | OHL contract awarded. Tree-felling contract awarded. |
| | Construction: |
| | Pre-construction surveys and planning in progress. |
| | Expect tree-felling and OHL works to commence early Q1 2025. |
| | Commissioning/Close Out: |
| | Still to commence |
| | |



| <u>V2.2</u> | SPT-RI-206 - 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: |



V2.7

<u>SPT-RI-211 - Holm Hill Switching Station to Lorg Wind Farm</u> <u>Junction 132kV Circuit</u>

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: - November 2027 |
|-----------|---|
| Progress | Design: Initial designs completed and progressing to detailed engineering and design. |
| | Consenting: |
| | Consultation on the proposed overhead line route is completed and Section 37 planning application to be submitted imminently. Consultation on the proposed Holm Hill substation currently underway. |
| | Detailed Engineering: |
| | Commenced |
| | Tendering: • Still to be commenced |
| | Construction: |
| | Still to be commenced |
| | Commissioning/Close Out: |
| | Still to be commenced |



| <u>V2.1</u> | SPT-RI-213 - New Cumnock 275/132kV Transformer SGT2B |
|-----------------------------------|--|
| At New Cumnock the 132kV Board | OVERVIEW OF WORKS substation a third 275/132 240MVA transformer will be installed to increase the capacity of B. |
| Programme | Completion: - March 2025 |
| 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 |



V1.0

<u>SPT-RI-214 - ZS Route Overhead Line Uprating Works (Smeaton – Fallago)</u>

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: - Under Review |
|-----------|---|
| 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 |



| <u>V1.0</u> | SPT-RI-215 - 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: - Under Review |
| Progress | Design: |



V2.1

SPT-RI-221 - 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: - Under Review |
|-----------|--|
| Progress | Design: OHL tender design is ongoing. Glenlee elements complete. |
| | 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: Gienlee: |
| | Commissioning / Close Out: • Currently scheduled for August 2026 - delays due to Sec 37 PLI. |



| V2.2 | SPT-RI-222 - 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: Tongland*: 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 TORI221) 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. |



V1.1

SPT-RI-223 - 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 175mm2 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 prefault continuous rating of 250MVA.

| Programme | Completion: - Under Review 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 |



| <u>V1.1</u> | SPT-RI-224 - Coylton SGT1(2) Reinforcement |
|--|---|
| At Coylton substation (on line) with 240MV | OVERVIEW OF WORKS n, the existing SGT1 and SGT2 275/132kV 120MVA Auto-transformers will be replaced 'A units. |
| Programme | Completion: - Construction phase complete 24/03/2023, currently within contractor defects, and liability period. Luddon Construction defects, and liability end date 21/03/2025, Kolektor defects, and liability end date 16/06/2028 |
| Progress | Design: |



| <u>V2.5</u> | SPT-RI-226 - 275/132kV Elvanfoot Transformer |
|-------------|---|
| | OVERVIEW OF WORKS 50MVA transformer shall be installed at Elvanfoot substation. This will create a new anfoot, to allow new generators to connect. |
| Programme | Completion: - Under Review – Provisionally December 2024 |
| Progress | Design: |



V2.1

SPT-RI-227 - 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 Signed off. |
| | Consenting: • S37 Application Underway. |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



| <u>V2.4</u> | SPT-RI-229 - Moffat SGT3 |
|-------------|--|
| | OVERVIEW OF WORKS OMVA transformer, and associated 400kV and 132kV circuit breaker bays, shall be 00/132kV substation to increase the available generation capacity at the 132kV |
| Programme | Completion: - August 2025 |
| Progress | Design: |



| V2.1 SPT-RI-230 - 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 |



| <u>V2.1</u> | SPT-RI-231 - Elvanfoot to Harker 400kV Circuit Uprating |
|-----------------------|---|
| generation connecting | OVERVIEW OF WORKS the 4.4GW North-South boundary transfer over Boundary B6, due to the level of ag on to this interconnector, it is necessary to thermally uprate the Elvanfoot – Harker, via reconductoring with twin Curlew HTLS conductor, operating at 190°C. |
| Programme | Completion: - Under Review Subject to Network Options Assessment (NOA), project did not receive a proceed signal from NOA 5 |
| Progress | Design: |



| OVERVIEW OF WORKS former will be installed at Hopsrig collector substation. This will create a new erators to connect. tion: - Under review |
|--|
| tion: - Under review |
| |
| Some design packages are completed with the rest on hold due to customer waiver and change of connection dates ting: Planning application confirmed as Non-EIA, application submitted January 2022 and approved March 2023 I Engineering: Some design packages are completed with the rest on hold due to customer waiver and change of connection dates ng: On hold due to waiver and change in dates setion: Still to be commenced sesioning/Close Out: Still to be commenced |
| C S |



| <u>V2.2</u> | SPT-RI-233 - 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: - Under review |
|-----------|---|
| 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 |



V2.3 SPT-RI-236 - 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 |



V2.1 SPT-RI-237 - 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: - May 2025 |
|-----------|--|
| Progress | Design: • Early design complete. |
| | Consenting:Wayleaves in place. Planning approved. |
| | Detailed Engineering: • In progress |
| | Tendering: • In progress |
| | Construction: • Commenced and ongoing. |
| | Commissioning/Close Out: Still to commence |



| <u>V2.1</u> | SPT-RI-246 - Denny SGT2 |
|-------------------------|---|
| will be installed. This | OVERVIEW OF WORKS station, a new 1000MVA 400/275kV supergrid transformer and associated circuit breakers is will increase the thermal capacity of Denny North 400kV substation, and across the B4 ethe connection of generation in the SHE Transmission area. |
| Programme | Completion: - March 2025 |
| Progress | Design: |



| V1.2 | SPT-RI-251 - 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 | Completion: - Under Review |
|-----------|--|
| Drograss | Docient |
| Progress | 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. |
| | Construction: |
| | Still to commence. |
| | Commissioning/Close Out: |
| | Still to commence. |



V1.0

SPT-RI-252 - 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 | Completion: - Under review |
|-----------|---|
| Progress | Design: SCA complete. |
| | N/A permitted development |
| | Detailed Engineering: • Nearing completion |
| | Tendering: |
| | Construction: All circuit breakers replaced and main plant works complete. Busbar protection replacement works under way. |
| | Commissioning/Close Out: • Commissioning 85% complete |



V2.2 SPT-RI-260 - 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 | Completion: - 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. |



V1.0 SPT-RI-263 - 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 | Completion: - Under review |
|-----------|----------------------------|
| Progress | Design: |



| <u>V1.0</u> | SPT-RI-267 - Eccles 400kV Shunt Compensation |
|-------------|--|
| | OVERVIEW OF WORKS |
| | to post-fault voltages within statutory limits, the installation of voltage control in the east of quired. As such, dynamic shunt compensation will be installed at Eccles 400kV substation witchgear. |
| Programme | Completion: - 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. |
| | |



V2.6

SPT-RI-274 - Glenshimmeroch Collector Substation

OVERVIEW OF WORKS

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 | Completion: - October 2027 (under review due to KTR delay) |
|-----------|--|
| Progress | Design: In progress |
| | Consenting: |
| | In progress |
| | Detailed Engineering: |
| | In progress |
| | Tendering: • Still to commence. |
| | Construction: |
| | Still to commence. |
| | Commissioning/Close Out: |
| | Still to commence. |
| | |



| <u>V2.2</u> | SPT-RI-275 - Mark Hill 132kV Bus |
|--------------------|--|
| 132kV Board by cou | OVERVIEW OF WORKS ation of the available capacity at Mark Hill substation it is proposed to create a new pling both supergrid transformers SGT2 and SGT3. To achieve this, it is proposed to ection breaker and share the available capacity on both transformers. |
| Programme | Completion: - Under Review |
| Progress | Design: |



| <u>V2.1</u> | SPT-RI-282 - 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 | Completion: - October 2025 | |
| Progress | Design: | |



| <u>V1.4</u> | SPT-RI-284 - GEMS |
|--------------------|---|
| OVERVIEW OF WORKS | |
| The Congration Eve | ort Management Scheme (GEMS) is an active network management system that protects |

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 | Completion: • Stage 1 - Under Review • Stage 2 - May 2025 |
|-----------|---|
| Progress | Design: Functional Design ongoing Consenting: Not applicable. Detailed Engineering: Under Review Tendering: Complete Construction: Still to commence. Commissioning/Close Out: Still to commence. |



| <u>V1.1</u> | SPT-RI-286 - Bonnybridge SGT1(2) Auto Changeover Scheme | | | | |
|------------------|---|--|--|--|--|
| | OVERVIEW OF WORKS | | | | |
| SGT1 will remain | ver scheme will be installed on the Bonnybridge 275/132kV transformer SGT1 such that disconnected but on hot standby in case of a fault on Bonnybridge SGT2, Denny 275/132kV e circuit fault on the Bonnybridge-Westfield 132kV circuits. | | | | |
| Programme | Completion: - Under review | | | | |
| Progress | Design: | | | | |
| J | 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. | | | | |
| | | | | | |



V2.0

SPT-RI-288 - 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 | Completion: - April 2028 |
|-----------|---|
| 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. |



| <u>V2.2</u> | SPT-RI-292 - Lorg to Shepherds Rig tee | | | | |
|---------------------|---|--|--|--|--|
| rating 176MVA) betw | 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. This will form part of the Lorg to Holmhill 132kV overhead line covered under SPT-RI-211 | | | | |
| Programme | Completion: Under Review - Provisionally April 2027 | | | | |
| Progress | Design: | | | | |



| V2.4 | SPT-RI-293 - 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 | Completion: - Under Review |
|-----------|---|
| Progress | Design: |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



V2.2 SPT-RI-294 - 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 | Completion: - Under review | | | | |
|-----------|--|--|--|--|--|
| Progress | Design: | | | | |
| | Some design packages are completed with the rest on hold due to customer waiver and change of connection dates | | | | |
| | Consenting: | | | | |
| | OHL is confirmed as Non-EIA. | | | | |
| | Section 37 application submitted Jan 2022 and granted in April2023. | | | | |
| | Detailed Engineering: | | | | |
| | Some design packages are completed with the rest on hold due to customer waiver and change of connection dates | | | | |
| | Tendering: | | | | |
| | On hold due to waiver and change in dates | | | | |
| | Construction: | | | | |
| | Still to be commenced | | | | |
| | Commissioning/Close Out: | | | | |
| | Still to be commenced | | | | |



| <u>V1.1</u> | SPT-RI-295 - 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 | Completion: - Mar 2026 | | | |
| Progress | Design: | | | |



<u>V2.3</u> <u>SPT-RI-296 - Glenshimmeroch Collector Substation 132kV OHL</u> <u>Uprating</u>

OVERVIEW OF WORKS

Due to an increase in the generation contracted in the area, it is proposed to uprate a section of the overhead line and cable between the proposed Glenshimmeroch collector substation to tee point on the New Cumnock – Kendoon 132kV circuit.

This will involve reconductoring a section of the overhead line between the proposed Glenshimmeroch collector substation and the cable end (at pole 1) on the New Cumnock 132kV circuit, approximately 6.3km, by replacing the existing UPAS conductor with an EAGLE HTLS conductor on the existing wood pole system. Replace the existing cable, ~1km, on the Glenshimmeroch / New Cumnock 132kV circuit with 2000mm2 Cu 132kV cable including cable sealing end if required.

| Programme | Completion: - October 2027 (under review due to KTR delay) |
|-----------|--|
| Progress | Design: |
| _ | In progress |
| | Consenting: |
| | Still to commence. |
| | Detailed Engineering: |
| | Still to commence. |
| | Tendering: |
| | Still to commence. |
| | Construction: |
| | Still to commence. |
| | Commissioning/Close Out: |
| | Still to commence. |



V1.0

SPT-RI-298 - 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 | | 196 | 189 | 176 | |
| Continuous | | | | | |
| Programme | Cor | mpletion: - Oct 2027 | | | |
| Progress | Des | sign: | | | |
| | | Early design in progr | ess. | | |
| | Cor | nsenting: | | | |
| | | Still to be commence | ed | | |
| | Det | ailed Engineering: | | | |
| | | Still to be commence | ed | | |
| | Ten | ndering: | | | |
| | | Still to be commence | ed | | |
| | Cor | nstruction: | | | |
| | | Still to be commence | ed | | |
| | Cor | nmissioning/Close Out: | | | |
| | | Still to be commence | ed | | |
| | | | | | |



V2.0

SPT-RI-300 - 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 | Completion: - October 2024 |
|-----------|---|
| Progress | Design: • Complete |
| | Consenting: No Substation extension required to Douglas North Collector. |
| | Detailed Engineering:VFC Design complete. |
| | Tendering:All tendering and main plant orders complete. |
| | Construction: • Construction works now complete. |
| | Commissioning/Close Out: Outage pending to energise transformer for soak testing then works complete. |



| <u>V2.1</u> | SPT-RI-301 - Mark Hill to Arecleoch Ext Tee 132kV Circuit |
|---------------------|---|
| 0.5 km of undergrou | OVERVIEW OF WORKS substation a 132kV switch bay will be installed. From this a 132kV circuit, consisting of c. and cable and ~7.5km of 132kV overhead line (HTLS 'Eagle' conductor), will be installed to ecleoch Extension wind farm. |
| Programme | Completion: - October 2026 |
| Progress | Design: Overview design complete and approved as part of S37 consent Consenting: S37 Approved. Pre-Conditions progressing, nearing completion Detailed Engineering: In progress with appointed OHL contractor Tendering: OHL contract awarded. Tree-felling contract awarded. Construction: Pre-construction surveys and planning in progress. Expect tree-felling and OHL works to commence early Q1 2025. Commissioning/Close Out: Still to commence |



V1.0 SPT-RI-302 - 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 | Completion: - 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. |
| | Commissioning/Close Out: |
| | Still to commence. |



| <u>V1.1</u> | SPT-RI-306 - Moffat 132kV Fault Level Mitigation Bus Section Circuit |
|-------------|--|
| | <u>Breaker</u> |

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 | Completion: - August 2025 |
|-----------|---------------------------|
| Progress | Design: |
| | In progress |
| | Consenting: |
| | Commenced |
| | Detailed Engineering: |
| | Commenced |
| | Tendering: |
| | Commenced |
| | Construction: |
| | Still to be commenced |
| | Commissioning/Close Out: |
| | Still to be commenced |



| V2.4 | SPT-RI-1507 - 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 | Completion: - April 2027 |
|-----------|--|
| Progress | Design: Initial designs completed and progressing to detailed engineering and design. |
| | Consenting: Consultation on the proposed Holm Hill substation currently underway. Initial consultation completed and second event to be held. |
| | Detailed Engineering: • Commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



| V2.1 | SPT-RI-1551 - Spango Valley GSP G | T1(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 | Completion: - Under Review |
|-----------|-------------------------------------|
| 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 |



| <u>V1.1</u> | SPT-RI-1560 - Denny-Braco West Uprating |
|-------------|--|
| | OVERVIEW OF WORKS ate the existing Denny-Braco West 275kV circuit to 400kV operation by transferring the ht bay in Denny 275kV substation to a new bay in Denny 400kV substation. |
| Programme | Completion: - October 2029 |
| Progress | Design: |



V2.2

SPT-RI-1566 - 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 | Completion: - Under Review |
|-----------|---|
| Progress | Design In Progress |
| | Consenting |
| | Planning granted to developer. |
| | Detailed Engineering |
| | In Progress |
| | Tendering GIS awarded. Cable awarded. Cable Civils awarded. Platform Civils awarded. SICS awarded. |
| | Construction |
| | In Progress |
| | Commissioning/Close Out |
| | Still to be commenced |



| 1/0.4 | SPT-RI-1659 - Bathgate to Bonnybridge 132kV No.1 and No.2 Cable |
|-------------|---|
| <u>V2.1</u> | <u>Uprating</u> |

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 | Completion: - September 2026 |
|-----------|--|
| Progress | Design: |
| | Still to be commenced Commissioning/Close Out: Still to be commenced |



<u>V2.2</u> <u>SPT-RI-1741 - Neilston Supergrid Transformers Auto Changeover Scheme</u>

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 | Completion: - Under Review – Provisionally November 2024 |
|-----------|--|
| Progress | Design: • Complete |
| | Consenting: • N/A |
| | Detailed Engineering: • Complete |
| | Tendering: • Complete |
| | Construction: • Complete |
| | Commissioning/Close Out: • Under way |



| V1.0 SPT-RI-1742 - Cockenzie load management scheme (Cat |
|--|
|--|

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 | Completion: - 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 |



V2.5

<u>SPT-RI-1745 - Kincardine to Fife Grid 275kV switchgear and cable works</u>

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 | Completion: - Under review |
|-----------|---|
| Progress | Design: |
| _ | Design ongoing. |
| | Intrusive surveys for cable route planned to start June 2024 now 275kV cable corridor has been established. |
| | Consenting: |
| | S36 granted to Developer/s |
| | SPEN lease agreement consultation ongoing with landowner for collector substation site. |
| | Necessary Wayleave (NWL) process underway for 275kV cable route. Voluntary route agreement unsuccessful. NWL expected to be established Q4 2024. |
| | Detailed Engineering: |
| | Commenced and ongoing. |
| | Tendering: |
| | GIS contract awarded. |
| | Civils tendering commenced and ongoing. |
| | Construction: |
| | Still to be commenced. |
| | Commissioning/Close Out: |
| | Still to be commenced. |



| SPT-RI-1791 – Cockenzie to Eccles (ZA Route) Uprating |
|--|
| OVERVIEW OF WORKS the 400kV double circuit between Cockenzie 400kV substation and Eccles 400kV btara to triple Totara operating at 90° C. |
| Completion: - October 2032 |
| Design: Still to be commenced Consenting: Still to be commenced Detailed Engineering: Still to be commenced Fendering: Still to be commenced Construction: Still to be commenced Commissioning/Close Out: Still to be commenced |
| |



| V2.4 | SPT-RI-1796 - 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 | Completion: - 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 |
| | |



| <u>V2.1</u> | SPT-RI-1851 - Benbrack 132kV OHL & SS Works |
|-------------|---|
| | OVERVIEW OF WORKS station will be established at Benbrack wind farm with a 132/33kV 120MVA transformer. oplar 124MVA) will tee into the New Cumnock – Blackcraig – Glenlee 132kV circuit. |
| Programme | Completion: - Under review |
| Progress | Design: |



| <u>V2.4</u> | SPT-RI-1854 - Kilmarnock South 400kV GIS Bus Coupler |
|-----------------------------------|---|
| At Kilmarnock South arrangements. | OVERVIEW OF WORKS 400kV GIS substation install a bus coupler to run the substation in double busbar |
| Programme | Completion: - August 2025 |
| Progress | Design: |



V1.0

<u>SPT-RI-1857 - Hunterston East to Highview Hunterston 400kV</u> <u>Switchgear and Cable Works</u>

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, Project Under Waiver.

| Programme | Completion: - Under Review |
|-----------|---|
| 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 |



| <u>V2.2</u> | SPT-RI-1876 - 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: |



| <u>V2.0</u> | SPT-RI-1968 - Neilston 275kV Uprating to 40kA |
|---------------------|---|
| | OVERVIEW OF WORKS |
| 275kV need to incre | ne second Synchronous Compensator at Neilston 400kV the short circuit rating of Neilston ease from current design specification of 31.5kA to 40kA. This will include the assessment necessary of equipment and structures to withstand a fault current of 40kA. |
| Programme | Completion: - May 2027 |
| Progress | Design: |
| J | 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/Class Out |
| | Commissioning/Close Out: • Still to be commenced |
| | |



V2.5

SPT-RI-2058 - 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.

Given the contracted connections into this area the substation will be delivered in two stages:

- Stage 1 will establish the substation and facilitate the earlier connections onto the system.
- Stage 2 will extend the busbar system further to enable connections which are further out in time

| Stage 2 w | vill extend the busbar system further to enable connections which are further out in time. |
|-----------|---|
| Programme | Completion: Stage 1 - August 2027, Stage 2 – October 2031 |
| Progress | Stage 1 Design: Design ongoing Earthworks tender design complete |
| | Consenting: Planning permission was granted September 2024, subject to discharging the conditions |
| | Detailed Engineering: • Detailed engineering in progress |
| | Tendering: • Enabling works tender concluded with contract award Q4 2024 |
| | Construction: • Still to be commenced - target start date February 2025 for enabling works |
| | Commissioning/Close Out: • Still to be commenced |
| | Stage 2 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



V2.0

<u>SPT-RI 2060, SPT-RI-2061, SPT-RI-2139, SPT-RI-3060 - Redshaw</u> <u>400kV and 132kV Substation, Redshaw 400/132kV SGT2</u> <u>Redshaw</u> <u>132kV "B" Board &</u>

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/132kV GIS substation, building to be sized to accommodate bays. The initial GIS installed to include the following:

- New 400kV 23 bay GIS substation
- New 132kV 10 bay GIS "A" 2 x 400/132kV SGTs
- New 132kV 13 bay GIS "B" 2 x 400/132kV SGTs
- ZV Diversion

| Programme | Completion: |
|-----------|--|
| | October 2027 (400kV & 132kV Board A) |
| | October 2028 (132kV Board B) |
| Progress | Design: |
| | Pre-Engineering Survey done. |
| | Platform & drainage design expected completion by Sep-2024. |
| | Consenting: |
| | Consenting requirements under review |
| | Planning application for ZV diversion getting submitted in Aug-2024. |
| | Planning application for SS area expected to be submitted by end of the year. |
| | Detailed Engineering: |
| | Commenced |
| | Tendering: |
| | Transformer order placed. |
| | GIS order expected by end of the year 2024. |
| | Construction: |
| | Construction of ZV diversion expected to start from Sep-2025. |
| | SS earthwork expected to start from Jan-2026. |
| | Commissioning/Close Out: |
| | Still to be commenced |
| | Link to related info: |
| | Redshaw 400kV Substation - SP Energy Networks |



V1.2

SPT-RI-2073 - 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. Reconfiguration of Devonside SS. This configuration will enable the Bonnybridge and Westfield 132kV transmission groups to be run normally split, with Devonside supplied from either group.

| Programme | Completion: - October 2030 |
|-----------|--|
| Progress | Design: • Early design works in progress. |
| | Consenting: |
| | In progress |
| | Detailed Engineering: |
| | Still to be commenced |
| | Tendering: |
| | In progress |
| | Construction: |
| | Still to be commenced |
| | Commissioning/Close Out: |
| | Still to be commenced |



| V2.3 | SPT-RI-2079 - Gala North 400kV Substation |
|------|---|
| | |

OVERVIEW OF WORKS

At an appropriate location around the area between the ZA route and P route, Galashiels North 400kV substation will be established. The substation will be AIS and running in double bus bar arrangement. Achieve connectivity to the 400kV system by turning one side of the ZA route (COCK4-ECCL4 No.2 circuit) to the new substation. The substation should be located and sized to enable future expansion and connectivity to other parts of the system.

| Programme | Completion: - October 2029 |
|-----------|--|
| Progress | Design: Design works in progress. |
| | Consenting: • First public consultation event has been held. On track for planning application. |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



V2.0

<u>SPT-RI-2080 - Gala North 132kV Substation</u> (Previously Dunlaw Extension to Gala Reinforcements)

OVERVIEW OF WORKS

The works in this reinforcement entails the construction of a new 132kV overhead line (OHL) between Dunlaw Extension 132kV substation and Galashiels 132kV substation. The new OHL will be built on L7 steel lattice towers and strung with twin UPAS conductor. The new OHL will be tee-ed to the proposed Galashiels North 400kV substation. At Galashiels North 400kV two 400/132kV 360MVA transformer will be installed to establish connectivity to the new OHL. Two 400kV bay will be added to the 400kV substation to connect the transformers and two 132kV circuit breakers will be installed to connect the transformers to the new OHL.

This reinforcement will facilitate the decommissioning of the P, U and AT routes.

| Programme | Completion: - October 2029 |
|-----------|--|
| Progress | Design: Design works in progress. |
| | Consenting:First public consultation event has been held. On track for S37 application. |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



<u>V1.1</u>

<u>SPT-RI-2083 - DWUP Kincardine North to Wishaw 400kV</u> <u>reinforcement</u>

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 | Completion: - Under Review |
|-----------|---|
| Progress | Design: • Early Engineering Design complete |
| | Consenting: Identification of impacted landowners underway. Environmental surveys have commenced and are progressing. |
| | Detailed Engineering: Basic engineering nearing completion, detailed engineering to follow post tendering. |
| | Tendering: • Tendering activities have begun. |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



V1.0

SPT-RI-2084 - 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 | Completion: - 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 |
| | |



<u>V1.1</u>

<u>SPT-RI-2085 - DLUP Windyhill – Lambhill – Denny North 400kV reinforcement</u>

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 | Completion: - 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 |



| <u>V1.4</u> | SPT-RI-2094 – Quantans Hill to Holm Hill 132kV Circuit | |
|--|--|--|
| OVERVIEW OF WORKS At the proposed Quantans Hill wind farm site establish a 132kV collector substation and establish a 132kV busbar to which a 132kV circuit breaker and associated line isolators are connected. Install around 6km of wood pole overhead line with HTLS conductor and underground cable to connect Quantans Hill collector substation to Holm Hill collector substation. | | |
| Programme | Completion: - July 2029 | |
| Progress | Design: | |



| transfer into and through the senable the decommissioning of | |
|---|---|
| transfer into and through the Senable the decommissioning of the Programme Complete | SPT-RI-2095 - Kincardine North 400kV Substation |
| | OVERVIEW OF WORKS OOKV Substation. The purpose of the project is to facilitate increased power SPT network from renewable developments across the north of Scotland and of Longannet 275kV Substation, which is now approaching end of life. |
| Progress Design | etion: - Under Review |
| Conser Detailer Tender Constru | Early design works in progress nting: Consenting in progress Identification of impacted landowners completed Environmental surveys are in progress d Engineering: Still to be commenced ing: Completed for long lead items Still to be commenced for balance items |



V1.4

SPT-RI-2132 - 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.

| Completion: - Under Review – Provisionally November 2024 |
|--|
| Design: • Complete |
| Consenting: |
| Not Applicable |
| Detailed Engineering: • Complete |
| Tendering: • Complete |
| Construction: |
| Commenced |
| Commissioning/Close Out: • Still to be commenced |
| _ |



V2.3

SPT-RI-2148 - 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 | Completion: - Under Review |
|-----------|---|
| Progress | Design: Ongoing feasibility design |
| | Consenting: • Not required |
| | Detailed Engineering: • Early Engineering Design Phase |
| | Tendering: • Under Review |
| | Construction: • Under Review |
| | Commissioning/Close Out: • Under Review |
| | |



V1.1 <u>SPT-RI-2153 – Hawick 132/33kV GSP Grid T1 LMS</u>

OVERVIEW OF WORKS

A new Load Management Scheme (LMS) is required at Galashiels 132/33kV substation to facilitate the generation connections in the area. The Load Management Scheme will act as an overload protection scheme monitoring the following circuits:

- 1. Galashiels to Eccles No.1 132kV
- 2. Galashiels to Eccles No.2 132kV

The scope of works for this project also includes the modifications to the existing Hawick LMS which will be installed and commissioned in 2024 as part of the Pines Burn windfarm project. The scope of works for TORI 2153 involves modifications to the Hawick LMS where the relay will take current and voltage measurements of the grid transformers at Hawick GSP. In the event of an overload on either transformer, signals shall be sent to SPD to trip the embedded generation subscribed to the LMS. Stirches Solar PV (TOCO 2235) is contracted to connect into Hawick GSP in October 2025 and the existing Hawick LMS will be modified to accommodate the new connection.

| Programme | Completion: - October 2025 |
|-----------|---|
| Progress | Design: • Due to commence in October 2024. |
| | Consenting: |
| | • N/A |
| | Detailed Engineering: |
| | Still be commence. |
| | Tendering: |
| | Still to commence. |
| | Construction: |
| | Still to commence. |
| | Commissioning/Close Out: |
| | Still to commence. |



| <u>V1.1</u> | SPT-RI-2159 - Hopsrig substation Grid T1A transformer |
|---|--|
| Collector Sub Stati Establish a 132kV transformer and a | connection by installing a new 132kV line disconnector. Install a new 132/33kV 60MVA |
| Programme | Completion: - January 2027 |
| Progress | Some design packages are completed with the rest on hold due to customer waiver and change of connection dates |
| | Consenting: OHL is confirmed as Non-EIA. Section 37 application submitted Jan 2022 and granted in April2023. |
| | Detailed Engineering: |
| | Tendering: On hold due to waiver and change in dates |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



V2.1 SPT-RI-2164 - Whiteminhill to Mark Hill 275kV circuit

OVERVIEW OF WORKS

Establish a Whiteminhill Renewable Energy Park Collector substation to accommodate two connections into Mark Hill 275kV. At Mark Hill 275kV substation, install a feeder bay with the associated 275kV circuit breaker and line isolators. From there, install approx. 6km of 275kV UGC to connect Mark Hill 275kV substation to Whiteminhill Energy Park Collector Substation. At Whiteminhill Energy Park Collector Substation, install a single 275kV busbar and one 275kV line isolator.

| Programme | Completion: - October 2030 |
|-----------|---|
| Progress | Design: In progress |
| | Consenting: |
| | In progress |
| | Detailed Engineering: • In progress |
| | Tendering: • Still to be commenced |
| | Construction: |
| | Still to be commenced |
| | Commissioning/Close Out: Still to be commenced |



| <u>V2.0</u> | SPT-RI-2243 - Glenshimmeroch 132/33kV SS Transformer |
|-------------|--|
| | OVERVIEW OF WORKS e connections at the proposed Glenshimmeroch collector substation (SPT-RI-274), a new ransformer will be installed, together with a new 33kV busbar. |
| Programme | Completion: - July 2027 (under review due to KTR delay) |
| Progress | Design: |



V2.1 SPT-RI-2249 - Kilmarnock South 275kV Fault Level Uprating

OVERVIEW OF WORKS

To allow the connection of a battery storage connection at Kilmarnock South 400kV the short circuit rating of Kilmarnock South 275kV needs to be increased from current design specification of 31.5kA to 40kA. This will include the assessment and uprating where necessary of equipment and structures to withstand a fault current of 40kA.

| Programme | Completion: - Under Review – Provisionally March 2025 |
|-----------|--|
| Progress | Design: |
| | Complete |
| | Consenting: |
| | N/A – Permitted Development. |
| | Detailed Engineering: |
| | Valid For Construction Drawings due October. |
| | Tendering |
| | GIS/GIB Contract Awarded |
| | BoP Contract tendering complete and award due October. |
| | Construction: |
| | GIS/GIB civil enabling works now complete. |
| | GIS/GIB Contractor due on site November. |
| | BoP Contractor due on site January 2025. |
| | Commissioning/Close Out: |
| | Still to be commenced |



V1.1

SPT-RI-2275 - Glenrothes GSP SGT1(2) LMS

OVERVIEW OF WORKS

A Load Management Scheme (LMS) is required at Glenrothes 275/33kV 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.

A current and voltage measurement is required on the LV side of each transformer so the direction, as well as magnitude, of the power flow through the transformer can be determined. This SPT LMS will be required to transfer signals to the DNO (SPD).

| Programme | Completion: - October 2025 |
|-----------|----------------------------|
| Progress | Design: |
| | Complete |
| | Consenting: |
| | Complete |
| | Detailed Engineering: |
| | Complete |
| | Tendering: |
| | Complete |
| | Construction: |
| | Complete |
| | Commissioning/Close Out: |
| | In progress |
| | |



| <u>V2.0</u> | SPT-RI-2301 - New Cumnock-Clawfin Collector | |
|-------------|---|--|
| | OVERVIEW OF WORKS pard "A" a new 132kV circuit breaker will be installed with a new 132kV cable circuit out to be be betation. The cable circuit shall require a capacity of 182MVA. | |
| Programme | Completion: - October 2027 | |
| Progress | Design: | |



| V1.0 | SPT-RI-2311 - G Route Modernisation |
|------|-------------------------------------|
| | |

OVERVIEW OF WORKS

The existing G Route 132kV Devol Moor to Erskine overhead line (OHL), the route has been identified as at end of life and a result its replacement with a new 132kV OHL circuit is proposed. The replacement scheme would entail the construction of a new 132kV single circuit wood pole overhead line being Devol Moor substation and Erskine substation.

| Programme | Completion: - October 2024 |
|-----------|-----------------------------------|
| Progress | Design: • Complete |
| | Consenting: • Complete |
| | Detailed Engineering: • Complete |
| | Tendering: • Complete |
| | Construction: • Complete |
| | Commissioning/Close Out: Ongoing |



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 |



| <u>V1.2</u> | SPT-RI-2320 - ZV Route Extension to Wyseby 400kV Substation | |
|---|---|--|
| OVERVIEW OF WORKS Establish a collector substation at the existing Gresham House Dalmarnock BESS substation. | | |
| Programme | Completion: - October 2031 | |
| Progress | Design & Consenting: | |



| V1.1 | SPT-RI-2321 - Cruachan to Dalmally 275kV OHL Circuit Uprate |
|--------------|---|
| <u>V I.I</u> | or i in zozi oradonan to bannany zront onz on oan oprato |

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 |



| <u>V1.0</u> | SPT-RI-2447 - Westfield 132kV GIS Substation |
|-------------|---|
| | OVERVIEW OF WORKS w 132kV GIS substation at Westfield to replace existing AIS. This will facilitate new e area. The location of this substation is currently planned to be constructed within a free 75kV compound. |
| Programme | Completion: - April 2028 |
| Progress | Design: |



V1.3 SPT-RI-2454 - 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 | Completion: - Under Review – Provisionally November 2024 |
|-----------|--|
| Progress | Design: • Complete |
| | Consenting: |
| | Not Applicable |
| | Detailed Engineering: |
| | Complete |
| | Tendering: |
| | Complete |
| | Construction: |
| | Commenced |
| | Commissioning/Close Out: |
| | Still to be commenced |



| <u>V1.2</u> | SPT-RI-2510 - Saltcoats A GT OLP |
|-----------------------|---|
| | OVERVIEW OF WORKS |
| conditions on the sin | t Scheme (LMS) is required at Saltcoats "A" 132/33kV GSP in order to prevent overload gle transformer when the other transformer is out of service. The overload will be tripping the appropriate non-firm connections. |
| Programme | Completion: - August 2028 |
| Progress | Design: |



| <u>V1.2</u> | SPT-RI-2511 - Dalmarnock Loss of Main TORO 2511 | |
|-------------|--|--|
| | OVERVIEW OF WORKS Loss of Mains system at Dalmarnock substation to facilitate and number of new connections on the 33kV SPD side. Currently contracted TOCO's are Dalmarnock BESS battery, Rutherglen Battery and HEX044. | |
| Programme | Completion: October 2024 | |
| Progress | Design: | |



| <u>V1.2</u> | SPT-RI-2537 - Strathaven 400kV Compound Extension | |
|-------------|---|--|
| | OVERVIEW OF WORKS Extension proposed at Strathaven 400kV compound to redirect Strathaven-Wishaw circuit into a new bay. This will facilitate other TOCO works. | |
| Programme | Completion: - April 2027 | |
| Progress | Design: | |



| <u>V1.0</u> | SPT-RI-2608 - Mossmorran 132 to Halbeath Tee Uprating |
|--|---|
| OVERVIEW OF WORKS Due to generation teeing into the CP Route No.1 circuit it is required to reconductor approximately 5.7km of new 132kV HTLS "EAGLE" conductor from the generator tee-off point back to Mossmorran 132kV substation. | |
| Programme | Completion: - July 2029 |
| Progress | Design: |



| <u>V1.2</u> | SPT-RI-2621 - Redhouse Overload Protection Scheme GT1 (3) |
|-------------|--|
| | OVERVIEW OF WORKS of a load management scheme to be established at Redhouse 132/33kV GSP, to remove appropriate non-firm connections. |
| Programme | Completion: - October 2027 |
| Progress | Design: |



| <u>V1.0</u> | SPT-RI-2622 - 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 | Completion: - April 2025 | |
| Progress | Design: | |



<u>V2.1</u>

SPT-RI-2691 - Windyhill, Strathleven, Helensburgh, Sloy Load

<u>Management Scheme</u>

OVERVIEW OF WORKS

Load management scheme required here shall monitor the two double circuits out of Windyhill heading to Helensburgh/Strathleven/Sloy. This LMS shall continually measure the loadings on the following circuits making up CK and CL Routes:

| CK Route | CL Route |
|---|---|
| Windyhill to Helensburgh 132kV Circuit | Windyhill to Strathleven 132kV Circuit |
| Helensburgh to Sloy 132kV Circuit | Strathleven to Sloy 132kV Circuit |
| Windyhill to Whistlefield-Dunoon-Sloy 132kV Circuit | Windyhill to Whistlefield-Dunoon-Sloy 132kV Circuit |

| Programme | Completion: - Under Review – Provisionally July 2025 |
|-----------|--|
| Progress | Design: • Commenced |
| | Consenting: • Not Required |
| | Detailed Engineering: • Commenced |
| | Tendering: • Commenced |
| | Construction: • Under Review |
| | Commissioning/Close Out: • Under Review |
| | - Chack Noview |



V1.0

<u>SPT-RI-2709 - CE Route Reconductoring and KILW-HUER Cable</u> <u>Replacement</u>

OVERVIEW OF WORKS

The connected and contacted generation at Kilwinning 132/33kV substation has reached the level that will exceed the intact capacity of the existing 132kV OHL CE Route (KILW-HUNF-HUER). It is proposed to reconductor the OHL route with 425mm2 'Totara' AAAC @ 75°C to achieve a minimum rating of 220MVA per circuit.

In addition to the OHL works above; it is also proposed to replace the existing ~3.2km of 132kV cable between KILW-HUNF and HUNF-HUER to achieve a similar 220MVA rating per circuit.

| Programme | Completion: - August 2027 |
|-----------|---|
| Progress | Design: In progress |
| | Consenting: • Not required |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



| V1.0 | SPT-RI-2710 - BU Route OHL Reconductor |
|------|--|
| | |

OVERVIEW OF WORKS

This TORI captures the asset modernisation work that is scheduled to be carried out on the 132kV OHL BU Route which runs between KILW-HUNF-HUNE at \sim 13km. The OHL circuit will be reconductored to achieve a minimum of 220MVA per circuit (Reconductor with 425mm2 'Totara' AAAC @ 75°C).

| Programme | Completion: - [TBC] | |
|-----------|-----------------------------------|--|
| Progress | Design: • [TBC] | |
| | Consenting: • [TBC] | |
| | Detailed Engineering: • [TBC] | |
| | Tendering: • [TBC] | |
| | Construction: • [TBC] | |
| | Commissioning/Close Out: • [TBC] | |



| To accommodate | OVERVIEW OF WORKS e a generation connection in this area it is required to extend the existing busbars to the east |
|-------------------|---|
| | nodifications to the existing XZ032 terminal tower. The completion of this work will create for |
| two additional 27 | 5kV feeder bays at Ayr 275/33kV substation. |
| | |
| Programme | Completion: - 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 |



| V2.2 SPT-RI-2792 - Glenmuckloch to Lethans Collector 132kV Circuit |
|--|
|--|

OVERVIEW OF WORKS

A new 132kV double busbar bay at Glenmuckloch 132kV substation. From here a 132kV cable circuit shall be installed out to the new Lethans Collector 132kV substation where a 132kV line disconnector shall be installed alongside a 132kV busbar.

| Programme | Completion: - June 2027 |
|-----------|--|
| Progress | Design: |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • N/A Construction: |
| | Still to be commenced Commissioning/Close Out: Still to be commenced |



| V2.2 | SPT-RI-2814 - Devonside 132kV GIS Substation | | |
|--------------------|--|--|--|
| | OVEDVIEW OF WORKS | | |
| | OVERVIEW OF WORKS At Devonside 132kV it is proposed to establish a new indoor GIS Double Busbar substation The building is proposed to be sized to accommodate 14 bays. | | |
| **Needs Case Under | **Needs Case Under Review** | | |
| Programme | Completion: - Under review | | |
| Progress | Design: | | |
| | Under Review | | |
| | Consenting: | | |
| | Under review | | |
| | | | |
| | Detailed Engineering: • Under Review | | |
| | Onder Review | | |
| | Tendering: | | |
| | Under Review | | |
| | Construction: | | |
| | Under Review | | |

Commissioning/Close Out:
Under Review



| <u>V1.0</u> | SPT-RI-2815 - Denny North 275/132kV Super Grid Transformer | |
|---|--|--|
| OVERVIEW OF WORKS It is proposed to the install a new 275/132kV 240MVA Super Grid Transformer at Denny North 275/132kV substation as well as reconfiguring and uprating of the existing Denny North – Bonnybridge 132kV (CN Route high-capacity circuit. | | |
| Programme | Completion: - April 2030 | |
| Progress | Design: | |



| V2.1 | SPT-RI-2825 - Kelloe | Mains 400kV Substation |
|------|----------------------|------------------------|
| | | |

OVERVIEW OF WORKS

The works shall create a new 400kV substation named Kelloe Mains 400kV substation which shall turn in both sides of ZT Route to connect it to the SPT system. The substation shall consist of four new double busbar bays for the ZT Route circuits, a 400kV bus coupler, a 400kV bus-section circuit breaker, and a minimum of two additional 400kV bays to accommodate new connections.

| Programme | Completion: - November 2029 |
|-----------|---|
| Progress | Design: • Early design in progress. |
| | Consenting: • Still to commence |
| | Detailed Engineering: • Still to commence |
| | Tendering: • Still to commence |
| | Construction: |
| | Still to Commence Commissioning/Close Out: |
| | Still to commence |



V1.0

SPT-RI-2826 - Hagshaw Tee to Bankend Rig III Collector Substation

OVERVIEW OF WORKS

Install a new 132kV trident wood pole circuit between the tee off with Hagshaw Hill Ph3 WF and the Bankend Rig III Collector Substation.

A new 132/33kV Collector Substation (Bankend Rig III Collector) is to be established with a 132/33kV 120MVA transformer.

| Programme | Completion: - April 2030 |
|-----------|---|
| Progress | Design: Initial early stages of design have commenced. |
| | Consenting: • Initial early stages of consenting have commenced. |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



| <u>V1.0</u> | SPT-RI-2827 - Redshaw to Hagshaw Tee 132kV Circuit | |
|---|--|--|
| OVERVIEW OF WORKS Construct a new 132kV double busbar bay at Redshaw 132kV substation and from here install a new 132kV cable/OHL circuit. | | |
| Programme | Completion: - April 2029 | |
| Progress | Design: | |



V2.0

SPT-RI-2828 - 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 | Completion: - Under Review – Provisionally November 2024 |
|-----------|--|
| Progress | Design: |
| | Consenting: • N/A |
| | Detailed Engineering: • Complete |
| | Tendering: • Complete |
| | Construction: • Commenced |
| | Commissioning/Close Out: • Still to be commenced |



V1.0

SPT-RI-2832 - New Hunterston East 132kV GIS Substation

OVERVIEW OF WORKS

The existing Hunterston 132kV indoor switchboard be replaced with a new GIS building which shall accommodate 11 bays of non-SF6 gas insulated switchgear bays with the following circuits:

- 2 x SGT transformer bays (SGT1 and SGT2).
- 3 x Feeder bays (Hunterston Farm1-Kilwinning, Hunterston Farm2-Saltcoats and Kilwinning-Saltcoats).
- 1 x Bus-coupler Bay.
- 1 x Bus-section Bay.
- Future provision for 4 x spare feeder bays.

| Programme | Completion: - Under Review |
|-----------|--|
| Progress | Design: Ongoing Consenting: |
| | • Ongoing |
| | Detailed Engineering: Ongoing |
| | Tendering: 132kV switchboard tender complete. Civil enabling contract award. Cable and ducting tender ongoing. Transition joint tender ongoing. SCIS system tender ongoing. GIS building/civil tender ongoing. |
| | Construction: • Not started. |
| | Commissioning/Close Out: • Not Started |



| <u>V2.0</u> | SPT-RI-2833 - Devol Moor 400kV GIS substation |
|--|---|
| OVERVIEW OF WORKS At Devol Moor 400kV it is proposed to establish a new indoor GIS Double Busbar substation. The building is proposed to be sized to accommodate 14 bays. | |
| Programme | Completion: - October 2029 |
| Progress | Design: |



| <u>V1.2</u> | SPT-RI-2905 - Mossmorran, Glenniston, Westfield, Redhouse 132kV Circuits LMS | |
|--------------------|---|--|
| The implementation | OVERVIEW OF WORKS The implementation of a load management scheme at Mossmorran 132kV substation GSP. | |
| Programme | Completion: - October 2026 | |
| Progress | Design: | |



| <u>V1.0</u> | SPT-RI-2907 - Meadowmill 400/132kV substation | |
|--|---|--|
| OVERVIEW OF WORKS A new 400/132kV substation will be established, Meadowmill 400/132kV Substation, via a tee-off with ZA route (No.2 circuit ZA001A Tower). A new 400kV disconnector circuit breaker will be installed at the new substation, along with a 360MVA 400/132kV Super grid transformer. A new 132kV busbar will be established. | | |
| Programme | Completion: - July 2026 | |
| Progress | Design: | |



| <u>V1.1</u> | SPT-RI-2963 – Branxton to Eccles Further Uprating |
|--|---|
| OVERVIEW OF WORKS In order to alleviate the overloads identified as part of the system studies conducted it is necessary to reconductor both sides of the Branxton to Eccles circuits with twin HTLS "Curlew" conductor. This conductor shall give a summer pre-fault rating on the circuit of 2590MVA. | |
| Programme | Completion: - July 2028 |
| 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 |



| <u>V1.3</u> | SPT-RI-2973 - Springfield Collector 400kV Circuit and 400/132kV SGT |
|---|---|
| OVERVIEW OF WORKS A new 400kV double busbar circuit breaker bay at Thorntonloch 400kV substation. From here a new 400kV circuit shall be installed out to the new collector substation named Springfield Collector 400/132kV substation. | |
| Programme | Completion: - October 2031 |
| Progress | Design: |



| V1.0 | SPT-RI-3002 - Harburn 400kV Substation |
|------|--|
| | |

OVERVIEW OF WORKS

To facilitate the generation connections in the area it is required to establish a new 400kV double busbar substation, indicatively named Harburn substation, in this area. The location of the SPT's new 400kV substation is currently under review, with an initial view that it will tie into the existing XJ Route (STHA-TORN / WISH-SMEA/FALL) as well as facilitate a turn in of the XM Route (Kincardine-Currie circuit) following uprating as part of the HND process.

| Design: In progress Consenting: Still to be commenced |
|--|
| |
| - Can to be commended |
| Oetailed Engineering: • Still to be commenced |
| endering: • Still to be commenced |
| Construction: • Still to be commenced |
| Commissioning/Close Out: • Still to be commenced |
| - |



<u>V1.1</u>

<u>SPT-RI-3052 - CE Route No.2 Circuit Reconductoring and HUNE-SACO-KILW Cable Replacement</u>

OVERVIEW OF WORKS

The connected and contacted generation at Kilwinning 132/33kV substation has reached the level that will exceed the intact capacity of the existing 132kV OHL CE Route (KILW-SACO-HUER). It is proposed to reconductor the OHL route with 425mm2 'Totara' AAAC @ 75°C to achieve a minimum rating of 220MVA per circuit

In addition to the OHL works above; it is also proposed to replace the existing ~3.62km of 132kV cable between KILW-HUNE to achieve a similar 220MVA rating per circuit.

| Programme | Completion: - August 2028 |
|-----------|-------------------------------------|
| Progress | Design: In progress |
| | Consenting: |
| | Not required |
| | Detailed Engineering: |
| | Still to be commenced |
| | Tendering: • Still to be commenced |
| | |
| | Construction: |
| | Still to be commenced |
| | Commissioning/Close Out: |
| | Still to be commenced |



| <u>V2.0</u> | SPT-RI-3062- Coylton to Maybole 132kV Circuit Uprating |
|-------------|--|
| | OVERVIEW OF WORKS |
| | ion into the 132kV system around Maybole uprating of the 132kV Circuit between |
| | d Kilmarnock South is required. |
| | s that make up this circuit: CD, CG, N and X Route. |
| | te is to replace the existing conductors with HTLS "Eagle" Conductors. vill be a rebuild with L7 Steel Towers with Twin UPAS Conductor System. |
| , | |
| Programme | Completion: - October 2032 |
| Progress | Design: |
| 1 Togress | 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 |
| | |



| V2.0 | SPT-RI-3063 - Coylton SGT3 and 132kV Circuit Breakers |
|------|---|
| | |

OVERVIEW OF WORKS

To facilitate generation connections and avoid overloading of the existing units a third 275/132kV 240MVA SGT is required at Coylton Substation. The installation will include extension of the 275kV Busbar, and new 275kV Circuit Breaker and Disconnector. This will be connected to the 132kV System via a cable circuit with 2 new 132kV Circuit Breakers. To limit risks associated with a 132kV Busbar fault an additional new 132kV Bus Section Circuit Breaker will also be installed.

| Programme | Completion: - October 2032 |
|-----------|----------------------------|
| 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 |



V1.0 SPT-RI-3102 - Glenglass to Cloud Hill 132kV circuit

OVERVIEW OF WORKS

A new 132kV circuit will be constructed between the Glenglass 132kV substation and the new Cloud Hill 132kV collector substation. At Glenglass 132kV substation, install a new 132kV feeder bay and associated DBB switchgear (circuit breaker, line isolator and DBB disconnector). From here install a new 132kV circuit will be laid to the Cloud Hill 132kV collector substation.

| Programme | Completion: - October 2028 |
|-----------|---|
| Progress | Design: • Commenced |
| | Consenting • Commenced |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close out: • Still to be commenced |



| <u>V1.0</u> | SPT-RI-3122 – Glenlee to Tongland OHL tower & associated works |
|--|--|
| OVERVIEW OF WORKS To accommodate a generation connection in this area it is required to construct a new tension tower on the Glenlee – Tongland 132kV No.1 circuit (post completion of SPT-RI-222). This new tower will facilitate a tee off connection for a new 132kV OHL to be constructed out to the User's substation. | |
| Programme | Completion: - June 2030 |
| Progress | Design: |



| SPT-RI-3148 - Branxton BESS Collector Substation | | |
|--|--|--|
| OVERVIEW OF WORKS | | |
| Establish a new shared collector substation. Install a new 400kV GIS bay at Branxton substation to accommodate the connection of two battery storage connections. From here a new 400kV circuit shall be installed out to the new shared substation indicatively named Branxton BESS 400/132kV Collector substation. | | |
| Completion: - Under Review – Provisionally May 2029 | | |
| Design: | | |
| Commenced | | |
| Conconting | | |
| Consenting: • Commenced | | |
| Commenced | | |
| Detailed Engineering: | | |
| Still to be commenced | | |
| Tendering: | | |
| Still to be commenced | | |
| Construction: | | |
| Still to be commenced | | |
| Commissioning/Close out: • Still to be commenced | | |
| | | |



V1.2 SPT-RI-3185 - KILW-HUNF-HUNE No.2 Cable Replacement

OVERVIEW OF WORKS

The connected and contacted generation at Kilwinning 132/33kV substation has reached the level that will exceed the intact capacity of the existing 132kV no.2 cable circuit from KILW-HUNF-HUNE. It is proposed to replace the existing ~3.2km of 132kV cable between KILW-HUNE to achieve a similar 220MVA rating per circuit as the future BU Route.

| Programme | Completion: - May 2028 |
|-----------|---|
| Progress | Design: In progress |
| | Consenting: • Not required |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: • Still to be commenced |
| | Commissioning/Close Out: • Still to be commenced |



| <u>V1.3</u> | SPT-RI-3189 - Clyde South to Whitelaw Brae 33kV Works | | |
|-------------------|--|--|--|
| Establish a share | OVERVIEW OF WORKS Establish a shared 33kV circuit from Clyde South substation to the Whitelaw Brae substation. | | |
| Programme | Completion: - July 2026 | | |
| Progress | Design: | | |
| | Detailed Engineering: • Concluded | | |
| | Tendering: • All associated contracts now awarded to successful vendors for the below scopes: i) OHL (Over Head Lines) ii) HDD (Horizontal Directional Drill) iii) Cable Civils iv) Cable Install v) Deforestation | | |
| | Construction: • Still to commence: On Schedule | | |
| | Commissioning/Close Out: • Still to commence: On Schedule | | |



| V1.0 | SPT-RI-3232 – Bankhead 400kV substation and 400kV OHL works |
|----------|---|
| <u> </u> | |

OVERVIEW OF WORKS

To facilitate the connection of a battery storage site a new 400kV substation will be established and associated 400kV OHL works completed to facilitate a connection which will loop into one side of the existing ZA 400kV OHL Route.

| Completion: - June 2029 |
|---|
| 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 |
| |



| <u>V1.1</u> | SPT-RI-3239 - BU Route Tower Modifications |
|--|--|
| | OVERVIEW OF WORKS |
| In order to accommodate a generation connection in this area it is required to construct a new tower provisionally named BU015A on the existing BU Route. The completion of this work will provide a double tee connection into the existing BU Route. | |
| Programme | Completion: - October 2029 |
| Progress | Design: |
| | Commissioning/Close Out: |

• Still to be commenced



V1.0

SPT-RI-3263 - Erskine 132kV Bus Section Circuit Breaker

OVERVIEW OF WORKS

Inspection of the Braehead Park to Erskine No.1 (BRAP-ERSK No.1) circuit has revealed that the 132kV cables are fully exposed across the Black Cart and White Cart rivers. These cables were originally installed in 1944 and, as shown in the available as-built records, were covered by concrete bags for protection. Over the last 75 years these concrete bags have eroded/disintegrated, and the cables are now exposed on the river beds.

The scope of work is to remove the BRAP-ERSK No.1 circuit from service and decommission and remove the disused cables. This will require the network to be reconfigured by installing a 132kV bus section circuit breaker at Erskine 132kV substation to split the existing Devol Moor-Erskine-Braehead Park circuit into a Devol Moor-Erskine and Erskine-Braehead Park circuit.

| Programme | Completion: - Under Review |
|-----------|----------------------------|
| Progress | Design: In progress. |
| | Consenting: |
| | • N/A. |
| | Detailed Engineering: |
| | Still to commence. |
| | Tendering: |
| | Still to commence. |
| | Construction: |
| | Still to commence. |
| | Commissioning/Close Out: |
| | Still to commence. |
| | |



V2.3 SPT-RI-3314 - Windyhill 132kV B Board

OVERVIEW OF WORKS

Establish a new Windyhill 132kV B substation within Windyhill substation. Once the new Windyhill B board has been established, the switchboard will be fed via two 400/132kV SGT's. A 132kV bus section will be installed with corresponding disconnectors on the reserve busbar, a 132kV bus coupler and four 132kV feeder bays will also be installed. Two bays will be used to connect the 400/132kV SGT's with the remaining four bays used to transfer across the CL and CK circuits from the existing Windyhill 132kV switchboard. Two new 400kV DBB GIS feeder bays with associated switchgear (circuit breaker and DBB disconnectors) will be installed at Windyhill 400kV to connect the new 400/132kV 360MVA Super Grid Transformer. The new Windyhill B board will be subject to the completion of SPT-RI-2085. Once the Windyhill 'B' board has been established, close circuit breaker 1080 on the 132kV side of SGT3 at Windyhill substation which was kept as NOP under SPT-RI-2148 and retire the Auto-Close Scheme.

| Programme | Completion: - May 2031 |
|-----------|--|
| Progress | Design & Consenting: • Commenced |
| | Detailed Engineering: • Still to be commenced |
| | Tendering: • Still to be commenced |
| | Construction: |



| <u>V1.3</u> | SPT-RI-3321 – Coalburn – Coalburn North Interconnector | |
|-------------|---|--|
| | OVERVIEW OF WORKS To accommodate a customer connection into Coalburn North 400kV substation, it is proposed to install a new interconnector circuit between Coalburn 400kV substation and Coalburn North 400kV substation. | |
| Programme | Completion: - October 2031 | |
| Progress | Design: Initial design for interconnector circuit between Coalburn and Coalburn North substation still to commence | |
| | Consenting: Still to be commenced for interconnector circuit between Coalburn and Coalburn North substation | |
| | Detailed Engineering: Still to be commenced for interconnector circuit between Coalburn and Coalburn North | |
| | Tendering: • Still to be commenced | |
| | Construction: • Still to be commenced | |
| | Commissioning/Close Out: • Still to be commenced | |



V1.0

SPT-RI-3345 - Torness-Innerwick-Dunbar 132kV Cable Replacement

OVERVIEW OF WORKS

Under this scheme it is required to replace the two sections of cable on this circuit (Torness to Innerwick and Innerwick to Dunbar) with new 800mm2 AL XLPE. To ensure no thermal dependency is created, like the existing circuits, this double circuit should be laid is separate trenches or at least a sufficient distance apart in the same trench that no thermal interaction is created.

| Programme | Completion: - March 2028 |
|-----------|---|
| Progress | Design: Initial design to commence Q4 2024 |
| | Consenting: |
| | Still to commence |
| | Detailed Engineering: |
| | Still to commence |
| | Tendering: |
| | Still to commence |
| | Construction: |
| | Still to commence |
| | Commissioning/Close Out: |
| | Still to commence |
| | |



| <u>V1.2</u> | SPT-RI-3406 Blacklaw 400kV Collector Substation |
|--|---|
| OVERVIEW OF WORKS To establish a new 400kV collector substation, fed from Wishaw 400kV substation via a single 400kV circuit. The collector substation is to be named Blacklaw 400kV collector substation. The project involves establishing a new 400kV bay at Wishaw 400kV GIS substation, installing approx. 300m of 400kV UGC to the Blacklaw 400kV collector site. | |
| Programme | Completion: - October 2030 |
| Progress | Design: |



V1.2

SPT-RI-3489 - Giffordland 400/132kV DBB Substation and OHL Works

OVERVIEW OF WORKS

Creation of a new 400/132kV substation around the Giffordland area is proposed to be established on a new portion of land under SPT-RI-3489.

The new 132/400kV substation is proposed to connect through the turn in of CE route circuits and at the moment is notionally an 8 bay 132/400kV substation.

| Programme | Completion: - 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 |



| <u>V2.1</u> | SPT-RI-3533 Maybole to Craginmoddie Tee 132kV OHL | | |
|---------------------|--|--|--|
| 132kV Substation ar | OVERVIEW OF WORKS To co-ordinate generation connections in the area a new 132kV Overhead Line is required between Maybole 132kV Substation and to a Tee location approx. 5km south of Maybole 132kV Substation. The installation of a new 132kV feeder bay at Maybole 132kV Substation is required to facilitate the OHL Connection | | |
| Programme | Completion: - October 2032 | | |
| Progress | Design: | | |



| V1.1 SPT-RI-3534 – Braehead Park Switchgear and YB Route Works |
|--|
|--|

OVERVIEW OF WORKS

As part of a group of reinforcements to accommodate new generation and battery storage connections in the Neilston/Devol Moor 132kV group it is proposed to reconfigure the 132kV circuits around Govan and Braehead Park such that Govan (and Haggs Road) are fed radially from Braehead Park.

The works will also include uprating of the 132kV cable circuits between Braehead Park and Govan.

| Programme | Completion: - October 2031 | |
|-----------|----------------------------|--|
| Progress | Design: | |
| J | 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 | |



V1.0

SPT-RI-3547 - Redshaw 132kV to Glentaggart/Hare Craig

OVERVIEW OF WORKS

It is proposed to connect Glentaggart 42MW BESS and Hare Craig WF into Redshaw 132kV GIS substation ('A' board) via a shared solution. The shared assets proposed for this solution are covered under this TORI, which entail the following works:

- Installation of a new 132kV double busbar bay and associated circuit breaker at Redshaw 132kV GIS ('A' board).
- Installation of a new 132/33kV 120MVA GT unit at Redshaw 132kV GIS ('A' board).
- Installation of a 33kV circuit breaker associated with the 3 panel switchboard.

| Programme | Completion: - October 2027 |
|-----------|---|
| Progress | Design: Ongoing |
| | 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 |
| | |



| 1.0 | SPT-RI-3565 Devol Moor – Auchentiber 400kV OHL and substation works | |
|---|---|--|
| OVERVIEW OF WORKS To accommodate new generation connection at Devol Moor 400kV substation, a shared solution has been identified following offers acceptance. This will establish a new 400kV double busbar GIS bay at the proposed Devol Moor 400kV substation, with the installation of approx. 1.5km of 400kV overhead line to the new collector substation, where a 400kV CB, associated disconnectors and a 400kV busbar will be installed. | | |
| Programme | Completion: - October 2029 | |
| Progress | Design: | |



V1.1

SPT-RI-3660 - Eccles 132kV Fault Level Mitigation

OVERVIEW OF WORKS

To facilitate new battery and generation connections within the future Eccles/Gala North 132kV group the short circuit rating of Eccles 132kV is required to increase from the existing 3-phase design standard of 20kA RMS/50kA peak to no less than 25kA RMS/62.5kA peak. The peak break of all 132kV switchgear should be rated no less than 46.36kA

This will include the assessment and uprating where necessary of all equipment and structures to withstand the required fault current.

| Programme | Completion: - July 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 |



V1.0

SPT-RI-3661 - Grange Burn 275kV Substation

OVERVIEW OF WORKS

To accommodate connections in the Grangemouth area it is required to establish a new 275kV substation, indicatively named Grange Burn 275kV substation, that will provide connectivity options for local connections as well as tie into the surrounding overhead line circuits.

The scope of works shall include turn ins of the existing XN and XK overhead line circuits as well as the creation of a new 275kV double busbar Gas Insulated Switchgear (GIS) substation that will also feature a 400/275kV supergrid transformer (SGT) given that one circuit shall be operated at 400kV in future.

| Design: • Still to be commenced Consenting: |
|---|
| 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 |
| |



| <u>V1.3</u> | SPT-RI-3736 - Coldstream 132kV Collector Substation | | | |
|-----------------------|--|--|--|--|
| | OVERVIEW OF WORKS | | | |
| A new 132kV collector | or substation is proposed to accommodate new generator and BESS connections near | | | |
| | ne indicatively named Coldstream 132kV Collector Substation is proposed to be | | | |
| | existing Eccles 132kV substation to provide a shared connection solution for several | | | |
| connections within th | connections within the area. | | | |
| Programme | Completion: - July 2030 | | | |
| Progress | Design: | | | |
| | Still to be commenced | | | |
| | Concenting | | | |
| | Consenting: • Still to be commenced | | | |
| | Suil 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 | | | |